



**RISK ASSESSMENT IN CHILD WELFARE PRACTICE:  
AN EMPIRICALLY-BASED ANALYSIS.**

**BY**

**GRANT REID**

**A Dissertation  
Submitted to the Faculty of Graduate Studies  
in Partial Fulfillment of the Requirements for the Degree of**

**DOCTOR OF PHILOSOPHY**

**Department of Sociology  
University of Manitoba  
Winnipeg, Manitoba**

**© Grant Reid, December, 1996**



**National Library  
of Canada**

**Acquisitions and  
Bibliographic Services**

**395 Wellington Street  
Ottawa ON K1A 0N4  
Canada**

**Bibliothèque nationale  
du Canada**

**Acquisitions et  
services bibliographiques**

**395, rue Wellington  
Ottawa ON K1A 0N4  
Canada**

*Your file Votre référence*

*Our file Notre référence*

**The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.**

**The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.**

**L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.**

**L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.**

**0-612-23654-4**

---

**THE UNIVERSITY OF MANITOBA  
FACULTY OF GRADUATE STUDIES  
COPYRIGHT PERMISSION**

**RISK ASSESSMENT IN CHILD WELFARE PRACTICE:  
AN EMPIRICALLY-BASED ANALYSIS**

**BY**

**GRANT REID**

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of the University of Manitoba in partial  
fulfillment of the requirements for the degree of**

**DOCTOR OF PHILOSOPHY**

**Grant Reid © 1996**

**Permission has been granted to the LIBRARY OF THE UNIVERSITY OF MANITOBA to lend or sell copies  
of this thesis/practicum, to the NATIONAL LIBRARY OF CANADA to microfilm this thesis/practicum and  
to lend or sell copies of the film, and to UNIVERSITY MICROFILMS INC. to publish an abstract of this  
thesis/practicum..**

**This reproduction or copy of this thesis has been made available by authority of the copyright owner solely  
for the purpose of private study and research, and may only be reproduced and copied as permitted by  
copyright laws or with express written authorization from the copyright owner.**



**TABLE OF CONTENTS**

<b>TITLE PAGE</b>	<b>1</b>
<b>TABLE OF CONTENTS</b>	<b>ii</b>
<b>ABSTRACT</b>	<b>iii</b>
<b>ACKNOWLEDGMENTS</b>	<b>iv</b>
<b>ETHICS COMMITTEES APPROVAL FORMS</b>	<b>v</b>
<b>INTRODUCTION</b>	<b>1</b>
<b>PREDICTION, RISK ASSESSMENT AND EXPLANATION</b>	<b>18</b>
<b>RISK ASSESSMENT AND CHILD MALTREATMENT</b>	<b>32</b>
<b>RESEARCH DESIGN</b>	<b>73</b>
<b>THE DATA SET</b>	<b>99</b>
<b>TYOLOGIES</b>	<b>127</b>
<b>Maltreatment Types</b>	<b>133</b>
<b>Family Types</b>	<b>168</b>
<b>Factor Analysis</b>	<b>193</b>
<b>PREDICTING THE SEVERITY OF CHILD MALTREATMENT</b>	<b>206</b>
<b>Dichotomous Outcome Variable</b>	<b>206</b>
<b>Regression Analyses</b>	<b>214</b>
<b>CONCLUSION</b>	<b>223</b>
<b>BIBLIOGRAPHY</b>	<b>250</b>
<b>APPENDIX A The Manitoba Risk Assessment System</b>	<b>269</b>
<b>APPENDIX B Missing Data By Maltreatment Type</b>	<b>313</b>
<b>APPENDIX C Comparisons of rater-scored, and staff-scored, cases</b>	<b>324</b>
<b>APPENDIX D Bivariate Comparisons of Maltreatment Types</b>	<b>328</b>
<b>APPENDIX E Bivariate Comparisons of Family Types</b>	<b>347</b>
<b>APPENDIX F Comparisons of Family Types I &amp; III</b>	<b>367</b>
<b>APPENDIX G Comparisons of Family Types I &amp; II</b>	<b>372</b>
<b>APPENDIX H Comparisons of Ages of Adults &amp; Children</b>	<b>386</b>
<b>APPENDIX I Regression Analyses - Maltreatment Typologies</b>	<b>418</b>
<b>APPENDIX J Factor Analysis - Maltreatment Typologies</b>	<b>424</b>
<b>APPENDIX K Bivariate Comparisons of High and Low Severity Cases</b>	<b>435</b>
<b>APPENDIX L Bivariate Comparisons of High and Low Severity Cases-Neglect</b>	<b>452</b>
<b>APPENDIX M Bivariate Comparisons of High and Low Severity Cases-Physical Abuse</b>	<b>469</b>
<b>APPENDIX N Regression Analyses - Prediction of Severity.</b>	<b>486</b>

## ABSTRACT

**This dissertation focuses on the problem of assessing the risk of harm to children from child maltreatment involving overt acts or the omission of appropriate care on the part of their caregivers. Data collected in 1994 from three Canadian child protection agencies in Winnipeg, Manitoba; Thunder Bay, Ontario; and Ottawa, Ontario; and rater-scored, closed case files from Winnipeg, Manitoba; are analyzed to construct significant case profiles. Logistic regression analysis is used to specify which variables are relevant to predicting the severity of the current maltreatment incident from information concerning the demographic characteristics of the adult perpetrator and the child victim, the adults' maltreatment patterns, and variables which describe attitudinal and behavioral characteristics of these adults. Given the limitations which exist concerning the quality of these data, this study is not conclusive but may be useful as a means of specifying guidelines for risk assessment practices within child protection services. Parsimony, and the use of data which can be accurately assessed without the participation of the clients, are of particular importance. The results of this work may also be relevant to the problems of designing further research in this subject area.**

## ACKNOWLEDGMENTS

Many thanks to my committee members: Dr. D. Albas, Dr. D. Baumann, Dr. P. Kaufert, and Dr. E. Linden. Their thoroughness and attention to detail have greatly improved this dissertation.

Particular thanks are due to my Advisor, Dr. R. Kueneman, for his knowledge, support and kindness. This work has greatly benefited from his criticism, and his enthusiasm has made this task much more palatable than would have otherwise been the case.

The Manitoba Risk Estimation System has been developed jointly with my friend and colleague, Dr. Eric Sigurdson. Our partnership continues to be a delight, both personally and professionally. In addition, I am grateful for the many contributions Jan Christianson-Wood and Alexandra Wright have made to this study.

Without the active participation of the Boards and staff members of the participating agencies this work would not have been possible. I would like to express my appreciation to The Children's Aid Society of Ottawa-Carleton, The Thunder Bay Children's Aid Society, The Winnipeg Child and Family Services Agency, and The Child and Family Services Agency of Western Manitoba.

This study was funded by the Winnipeg Foundation, the Family Violence Prevention Division of Health Canada, and the Thomas Sills Foundation and would not have been possible without their support.

Finally, and most importantly, my gratitude to Charlotte and Tim for putting up with my preoccupation with this work. This dissertation, like all else in my life, has been a joint project. Thanks.



THE UNIVERSITY OF MANITOBA

DEPARTMENT OF SOCIOLOGY

Winnipeg, Manitoba  
Canada R3T 2N2

Tel: (204) 474-9260  
Fax: (204) 261-1216

June 26, 1996

Professor Grant Reid  
School of Social Work  
418A Tier Building  
University of Manitoba

Dear Professor Reid:

On the basis of an examination of the documents listed below, it appears that all of the research activities in your doctoral dissertation project for the Department of Sociology have been reviewed and approved by the CRIHS committee in the Faculty of Medicine in 1992. Consequently, a review of your project by the Department of Sociology ERC is waived.

Documents examined:

- (1) Grant Reid 1996 doctoral dissertation proposal, 'Risk Assessment in Child Welfare Practice: An Empirically Based Analysis.'
- (2) Reid and Sigurdson research proposal to Health and Welfare Canada, 'Risk Estimation in the Context of Child Abuse and Neglect - 3 year project' (original March 1992 and revised September 1992).
- (3) Correspondence, informed consent forms, introductory statement for project, September 14 letter to G. Phaneuf, and letter of ethical approval of the project entitled 'Risk estimation in the context of child abuse/neglect - 3 year project' by the Medical Faculty Committee on the Use of Human Subjects in Research, reference number E92:229.

Good luck with your project.

*K.W. Taylor / as per K. Olafson*

K.W. Taylor  
Chair, Ethical Review Committee

c.c. Rod Kueneman

**ETHICS APPROVAL FORM**

**FACULTY OF SOCIAL WORK  
UNIVERSITY OF MANITOBA**

**FACULTY OF SOCIAL WORK COMMITTEE ON THE USE OF HUMAN  
SUBJECTS IN RESEARCH**

NAME: GRANT REID

DATE: June 16, 1992

YOUR PROJECT ENTITLED: **RISK ESTIMATION IN THE CONTEXT OF CHILD ABUSE  
AND NEGLECT.**

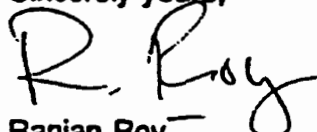
HAS BEEN APPROVED BY THE COMMITTEE ON: **April 4, 1992**

**COMMITTEE PROVISOS OR LIMITATIONS:**

You will be asked at intervals for a status report. Any significant changes of the protocol should be reported to the Chairman for the Committee's consideration, in advance of implementation of such changes.

\*\* This approval is for the ethics of human use only. For the logistics of performing the study, approval should be sought from the relevant institution, if required.

Sincerely yours,



Ranjan Roy  
Professor & Chairman  
Faculty Committee on the Use of  
Human Subjects in Research

UNIVERSITY OF MANITOBA  
FACULTY COMMITTEE ON THE USE OF HUMAN SUBJECTS IN RESEARCH

NAME: Dr. Eric Sigurdson

OUR REFERENCE: E92:229

DATE: December 14, 1992

YOUR PROJECT ENTITLED:

Risk Estimation in the Context of Child Abuse/Neglect - 3 Year Project.

HAS BEEN APPROVED BY THE COMMITTEE AT THEIR MEETING OF:

Approved by Dr. Gordon Grahame on December 15, 1992.

COMMITTEE PROVISOS OR LIMITATIONS:

Approved as per your letter dated December 7, 1992.

You may be asked at intervals for a status report. Any significant changes of the protocol should be reported to the Chairman for the Committee's consideration, in advance of implementation of such changes.

\*\*This is for the ethics of human use only. For the logistics of performing the study, approval should be sought from the relevant institution, if required.

Sincerely yours,



Gordon R. Grahame, M.D.,  
Chairman,  
Faculty Committee on the Use of  
Human Subjects in Research.

GRG/11

TELEPHONE ENQUIRIES:  
788-6255 - Lorraine Lester

## INTRODUCTION

The primary question which focuses this dissertation is an examination of the knowledge basis for the risk assessment procedures which are utilized within child welfare practice. Decisions are made daily by child welfare workers concerning whether or not to intervene in families where child maltreatment has occurred. While not being the only significant consideration, a major factor that influences these decisions is a judgment with respect to the nature of the risk that confronts a specific child in a specific situation. As will be seen, the evidence that supports these decisions is somewhat problematic.

In Chapter 2, the particular problem, risk assessment in child welfare work, is considered in relation to the questions of prediction and explanation as fundamental functions of science. The problem of meaning is seen to be central to these issues, and the variables which are the most meaningful to practitioners, those which have the greatest explanatory value, are the least amenable to precise measurement.

There is an expectation that decisions concerning the welfare of children be based upon "the best interests of the child", and this requirement presumes that it is possible to predict which decision will maximize the likelihood of this outcome for a particular child. Consequently, there has been a considerable growth in recent years of literature concerning child maltreatment risk assessment. There is divergence within this material, generally described as a dispute between actuarial and consensus models, which parallels the fundamental

themes of prediction and explanation. This dispute is explored, and the evidence that has been brought to bear on these questions is evaluated, in Chapter 3.

The core of this research consists of an analysis of a data set consisting of descriptions of 955 child maltreatment cases collected from three Canadian child welfare agencies in Ottawa, Ontario; Thunder Bay, Ontario; and Winnipeg, Manitoba. The particulars of the research approach are presented in Chapter 4, and Chapter 5 assesses the limitations of the data set.

The cases are described by demographic information concerning the perpetrating adult, and the child; as well as a set of variables that assess differing personal and behavioral characteristics of the adult. These data are examined, in Chapter 6, in order to identify characteristics which are associated with differing types of maltreatment and different types of families. Lastly, in Chapter 7, the research explores whether particular variables, and combinations of variables, are able to distinguish between maltreatment incidents which are very severe, and those incidents which are scored at the lower levels of severity.

The conclusion, Chapter 8, synthesizes the results of this study, including the implications concerning procedures for assessing risk in child welfare organizations. These findings are placed in the context of the evolution of the risk assessment literature, and suggestions are made concerning future research directions which may be productive.

Contemporary interest in risk assessment in the field of child welfare practice has resulted from the conjunction of two factors: a widely



shared wish for the state to intervene more effectively within problematic families in order to ameliorate and prevent instances of child maltreatment, and a desire on the part of government to reduce expenditures. The latter was a part of the general ideological campaign aimed at reducing both the magnitude and the scope of the state. These somewhat divergent interests have resulted in this field of study being simultaneously concerned with efficiency and with matters of fundamental human rights. The resultant difficulty with respect to interpretation that is displayed by child welfare risk assessment research is substantially reduced and the results rendered more comprehensible when this fundamental contradiction is taken into account.

The primary application of this work has been to judge the potential for harm to a child in a particular situation. This information is then used by a child welfare worker as a basis for determining what action is appropriate in order to achieve the purpose of protecting the child. Each decision is the product of a judgment concerning the interaction between a complex set of criteria which may well be mutually contradictory. The most significant of these are:

1. The risk of harm to the child.
2. The legal rights of the parents.
3. The wish to preserve the natural family unit.
4. The risks associated with alternate placements.
5. The desire to minimize expenditures.

The current study is an attempt to empirically examine the belief that we are able to rationally construct these decisions. In recent years the law concerning the basis for the state's intervention with respect to parental rights has changed from a focus on the maltreatment incident to a concern with the 'best interests of the child'. The latter formulation presumes that we are able to predict future events in the child's life, most significantly that of the probability of the caregiver perpetrating future significant harm against the child or their being unable to adequately protect and care for the child. As Wald and Woolverton persuasively argued in 1990, the legal requirements for child protection staff to carry out this analysis greatly exceeded the scientific basis for such a determination and the empirical evidence concerning the validity of risk assessment procedures was virtually non-existent.

Despite the promise, we believe that risk-assessment instruments have only limited utility at present. Many agencies have acted prematurely, implementing risk-assessment instruments that have not been adequately designed or researched. It is not possible to make highly accurate predictions of risk with existing instruments. Unfortunately some child protection services (CPS) agencies appear to be using risk-assessment instruments in an unjustifiable manner, given the limited knowledge base regarding the validity of these instruments. Moreover, we are concerned that many agencies are adopting risk-assessment instruments in lieu of addressing

fundamental problems in existing child protection systems, such as the excessive number of inexperienced or incompetent workers and the lack of adequate resources. In fact, use of inadequately designed or researched risk-assessment instruments may result in poorer decisions, because workers will rely on mechanical rules and procedures instead of trying to develop greater clinical expertise. (Wald & Woolverton, 1990, p. 484)

This study began with 2,866 child protection files which described instances of child maltreatment. When the data files were scrutinized for missing information many cases were removed from the analysis, and the final data set is composed of 955 cases of confirmed child maltreatment. This research investigates six related questions:

1. Is it possible to construct meaningful profiles of differing maltreatment typologies?
2. Can the probable severity of a future instance of child maltreatment be accurately predicted?
3. What guidelines for risk assessment decision-making within child protection work are suggested by the results of this research?

The theory of risk assessment is examined as well as general theory concerning the prediction of human behaviour. Particular attention is devoted to the debate concerning the comparative merits of clinical and actuarial methods of assessing risk and the roots of this dispute are

traced to fundamental issues of scientific understanding. There is a great deal of resistance on the part of child welfare practitioners to the notion that one can mechanically predict human behaviour. This resistance stems from a number of sources, including resistance to the objectifying of human beings that is understood to be inherent to mathematical procedures, a need to reinforce the practitioner's self-image as possessing insights and abilities that cannot be reduced to formulae, and a general skepticism concerning the utility of social research. Nonetheless, the evidence concerning the superiority of actuarial methods is highly persuasive. (Dawes, Faust & Meehl, 1989).

It is difficult to state with certainty the nature of the current knowledge system which serves as a basis for child welfare decision-making. The reasons given by staff for their opinions are often idiosyncratic and vary by location and over time. In consequence, the decisions which are made concerning the state's interventions in families through child welfare procedures are more a function of the characteristics of the individual social worker and the local child welfare culture than they are of an understanding of the family which is premised upon specific and explicit scientific knowledge. (Sigurdson & Reid, 1990)

Much current research, including this dissertation, attempts to refine the conceptual basis of this field of inquiry and to generate reasonable working hypotheses which have an empirical as well as a theoretical basis, however tentative these conclusions may be. Such hypotheses can provide a framework for current practice and also serve as a heuristic

foundation for future research. As social structures change and as the contents of cultures are transformed the predictors of child maltreatment will be modified. In order to generate viable scientific ~~scema~~ <sup>schemata</sup> with respect to the prediction of child maltreatment it is necessary to proceed through the intermediate steps represented by this research. Any eventual answers which are discovered will not be final but will be subject to revision as societies and their belief systems change over time.

### History and Context of the Research

In 1986, the author and Dr. Eric Sigurdson, a Winnipeg family medicine practitioner and psychiatrist, were asked by the Manitoba Government to review the Winnipeg, Manitoba, system of services for abused children after six infants who had been involved with the Winnipeg child welfare system died violently within a very short period of time. This review entailed interviews with a great many people who were involved with these systems as professionals, clients and volunteers, and resulted in fifty-five recommendations for changes, including the suggestion that the Province require systematic and rigorous risk assessment procedures to be followed in all casework situations. A rudimentary child abuse risk index was developed as a part of this work and it was recommended that this device be put into use in Manitoba as a means of improving child protection practice and as a means of framing the discussion of this issue. (Sigurdson, Reid, Onysko, Rodgers, Prefontaine, 1987, pp. 296-321)

While the Review Team is aware of the inherent technical problems, an index measuring risk could be a useful tool in providing commonality in assessing children in potentially abusive situations. Although it must be acknowledged that an index can never be comprehensive enough to identify all the complexities and subtleties within abuse cases, it can at least provide a coherent starting point into the effective review and conduct of such cases. (Sigurdson et al., 1987, pp. 296-297)

A subsequent review of the Northwest Winnipeg Child and Family Services Agency by the author and other reviewers also lead to the same conclusion. (Reid, Hill, Onysko, Sigurdson, Swift, 1987) It was evident that risk assessment practices were idiosyncratic to individual workers and that there were serious deficiencies. These problems were clearly linked to the system's impaired ability to prevent child deaths and to curtail unnecessary child maltreatment. While there were a great many problems evident within the Winnipeg service structure it was clear that an improved capacity to objectively assess risk was fundamental to any possible improvements in this system.

Risk assessment is a strategically critical issue within child protection work. If the view is taken that all opinions are equal and that each worker possesses a conception of a client family which is valid in comparison to all other opinions, the possibility of objective standards of practice is effectively abandoned. The question of risk, while only one of

a great many issues to be considered, is critical to most child protection decisions. At each decision-point in the casework process a conclusion must be reached concerning the appropriate outcome for a child and their family. The precise identification of threats to this child, and the analysis of differing threats and benefits which are the results of enacting different options, are critical to the future well-being of the child and their family. It is evident that these decisions should be made in accordance with the law and based upon comprehensive factual information. There is also an implication that the method-in-use for reaching this decision is objective and not unique to the worker. The decision that is reached should be a consequence of the conditions of the child's life and their probable future effects upon the child, in addition, the decision should be a consequence of these facts, as selected and defined by the law, not premised upon the particular values or information processing techniques of the worker that they encounter. The absence of a publicly sanctioned risk assessment system represents an acceptance of arbitrary subjectivity as a basis for child welfare decision-making.

Risk assessment is also important within the labour relations context which prevails for child welfare systems. In the absence of functional standards for performance and decision-making the worker is at the mercy of fortune and the media. While calamities are possible at any point in time with a child protection case the extreme examples, such as the murder of a child are fortunately very rare events. Thus it is improbable that a worker will be involved with one of these cases on a

particular day. However, the fear of such an event remains a primary issue which contributes to the definition of the role of the worker.

When such an event occurs it receives public attention in proportion to the extent that it is 'media-worthy'. When the worker's decisions are reviewed *ex post facto* there is a tendency to perceive the negative outcome as inevitable given the facts of the case, and the worker will generally be viewed as incompetent. (Alaszewski & Manthorpe, 1991, pp. 278-279) The absence of government-sanctioned risk assessment procedures devolves the social responsibility for these decisions to the individual child protection workers involved, and without a system premised on clear standards and procedures any decision can be effectively criticized. However, if risk assessment procedures are defined as a matter of public policy the worker can defend themselves by demonstrating that they have followed the pre-defined, required steps. (Sigurdson, et al., 1987) One would expect that such a change in role definition would result in a general change in the perceptions of their work lives held by child protection staff.

It is also of note that child protection workers also have substantial material and psychological interests involved in viewing the interactions in ways that are important to their own self-images. There is a natural need for them to perceive their work as significant and to feel that they have acted properly. One would expect that the highly emotionally charged nature of the work would maximize the distortion of the perception of events by all participants.



The research data for this study, concerning risk assessment work in child protection systems and based upon the MRES, were secured through the participation of child protection workers and these data must be understood as mediated through the workers' attempts to maintain viable identities within the specific role systems and structures of their workplaces. An insistence on this issue does not comprise a retreat into subjectivity but rather a recognition that the nature of human knowledge necessarily requires us to interpret the information we receive in the context of the social situation from which it arises.

In 1988, as a consequence of the two reviews and continuing problems with respect to child maltreatment in Manitoba, the author and Dr. Sigurdson were asked by the Government of Manitoba to develop a risk assessment system for use in the Manitoba child welfare system. The initial approaches taken were to conduct a broad review of the literature, and to secure comprehensive interviews with experienced child protection workers in Manitoba. The former could be expected to provide a reasonable summary of the state of knowledge concerning this issue, and the latter would give an estimation of current practice standards within Manitoba and also provide detailed, primary data which could improve our understanding of techniques that were accepted as effective by practitioners. A comparison of the results of these two approaches were of interest as a means of clarifying the consensus basis for risk assessment practice.

Since the 1970s various jurisdictions in the United States had been carrying out risk assessment research and developing instruments for use

by practitioners. The research by Johnson & L'Esperance, and Baird, et al. had been published as well as a considerable body of related work. The American Public Welfare Association and the American Humane Association had been jointly holding annual conferences concerning both the theory and practice of child protection risk assessment since 1986 and the reports from these meetings formed the core of the literature on this topic. As these roundtables included both practitioners and researchers a particularly rich, practice-oriented body of work was created.

Our initial research involved a thorough examination of most child maltreatment risk assessment systems in use in North America and particular attention was paid to those from Florida; Hennepin County, Minnesota; Alaska; Illinois; Utah; Vermont; and Kenora, Ontario. Detailed analysis was also devoted to the Child Well-Being Scales developed by Magura and Moses; the ACTION for Child Protection's Child At Risk Field System; and Cyril Greenland's work on child deaths. A field visit was made to Alaska in order to interview workers who were using the system developed by Baird, et al. and to gather opinions from system managers.

A series of individual interviews with practitioners throughout Manitoba and two subsequent focus groups involving the most experienced of these child protection staff yielded a great deal of information. It became evident that there was a considerable overlap between the opinions held by practitioners in Manitoba and the contents of the various instruments. It also was evident that there were severe

problems with respect to the psychometric and sociometric properties of the instruments. In addition, the theoretical roots for both the instruments and the opinions of practitioners were obscure. If one asked why a particular question was important or what it measured the answers were often less than satisfactory. Information was treated as if its significance was self-evident and this was often not the case.

Practitioners tend to be skeptical of abstractions and they rely heavily upon the experience of other practitioners. A culture defining the practice of child welfare has developed over the years and the knowledge and perspectives peculiar to this area of work are passed on to new practitioners through a series of effective socialization methods, the most significant of which is case supervision. In this context the junior worker is presented with explanations and approved methods of dealing with case problems that have evolved over the years and are fundamental tenets of belief concerning child protection work. In its positive connotations this system retains and teaches the tenets of knowledge which have been acquired through extensive and intensive application of these techniques in a multitude of case situations a throughout the years; in a less happy light this material can become detached from explanation and, through repetition and ritual usage, attain a status of intrinsic importance. (Sigurdson & Reid, 1990, p. 25.)

From the basis of this work an attempt was made to create an improved method of risk assessment. The result, in 1990, was the creation of the first published version of the Manitoba Risk Estimation System (MRES), an instrument which took advantage of both prior research and practice knowledge, and which attempted to improve upon the sociometric and psychometric properties of the existing devices. (Sigurdson & Reid, 1990) As a part of this technical work the various questions were traced back to the fundamental concepts that they operationalized, whenever it was possible to infer the presence of the concept from the available knowledge. The stance taken was that the particular question had performed a function that child protection workers had thought to be useful, therefore it was worthwhile to attempt to find out why this was the case. The central preoccupation at this point in time was the identification of the factors which could form the basis of an actuarial method of predicting recurrence. While the present research has modified that approach, and is directed to improving our understanding of typologies of maltreatment and their characteristics, the practice wisdom concerning the causes of maltreatment forms an important part of the context for this work. This, the initial phase of the research, produced the following propositions, which were used as the basis for further development:

1. Once a person has been a perpetrator of an incident of abuse or neglect there is an increased probability that this behaviour will

---

reoccur when compared to the probability of this behaviour occurring prior to the individual becoming a perpetrator.

2. The greater the severity, frequency, or recency of abuse or neglect the greater the risk of recurrence.
3. The risk of recurrence is increased by the degree to which the functioning of the perpetrator and their partner is impaired by substance abuse or personal dysfunction.
4. If a partner is active or complicit with reference to the abuse or neglect the possibility of recurrence is enhanced. Conversely, a partner who actively opposes the abuse can lower the risk.
5. People who are violent in any context are more likely to behave in a violent manner with their children than someone who never uses violence as a means of coping with difficulties.
6. If parents perceive children as objects, or merely as extensions of themselves, there will be a higher probability of the recurrence of abuse or neglect than if the children are understood to be intrinsically valuable.
7. The greater the vulnerability of the child the greater the probability of further abuse or neglect.
8. The greater the level of dysfunction within the family, the greater the probability of further abuse or neglect.
9. The higher the level of stress experienced by the family, the greater the probability of further abuse or neglect.
10. The greater the isolation from the community, the greater the probability of further abuse or neglect.

11. The greater the support from the community for abusive or neglectful behaviour, the greater the probability of further abuse or neglect.
12. The younger the child the greater the risk for life-threatening consequences of abuse or neglect. (Sigurdson & Reid, 1991)

Following the publication of the first MRES system, the Winnipeg Foundation, the Province of Manitoba and the Province of Saskatchewan funded further development work. While the initial version had been composed of a comprehensive set of items for standard usage, and two shorter forms for emergency use in abuse and neglect situations, respectively, the next phase of development involved creating a single device which could be flexibly applied. A series of meetings were held with head office staff and supervisors from the Saskatchewan child welfare system in order to improve the abstract and operational definitions of the scale items. All of the wordings and case examples were exhaustively scrutinized in order to ensure that the language used was accurate and appropriate for the use of child protection practitioners. The divergence of language usage between practitioners and academics was pervasive and significant. Many sections had to be completely rewritten in order to ensure that the meaning was conveyed. However, it proved possible to make the language accessible to workers while retaining the original conceptual content.

The current research is an attempt to systematically examine the relevance of the MRES variables to child welfare practice. The following

chapters describe how this information can be used to begin the creation of typologies of child maltreatment which have a basis in the observed characteristics of perpetrators of child maltreatment.

## PREDICTION, RISK ASSESSMENT AND EXPLANATION

Risk assessment is a special case of the general theory which is concerned with the problem of prediction. The question of risk arises when the outcomes of a particular decision are uncertain and entail the possibility of immanent negative consequences. Within the social sciences the prediction debate has often been framed as a choice between clinical and actuarial methods. This dispute is fundamental when estimating the risk of child maltreatment and will necessarily be explored as an integral part of this analysis.

Mellor defined prediction as, "...saying in advance that something will happen: that a war (or an election) will take place, that a car will crash or a successful marriage survive. If things do so fall out, the prediction is successful; if not, not." (1981) In effect one must take information which is available in the present and by the use of a specific methodology estimate a particular future condition. The implication is also present that there is an identifiable, operationalized truth standard, or criterion variable, whereby the accuracy of one's predictions may be assessed.

The means which are utilized to draw the inference about the future may be grounded in either inductive or deductive theory or may be an attempt to reconcile the two traditional approaches. Induction, which includes the preponderance of statistical analyses, generates conclusions of varying probable degrees of accuracy from the data available. These, by definition, describe past events. Prediction based upon inductive methods, including regression analysis, presumes that the future will



resemble the past in all important respects. One cannot inductively determine whether or not this will, in fact, be the case. It is possible only to wait until the future occurs and then assess the accuracy of the prediction. Indeed, without viable theory one cannot determine which variables may be significant with respect to informing the prediction. However, the virtue of inductive approaches is that they are able to relate the research outcomes to the data in a manner which is generally understood by social scientists.

Prediction has been taken to be the *sine qua non* of scientific methodology within the deductive-nomological method. The vast hierarchy of intermeshed concepts and hypotheses that comprise our system of scientific knowledge requires, in principle, that all new items of knowledge be consistent with the corpus as a whole so that a new fact which is inconsistent with the whole is either rejected or compels the revision of the preexisting body of knowledge in order to reestablish the internal consistency. While this is clear in principle, it is difficult to achieve in practical terms. The natural sciences retain apparent inconsistencies between quantum mechanical explanations and those derived from relativity, and the social sciences are unable to achieve general agreement even on the nature of elementary concepts. Indeed, many of those active within the disciplines deny the possibility of the creation of objective knowledge in any form. (Schwandt, 1994, pp. 130-133) Part of the difficulty derives from the need to distinguish between prediction and explanation. A recent formulation of this question states that:

"According to Popper (1959) and other prominent philosophers of science, the primary function of scientific laws and theories is prediction. A theory is tested by being used to make a prediction of an observable event: the event occurs, then the theory is confirmed or corroborated; if the predicted event fails to be observed, then the theory is disconfirmed or falsified. Now, prediction is indeed important in science, but its role must be carefully appreciated. Often what is wanted is not merely prediction, but *explanation*...

Thus scientific explanation of particular events, like the more everyday sort of explanation, involves locating a phenomenon within a model that uses synchronic and diachronic relations to provide a q-morphism, a layered set of rules providing default expectations and exceptions." (Holland, Holyoak, Nisbett, Thagard, 1987, pp. 328-329)

A deductive approach to prediction thus entails the specification of the particular laws which are relevant to the hypothesis and analyzing their interactions so that the outcome is a specific future behaviour. The explanation for the event consists of the specific relation between the question under consideration and the generally accepted body of theory and fact. In the absence of this level of agreement the generation of particular predictions and their explanations remains highly problematic. Thus, one function of research design is to specify the relation of the particular predictions to specific theoretical propositions. Alternatively, if one begins with data one must explain the source of the data categories, which in turn entails the specification of theoretical

principles. The definition of data is not itself empty of theory, it is rather the outcome of one or more theoretical commitments which are implicit within the taxonomy-in-use.

This approach, the 'covering-law thesis', requires that a law of general application be specifically related to a particular factual case under investigation. The truth condition of the second premise is then related to a hypothesized outcome. This may be stated as a syllogism and/or as a series of related "if-then" statements. Defining the relations in probabilistic terms modifies the interpretation of the outcome with the criteria of statistical standards as the means of determining the viability of the theoretical proposition. With a probabilistic statement there are outcomes that lie outside the possible scope of meaning of the hypothesis and thus falsify it, but there are a series of possible outcomes that lie within the bounds of confirming evidence and the distribution of these outcomes may be stated with precision. (Pratt, 1978, pp. 69-71)

A critical problem with respect to the evaluation of predictions is that of 'affirming the consequent' or 'conditioning on consequences'. A standard form hypothesis consists of a statement that if 'x' occurs, then 'y' shall follow. Having observed the occurrence of the consequent, 'y', we reason backwards to associate it with an antecedent, 'x'. Retrospective studies and personal judgments systematically overestimate this relationship and encourage us to overestimate our abilities to make predictions. Valid predictive abilities must be predicated upon prospectively making the predictions and then assessing the outcomes. (Dawes, 1995)

Part of the difficulty concerning the prediction of human behaviour results from assertions that human behaviour emerges either from causes, in which case it is determined, or as a consequence of pure will mediated through motives and values. This dissertation argues an alternate position in which either causes or reasons for behaviour may predominate in differing circumstances at differing points of time. No pedophile's behaviour is so completely compelled that they offend in the presence of police officers and indeed if they did it would be taken as evidence of a different type of psychiatric problem. Alternately, the modest results of scientific efforts at predicting human behaviour provides useful evidence for the possibility that behaviour is, at minimum, very difficult to predict. If behaviour is determined it is the consequence of a vast number of interacting variables which may be biographically unique to a particular individual. While of compelling interest, the distinction between this condition and free will may not be of great practical significance for researchers as it may be impossible to distinguish between behaviour with a unique combination of causes and the exercise of will. If our behaviour is determined in this fashion, it nonetheless appears to us to be an expression of will.

In Casey's paper which was published in 1967 he attempts to resolve this issue within the sociological tradition. He argues that reasons, the motivation for an individual's choices, are premised upon a hierarchy of values which are internalized by the individual as a consequence of socialization. The habitual acting out of these choices forms regularized patterns which can be observed and used as a basis for prediction.

Patterns which differ from culture to culture may be explained by differing normative systems, reward structures and socialization patterns.

With such knowledge of the actual human values people have the sociologist can then predict human behaviour with high probability. He can reasonably expect that individuals will normally pursue what to them appears to be the significantly greater good, albeit in objective reality their apprehensions may be shown to be false. Moreover, the sociologist may confidently expect that an actor will choose whatever means he sees as normative and necessary for realizing the values he has committed himself to. (Casey, 1967)

Kaplan, in *The Conduct of Inquiry*, described the interrelation between prediction and explanation and demonstrated their differing functions. One may well have viable and meaningful explanations that are not amenable to clear and decisive testing for reasons of methodological difficulty or theoretical complexity. While it is prudent to retain a stance of doubt towards these notions, the absence of experimental data is not the equivalent of demonstrated falsity. Alternatively, one may well be able to generate viable predictions that have very little explanatory value. The prototypical example cited by Kaplan is the accuracy of ancient astronomers. The predictions, which were derived from observations, were much more viable than the demonstrably inaccurate theories on which they were based. (1964, pp. 346-369)

Turning specifically to the prediction of risk in human service systems, we are confronted with two prevalent strategies. The distinction which is drawn within the literature between clinical and actuarial methods of predicting behaviour derives from the divergence of explanatory and predictive systems. In general, human services practitioners are highly skeptical concerning quantitative methodology and have resisted the intrusion of empirical scientific methods into practice situations. Conversely, researchers have generally asserted the superiority of statistical techniques, particularly regression analysis, as a basis for prediction. (Meehl, 1956) The virtues of using statistical methodology are understood to include the reduction of subjective bias through the standardized processing of data, a mathematically precise method of assessing the contribution of individual predictors and the minimization of the subjective assessment of outcomes. (Dawes, Faust & Meehl, 1989)

While it is evident that clinical judgments permit the intrusion of considerable subjectivity into the process of prediction, including the highlighting of emotionally compelling matters as intrinsically significant, it is also evident that statistical analysis entails some substantially significant practical problems. As these questions involve the measurement of human meaning systems and the particular contents of consciousness, such as the summarization of a parent's emotional stance towards a child, the relationship between a particular observation and the hypothesized internal state remain highly problematic. (Courneya, 1994) The perennial problem of asserting the

existence of specific internal states based upon expressed attitudes is obviously relevant and some concepts, such as the attachment between the parent and the child, are unidimensional summaries of complex interactions involving a large number of differing individual items.

Actuarial predictions are differentiated from clinical predictions by the methodology that is used to process the data, not by the data itself which may well include information which is acquired in the clinical context in both instances. A statistically based prediction is premised upon the presence of an overt method of processing the data which is standardized across cases and practitioners. This method may be based in the analysis of large data sets or it may attempt to replicate the heuristic procedures of practitioners. In either case actuarial methods demonstrate greater reliability than clinical methods because of a pronounced insensitivity to contextual and value-laden information. (Dawes, Faust & Meehl, 1989; Dawes, 1979; Goldberg, L. R., 1970)

Individual clinicians have the advantage of a considerable richness of information including those data, like emotional affect and body language, which are least amenable to quantification. They are also subject to all of the standard sources of error including the selection of memories which confirm one's biases and a comparative dearth of feedback which can be used to evaluate the predictions. In the absence of meaningful information which will disprove a particular prediction the practitioner is likely to continue with the behaviour and may well interpret the absence of negative evidence as confirmatory evidence.

The debate concerning clinical and actuarial methods may be summarized as follows:

1. The data for both methods is based, in part, upon the judgments of individual clinicians.
2. Actuarial methods are consistently more reliable than clinical methods.
3. Meaningful data may have no predictive value.
4. Data which reliably predict outcomes may have little explanatory value.
5. The validity of either method is premised upon the presence of a set of standardized abstract concepts which are also operationalized in a uniform manner.

The question of risk assessment arises when one wishes to avoid a negative outcome. The possibility of an airplane crash, the damage that may result from the use of a pesticide, or the potentially harmful side-effects that are associated with a particular medication all entail considerations with respect to risk. Generally these matters ensue from a conflict between a potential harm and a perceived benefit. So long as an airplane crash is improbable the benefit of fast travel is apparent; the use of pesticides greatly increases agricultural productivity and resultant profits; and the medication may well cure a life-threatening illness. If the damage to oneself is potentially lethal and the probability of the event occurring is high, most persons will avoid the dangerous activity.



However, if the rewards are high in comparison to the danger, a larger percentage of people will decide to carry out the act. There is, in effect, an implicit judgment concerning the marginal utility of the perceived benefit in the context of the magnitude of the perceived harm and the probability of this harm occurring.

There has been a substantial development in the sophistication of risk research in recent years with significant resources being directed to applications concerning environmental problems; engineering, particularly questions of failure rates of machine parts and processes; military strategy; weather forecasting; and methods of handling investment portfolios. (Sprenst, 1988). Casti (1990) examined weather forecasting, the processes of physical growth, the outbreak of war and the formal structure of mathematical proofs in order to assess the general validity of the notion of prediction and to critically assess its applications to differing subject areas. In his summary of this work he states:

...it's in those areas of the natural sciences least susceptible to human influence that we have the best "programs" for prediction and explanation. As we move away from hard physics and astronomy and into the Jell-O-like realm of biology, our capabilities for prediction and explanation begin to deteriorate. And by the time we reach the almost totally gaseous state of economics and the other social sciences, there's far more "social" than "science" in our capacity to say what's next and why. (p. 408)

Such a conclusion is sufficient to give rise to considerable caution with respect to the prediction of human behaviour in any context. However, the existing theoretical and methodological limitations do not obviate the need to proceed with decisions in many areas of human life including that of child welfare work. It is useful to note that risk assessments are performed in order to gather information which may be of value as one basis for making a particular decision. The results of the assessment will only unilaterally determine the decision in extreme situations, those having the most extreme potential results. Decisions are commonly a balancing of differing levels of risk, each having differing consequences, and the decision is formed with attention also being paid to the benefits attendant upon differing decisions. One attempts to minimize the uncertainty associated with alternate choices and to balance these uncertainties with respect to their possible consequences. (Wilson & Crouch, 1987).

Risk estimation and the scientific basis for prediction are interesting questions primarily because we are attempting to achieve control, to intervene in a manner that achieves a pre-determined outcome. While well aware of the limitations of the social sciences Rosenberg wrote in 1988 that:

...It's pretty clear that technological control and predictive success come only through the discovery of general regularities, ones that enable us to bend the future to our desires by manipulating present

conditions and, perhaps more important, to prevent future misfortunes by rearranging present circumstances. The only way this is possible is through reliable knowledge of the future, knowledge of the sort that only laws can provide. (pp. 8-9)

Thus while the goal for prediction, and risk assessment as a particular application of predictive techniques, is clear there are good reasons to be cautious with respect to our abilities to put this program into practice. Indeed, the roots of the current movement to qualitative research is premised upon an articulate critique of the limitations of positivism. In particular, the identification of knowledge as uniquely associated with highly refined quantitative techniques has been effectively criticized and has resulted in a growing willingness within the social sciences to consider the efficacy of a much more divergent range in the type of data that constitutes evidence than was contemplated by positivists. (Guba & Lincoln, 1994, pp. 105-117).

In summary, risk assessment requires that we identify information in the present and then extrapolate from this information to a future condition that is defined as negative. The threat(s) to well-being must be specified and the opportunity for the phenomenon to occur is an integral part of the process. The indicators may be either individual variables or patterns of variables and there may be differing configurations of these variables associated with a single outcome. The estimation of risk is a compound judgment consisting of the identification of the particular threat; a judgment concerning the opportunity for the damage to occur; a

prediction of the probability that such damage will occur; and an estimation of the probable severity of the damage should it occur.

The prediction of human behaviour entails the identification of specific indicators which exist prior to the behaviour in question and the testing of hypotheses which relate these variables to the occurrence, or non-occurrence, of specific behaviors. The association of these specified characteristics with the behaviour comprises a beginning point from which an explanation for the behaviour can be generated by relating specific hypotheses to the corpus of social science knowledge. These variables are of different types and may be placed upon a continuum from purely intra-psychic to predominantly social. Specific forms of organic brain damage exemplify the former, while norms embody the latter. Attitudes occupy an intermediate position as they are derived from social roots but may exist in unique combinations within a single personality and are experienced, subjectively, as voluntary and characteristic of a particular, singular self.

The minimum conditions necessary for the confirmation of a prediction are the following:

- Clear definition of the predictor(s) and the predicted outcome.
- Observation of the predictors as antecedent to the consequent.
- Clear definition of the operational standards for the measurement of the predictors and the predicted outcome.
- Observation of a sustained association between the indicators and the specified outcome. (This may, at times, be a probability statement.)

- **The elimination of all competing hypotheses which can explain the occurrence of the outcome.**

**We will now turn to an assessment of how these conditions can be approached in the area of research on child maltreatment.**

## RISK ASSESSMENT AND CHILD MALTREATMENT

### Introduction

This chapter examines the body of literature that has been created in recent years and which informs the current debate concerning child protection risk assessment research. The majority of this work is likely to be relevant only to those persons with a particular technical interest in this topic area. Other readers will find sufficient information to orient them to this topic within this introduction, and the chapter summary which begins on page 66.

At the time that this research was initiated in 1988 there had been few attempts made to generate actuarial models for assessing risk within child protection work. The quantitative work that was available utilized multivariate statistics such as multiple discriminate function analysis and factor analysis techniques (Johnson & L'Esperance, 1984). The primary mode of development in this subject area has been to codify the opinions of practitioners. The consensus-based tools in use in child welfare practice are, in effect, conceptual syntheses of clinical practice; empirically-based work has been little used. This study is an attempt to analyze empirical data which have been collected using variables that have emerged from the broadly conceived consensus about what information is important within this field of practice. There is, however, a considerable literature concerning the development of risk assessment models in child welfare practice, including questions of the selection of

variables, issues of measurement, criterion variables and the limited empirical evidence that is currently available to assist our understanding of these matters.

In 1994, English and Pecora defined the central issue of risk assessment in the field of child protection work as, "Essentially, risk models are concerned with predicting whether or not a child will be maltreated in the near future, absent intervention" (p. 452). During the last thirty years child welfare workers have been increasingly expected to successfully assess risk when dealing with situations where children may be subjected to maltreatment. There are also related demands that these decisions be grounded in scientific procedures and that high risk situations be accurately assessed so that intervention occurs in all situations where children are at risk of maltreatment. This entails, in effect, a minimization of Type I errors, as well as the avoidance of Type II errors especially with the growing pressure to avoid unnecessary interventions into the lives of families which may be functioning well enough to safely leave the children with their parent(s). In the absence of generally approved risk assessment procedures workers are in a very difficult situation as they are constantly vulnerable to accusations concerning both over-intervention and under-intervention. Attempts to resolve one difficulty creates the other. In their 1991 article which evaluates the state of risk assessment practices in Great Britain, Alaszewski and Manthorpe wrote that:

There is a need for social work agencies and their practitioners to understand and deal with concepts of risk. However at present the technology of risk assessment and management is at a rudimentary level. There is a clear need for more research in both policy and practice. (p. 288)

Spurred on by increased litigation and publicity concerning cases where errors were alleged concerning errors of workers' judgment of risk conditions, child protection risk assessment research has become increasingly common during the last fifteen years, particularly in the United States. There are a number of different functions to be served by this research and in 1987. Tatara specified nine different applications for child abuse and neglect risk assessment information in the following way:

Reports of alleged child maltreatment received by CPS<sup>1</sup> agencies vary considerably in the degree of their urgency for immediate investigation or services and in the extent of complexity of decisions needed to protect the child. CPS workers (generally after initial intake) must make these difficult decisions, by assessing potential risks for the child, the family, and the agency, to determine the disposition of each case. Such decisions typically pertain to: (1) the timing and method of an investigation of the report; (2) the types and extent of information to be gathered for the investigation; (3) the involvement of other

---

<sup>1</sup> CPS: Child Protection Services.



experts or agencies for the investigation; (4) the provision of emergency services; (5) the substantiation or non-substantiation of reports; (6) the closure of cases or the provision of ongoing protective services; (7) the removal of the child or the perpetrator from the home; (8) the initiation of necessary court proceedings; and (9) the referral of cases to other human services programs. (p. 417)

The research methodology of choice has generally been to try to identify a series of variables which are commonly taken as significant by practitioners and to then analyze their association with case outcomes that are of interest. Early attempts at constructing these 'consensus models' presumed that workers' opinions were valid and then attempted to associate particular variables derived from these opinions with a criterion variable such as a detected recurrence of maltreatment. (Tatara, 1987)

The theory-in-use within child welfare practice is derived from a variety of theoretical systems and is not necessarily characterized by strict adherence to the concepts of a single theory. Commonly the consensus models aggregate, at minimum, items with respect to child characteristics, perpetrator characteristics, family characteristics, the social situation and a variety of questions of administrative and legal interest. In attempting to identify the theoretical basis of child welfare, Parke (1982) contrasted social interaction theories with the psychiatric model. The aggregated nature of these theories result in the existence of multiple possibilities within a number of ad hoc approaches.

Furthermore the explicit link between child protection practice and the initial ideas which gave rise to it may well have deteriorated over time. The resulting set of propositions which inform practice are, therefore, likely to be those which are in use because they are perceived to be meaningful within the culture of the workplace. The development of these "theories-in-use" is necessarily conditioned by the practical requirements of the legal system which both frames and regulates practice in this field.

An idea may survive so long as it is consistent with the general ideological structure of child welfare. In effect, it need not be true in the sense of supported by competent research. The only requirement is that it not be obviously and compellingly false. At this moment it is very difficult in this field of endeavor to differentiate between beliefs which are of indeterminate truth status and facts which are of reasonable validity.

As the success rate of predictions is not part of the formal record keeping within agencies a substantial folklore of prediction can exist without a foundation in fact. The beliefs that accrue over time are passed from one generation of workers to another as part of the culture of child welfare practice and it is natural that they acquire the status of generally accepted truths. However, as these ideas have not been acquired thorough rigorous research and have not been subjected to testing they are of indeterminate accuracy and unknown validity. It may well be that practice-based ideas which have stood the test of time are both valid and reliable as methods of prediction and as predictors. Nevertheless, in the

absence of either a complete or a generally agreed upon corpus of deductive theory which is relevant to this subject area, there is no viable means of judging the comparative viability of differing ideas. Since it is evident that there are many methods of prediction in use, and since these methods produce differing predictions for particular cases, it follows that not all of these can simultaneously be valid. Thus, general agreement between sub-groupings of practitioners is not sufficient reason to accept a predictor as valid. (Sigurdson, Reid, 1990)

The clash between the belief systems that are basic to the culture of child welfare practice and the methodological requirements of evidence have created difficulties in the development of child protection risk assessment systems. A resistance to the use of statistical evidence may well rest on a need to preserve a coherent culture of child welfare practice as much as reflect a general skepticism that practitioners take towards social science research.

The divergence between the views taken concerning meaningful predictors and methods, and valid predictors and methods, mirrors the fundamental dichotomy between explanation and prediction as basic functions of theory. Concepts which are comprehensible to practitioners and which are specifically linked to the culture and meaning systems of child welfare may well be ineffective as predictors. Conversely, predictors which have displayed actuarial viability may appear as *non sequiturs* to practitioners. Indeed, 'meaningless' predictors may be evidence for an alternate theoretical system which is as yet unarticulated, or in any event not in common use by child welfare practitioners. The possibility

also exists that the association is merely a statistical artifact and the absence of meaning is the consequence of a spurious correlation. In practice, the difference between these possibilities is anything but obvious.

A critical expression of this issue is that the research to date has been confounded by a lack of agreement on criterion variables as well as by a continuing disagreement about what may be valid methods to use in order to recognize and develop predictive systems. These questions are fundamental to research design and any substantial progress in understanding with respect to the prediction of child maltreatment will be dependent upon their resolution.

Practitioners have tended to overestimate the accuracy of clinical prediction and researchers have relied excessively on data constructs concerning such complex and difficult to measure concepts as 'attachment'. (Murdach, 1994) In addition, the statistical procedures employed have often been invalid and the interpretations have greatly exceeded the limitations of the premises. In brief, the field has fluctuated between an acceptance of subjective risk determinations which are essentially codifications of the practice wisdom of the child welfare culture, and an uncritical quantification which has not contributed greatly to our understanding of the issues.

While from some points of view it is of great interest to deconstruct practitioner's methods of analysis and decision-making, this approach will not produce a viable set of criteria for the evaluation of risk assessment methods. If practitioners knew how to predict the probability

of future maltreatment, and if they were able to demonstrate the validity of these methods, there would be no need for risk assessment research. Indeed, the absence of verifiable and relevant clinical knowledge is one of the driving forces behind the development of this area of study. Any attempt to re-establish practitioners' opinions as standards of evaluation at this point in time is no longer possible.

#### **The Recurrence of Child Maltreatment as the Criterion Variable**

There are two major fields of research which are of current significance for risk assessment within child welfare practice: the prediction of the recurrence of maltreatment events and the prediction of the eventual substantiation of a maltreatment report. The former is the subject of this dissertation and the problem of the identification of an appropriate criterion variable which can measure recurrence is thus a central issue.

It is useful to provide a frame for this question by examining the problem of predicting the first occurrence of child maltreatment. Ideally, in our attempts to prevent harm to children we would like to be able to intervene before the damage occurs. While there is a generally held belief that people who perpetrate maltreatment are decisively different from the rest of us there is virtually no evidence which supports this view. In an interesting study published in 1982 which compares a set of families involved with child physical abuse and another set of families whose

children were experiencing physical illness but where maltreatment was not an issue, Starr concluded that:

While there are few significant differences for individual variables, examination of the direction of other, nonsignificant differences suggests that mothers in the abuse group are generally functioning less adequately. It is as though the data profiles for the two samples are essentially parallel, with the scores for the abuse group mothers generally exceeding those of the control group; but rarely to a degree that reaches statistical significance. While it would be desirable to analyze the sum of these small group differences, this has not been possible. Thus, attempts to construct scales using the present data have failed, as have factor and cluster analyses. (p. 131).

In the absence of persuasive knowledge that will allow us to identify persons who are about to perpetrate their first maltreatment event the courts serve as restraints upon the child protection systems by insisting that interventions be based upon evidence. From this point of view the defining characteristic prior to the first event is, of course, an absence of evidence. Any further progress in the effort to anticipate child maltreatment before it occurs will be delayed until the research on recurrence is improved, and until the specific clinical characteristics of perpetrators of different maltreatment events are better understood and are supported by credible research findings.

Under the present circumstances, the obvious criterion variable that should be used to evaluate child maltreatment risk assessment systems is that of recurrence. If the assessment system predicts a recurrence does a maltreatment event actually occur in the fullness of time? If so, the prediction is sustained; if not, the system is invalid. However, this issue is considerably more complicated in practice than it is in principle and it is worth noting that there has not been unanimity in the literature that such a failed prediction is an appropriate standard for judging the viability of risk assessment systems.

In 1992, Johnson defined the different functional problems for risk assessment as: "...occurrence of maltreatment, recurrences of maltreatment, and/or subsets of occurrences or recurrences of maltreatment." He then observed that a variety of studies had used unconfirmed reports of maltreatment as a criterion and that there were very good reasons to doubt their accuracy. He also pointed out that 'administrative behaviors', such as taking a child into care or the provision of other services to the family, are also inadequate as a standard for judgment as, in effect, the presumption was that the intervention was correct and there is no *a priori* means to determine that this is the case (pp. 65-68).

Pecora (1989) observed that the literature showed that the issue of criterion validity was problematic and that a variety of studies showed there was evidence of the presence of an unacceptably high number of false positives in the results of predictions from different instruments. This was sufficient reason to give considerable cause for concern. He also

specified three particular problems in evaluating recurrence data: the outcome may be the consequence of the service rendered or other intervening variables; the use of unconfirmed reports as recurrence data is of dubious accuracy; and recurrence rates may be unrealistically low because of problems with respect to detection. (pp. 52-54)

The practical utility of using recurrence as the central criterion variable is distinctly limited. Detected recurrence may differ greatly from actual recurrence and the operational meaning of the statistic is very difficult to establish. Perhaps one of the main consequences of a child protection intervention is that the family improves their methods of concealment. The more effective a family or individual is at avoiding detection, the lower the recurrence rate. It seems reasonable to speculate that there will be significant and systematic differences between families that avoid subsequent detection and those that do not. Furthermore, these systematic differences may have an unknown confounding effect on our understanding of this topic of study.

One would hope that whether or not the maltreatment occurs is highly dependent upon the nature of the intervention that the family experiences. The primary point of having an interventive system is to reduce the rate of recurrence of maltreatment and therefore the recurrence rate is, in part, a measure of the effectiveness of these systems. Differing recurrence rates may thus be plausibly explained by differences in the therapeutic effects. A related but different hypothesis would be that the recurrence rate measures the quality of the particular child protection worker who was involved with the family; an effective



worker would generate lower recurrence rates. Thus there are a variety of possible combinations of interactions between system characteristics, worker qualities, family characteristics, and maltreatment types which account for the outcome.

There is a wide range of possible intervening variables that can greatly alter recurrence rates. An economically depressed area may experience sustained growth in employment or a highly effective mental health program may be initiated in the community. One factor of particular current significance is the decrease in income support programs which subsequently increases the stress that poor people experience and therefore increase the likelihood of child maltreatment. While there are technical means available to account for the most prominent exogenous variables in a satisfactory fashion, there is no evidence in the child maltreatment literature that this has been done when attempting to evaluate risk assessment systems.

Because of the very large number of interacting variables that are present and the difficulty of extracting viable identifiers of risk from this system of causation it is difficult to be certain which items are important and which are irrelevant. Intervention in a family by the child welfare system may well be a cause of recurrence as the intervention is a source of a significant amount of stress upon the family, or, alternately, a successful intervention may well suppress recurrence.

While detected recurrence is problematic as a standard of assessment for the recurrence of maltreatment it does have some relevance to the question. Perhaps the most likely cases to be detected more than once

are those where the individuals are unable to alter their behaviour, and the most severe cases. Obviously, these two categories, while distinct, are not mutually exclusive. Thus, detected recurrence provides a criterion for the minimal rates of recurrence and must be understood in the context of other realities, including the diminishing budgets available for social and health services.

Recurrence is an effect which results from a series of causes and it is extremely difficult to identify whether it is the consequence of the natural forces within the family, the particular child welfare intervention that occurred, the characteristics of the worker who was involved, or an intervening variable within the general environment. A viable solution to this problem would be to identify families at the point of the occurrence of maltreatment; to measure a wide variety of characteristics of these families and their social situations in an unobtrusive manner; to refrain from intervention in the situation; and to observe those families closely so as to ascertain whether or not there are recurrences of maltreatment. The differences between reoffending and non-reoffending families, if any, would be decisive. It is immediately evident that such research would be neither desirable nor possible. No researcher would willingly expose a child to repeated maltreatment for the sake of acquiring data. While we may be mistaken in our beliefs concerning the appropriate interventions in these situations we are nonetheless obliged to act upon our best knowledge.

### Child Protection Risk Assessment Instruments

The material which follows in this section provides an overview of the recent research in this field. The major studies are summarized, the evidence demonstrating the relevance of particular variables is evaluated, and the divergence of views between researchers and clinical practitioners are presented.

There have been a number of studies in recent years which have examined various child protection risk assessment instruments and have attempted to summarize and evaluate the validity and reliability of these instruments. In addition, these analyses have been concerned with discovering common variables in use across instruments in order to come to a judgment with respect to the viability of these variables as predictors of child maltreatment. As these instruments have been primarily derived from practice knowledge, this research provides a useful overview of the field and a summative evaluation of those items which are believed to have explanatory and predictive value.

In 1985 Meddin published the results of two studies that examined the risk assessment procedures-in-use by 81, and 134 child protection staff respectively. She pointed out that the factors which were identified were used in an interactive fashion in order to reach a decision. Single variables may not be significant but a particular configuration of factors such as a severe injury, a young child, and the perpetrator having continued access to the child would collectively indicate a high degree of risk. (p. 62). The empirical viability of the items was not investigated as

this was an attempt to identify the consensus view and to bring order to these diverse opinions. The factors and the number of workers in each study who considered them to be significant were presented as follows:

**Table 1. Criteria Used to Assess the Potential Risk of Harm to Child of Further Abuse and/or Neglect**

<b>Criteria</b>	<b>Study 1 (n=81)</b>	<b>Study 2* (n=134)</b>
Severity of the current incident	49.6%	80.6%
Cooperation of prime caretaker	43.8%	35.6%
Functioning of prime caretaker	31.5%	60.4%
Previous contact with agency	22.3%	61.4%
Age of the child	17.0%	67.2%
Functioning of the child	-----	40.1%
Intent of perpetrator	-----	48.5%
<b>Further access of perpetrator</b>	-----	<b>59.7%</b>

\* Magnitude of percentage responses may have been increased in second study as approximately 25% of the respondents in Study 2 had received training based on results of Study 1. (p. 58)

In their review of eight instruments<sup>2</sup> which were in common use throughout the United States McDonald and Marks (1991) identified 88

<sup>2</sup> "The eight instruments included are the Alameda County California Reabuse Assessment Model, the Washington Risk Factor Matrix, the Illinois CANTS 17B, the Utah Risk Assessment Model, the Florida Health and Rehabilitation Services Child Risk

different variables which they then clustered under the following categories: child characteristics, caretaker characteristics, environmental factors, characteristics of the maltreatment, perpetrator's access to child, family characteristics and parent-child interaction. They observed that both the meaning and the operational measures attached to variables differed substantially between instruments and that the differences were related, in part, to the complexity of the concepts. They observed that a great deal of work remained to be done concerning psychometric and sociometric properties of the instruments and their viability as predictors. They identified the most commonly occurring risk factors and these factors and their frequencies or occurrence are as follows:

**Parent Characteristics:**

Mental health (7)

Physical health (7)

Capacity for child care (8)

Physical health care of child (7)

Supervision of children (5)

Cooperation with agency (7)

**Child Characteristics:**

Physical disabilities (5)

Personal hygiene (5)

Appropriate clothing (5)

**Environmental factors:**

Support for caretaker (8)

Physical safety in home (6)

**Parent-child interactions:**

Expectations of child (5)

**Perpetrator:**

Access to child (5)

(pp. 130-131)

The relationship between the variables that were identified by McDonald and Marks, and actual or potential decision-making was understood to be highly problematic.

Less than half of the variables measured in these instruments have been empirically tested, much less validated, by even the weakest of research designs. Only a handful of studies have directly tested the predictive validity of variables assessed at the initial report or investigation for their ability to predict recurrence of maltreatment. (McDonald and Marks, 1991, p. 122)

Depanfilis and Scannapieco analyzed ten risk assessment models in a 1994 article. Only the ACTION For Child Protection system, the Illinois system and the Family Risk Scales correspond with the tools examined by Marks and McDonald. The other examples considered were the risk assessment devices in use in Texas and Colorado, the Hawaiian Safe Family Home Guidelines, and four early safety evaluation models that resulted from research funded by the United States Department of Health, Education, and Welfare and published between 1972 and 1983. (pp. 234-235).

As with McDonald and Marks, the authors were obliged to create macro-categories that seemed to them to be useful as the instruments differed in the basic categories that they utilized. The most significant factors that they identified and their frequency counts are as follows:

**Child-related:**

**Basic needs are unmet (8)**

**Physical & Mental Abilities of the Child (6)**

**Age (5)**

**Vulnerability (5)**

**Self-destructive behaviour beyond the parents' control**

**Parent Criteria:**

**Ability of the Parents/caregivers to control their behaviour (10)**

**e.g.: violence, substance abuse, mental health problems.**

**Family and Environment-Related Criteria:**

**Life-threatening living conditions (7)**

**Intense Family conflict/stress or conflict that endangers the  
child's safety. (6)**

**Support Systems (5)**

**Maltreatment Criteria:**

**Little agreement.**

**Intervention-related criteria:**

**Parents' level of cooperation (7) (pp. 235 & 239)**

The authors observed that there were serious complicating factors that made it difficult to rely upon the existing systems that are being used by child welfare workers. They noted that definitional problems make comparisons of research findings from different studies problematic and that it is unclear whether we are discussing immediate safety or long

term outcomes for the children. Perhaps most importantly they suggested that the research is at an early stage of development and that empirical testing is essential to any future development with respect to this issue.

Waterhouse and Carnie examined 51 child sexual abuse files from the Scottish Child Protection Registers for the time period 1987-1989 in order to identify the criteria for assessing risk that were used by the workers handling these cases. They identified the six primary criteria and the five secondary criteria which were utilized. The primary criteria included: (1) an item which assessed the caretakers' compliance with the investigation. (2) An item which measured the perpetrator's attitude to the offense. If the perpetrator attempted to diminish their responsibility this was understood to be problematic. (3) An item which established whether the non-perpetrating caregiver actively opposed the perpetrator. (4) An item which specified the perpetrator's access to the child. It was critical to know the age of the child as younger children were more at risk. (5) An item which captured information relevant to matters of sexual abuse and, (6) in particular, any instances when a child had been subjected to sexual intercourse.

At a significant but less intense level the following issues were found to be important. (1) Whether or not the worker believed the child. (2) Whether or not the child's wishes concerning the outcome of the intervention were also taken seriously. (3) The presence of overt physical or psychological symptoms were critical to establishing the credibility of the intervention. (4) A caretaker's history of criminal or psychiatric problems was understood to contribute significantly to risk. The latter



included a history of substance abuse. The similarity of the British perceptions to those common within Canada and the United States is striking. (1992)

English and Pecora (1994) argued that there are five critical, and unanswered, questions concerning this area of study: do the factors and or weights of factors differ with different types of maltreatment?; Does the presence of multiple types of maltreatment indicate that different factors are significant?; How do risk factors interact?; Do strengths in families and individuals have a significant effect?; and, are some factors transitory and unlikely to be of importance over time? Given these limitations they wrote that:

A considerable amount of research has indicated some variables that are probably important in predicting risk of future harm to the child. These factors can be organized into child factors, abuse incident factors, chronicity, parent characteristics, parent-child interaction factors, and socioenvironmental factors. The factors that have the most empirical support are the child's age and developmental characteristics, the character of the abusive incident, actual levels of harm, the repetitive nature of the behaviour, the caregiver's impairment, and the personal history of violent behaviour of the caregiver. (p. 463)

An interesting approach was taken by Fanshel, Finch and Grundy to the analysis of consensus models in a 1994 article. They had New York

City child protection staff assess 72 cases from Brooklyn, New York where it was alleged that the child was at risk of abuse. The instruments which were used were the Child Well-Being Scales; a document in use in the New York child protection system called the Child Protective Services Review Document; and the Beck and Jones List of Problems and Conditions. Factor analysis procedures were used to generate a series of eight indices and seven of these indices were used in a multiple regression equation to attempt to predict the workers' judgments concerning the state of risk for the child. The eighth index estimated the seriousness of the abusiveness in terms of its consequences for the child.

While this is an interesting design which uses statistical analysis which is much more sophisticated than is common in the literature, this approach is limited by the same issue as the majority of the analyses of the knowledge-in-use. In effect, the argument is circular: instruments which are derived from practice beliefs and standards are judged by the criterion of worker judgment. As the workers' perceptions and cognitions derive from the same culture and the same belief system as the instruments it would be surprising if there were not a high degree of agreement between them. Concurrence of opinion is further fostered by the facts that child protection services throughout advanced capitalist societies are in much the same social structural position, and the academic training for child welfare workers, as well as the occupational literature, are highly standardized. This structural uniformity fosters a remarkably standardized set of ideological beliefs.

As is the case in this study, when these beliefs are tested by factor analysis, the generally-held opinions that variables are associated will result in these variables loading on a single factor. However, the presence of clear loadings on orthogonal factors does not indicate the presence of anything more fundamental than the presence of preexisting beliefs. It is important to note that the extraction of eight factors from a single analysis is somewhat improbable, and it was not stated whether the factors were orthogonal or oblique, and eigenvalues were not provided.

Nonetheless, the indices which resulted from this work provide a summation of the internal structure of these child protection risk assessment devices. The 'Index of Household Adequacy' contains 25 items and is predominantly focused on the material conditions of the household. The presence here of a number of items which measure family interaction and attitudes would seem to be anomalous. The test of covariance does not seem sufficient to justify the use of variables which represent fundamentally different concepts in a single index.

The 'Index of Parental Disposition' contains a number of items related to child care and the parents' attitudes towards their children. The variables describe affective issues, questions of adequacy of care and measures of the general competency of the adults. Other indices assess the family's poverty rating, general deviance as judged by involvement with other state control structures, their adequacy with respect to sanitation, child characteristics, and the features of abuse events. The final index, concerning parental substance abuse, contains the expected items plus one variable recording the presence of a young child and a

series of items that are more relevant to questions of poverty and the adequacy of the physical household.

The problematic admixture of items within the indices may be merely an artifact of the factor analytic procedures. However, it may also be indicative of a fundamental confusion within the belief systems that underlay child protection work. In the absence of an accepted body of explanatory theory the default response may be the acceptance of the relevance of a wide variety of items which become viable simply by the absence of clear falsifying evidence. The perceptions of association in the minds of practitioners is taken as evidence of a more fundamental statement concerning the characteristics of these families. In effect, the research measures the characteristics of the workers, not those of the families who are involved with the child welfare systems.

The two studies that have received the greatest attention are those by Johnson and L'Esperance, and Baird. In their 1984 article Johnson and L'Esperance described their analysis of the data which resulted from 120 physical abuse cases in a California jurisdiction. In 55 of these cases there were confirmed recurrences of incidents of abuse. Bivariate correlations were carried out to identify variables that warranted further study from an initial set of 105 variables. The resultant items were entered as independent variables in a multiple discriminant function analysis and the effects of treatment variables were estimated in order to control for their effects. This study and their subsequent work resulted in the set of variables that are identified in the following material. While this work is subject to the limitations inherent to utilizing a small

sample, and from using detected recurrence as the criterion variable, the results are worthy of note. There are also limitations with respect to the interpretation of the results of the statistical tests as discriminate analysis requires interval level data for the independent variables and most of the variables were measured only at the nominal or ordinal level.

The work of Baird, et al. in their 1988 study of Alaskan data employed much the same methodology as Johnson and L'Esperance although there is a critical difference. Baird used the worker's estimation of whether a maltreatment event had reoccurred as the criterion variable rather than a substantiated recurrence event. They have thus selected their truth standard from the same pool of belief as the more obviously consensus-based models. The argument borders on tautological as the independent variables are systematically selected on the same basis as the dependent variable. The observed association is thus inevitable. What is tested is, in effect, whether workers' explanations for their own judgments are reliable.

They examined more than 100 variables from 550 cases to assess their possible bivariate association with recurrence and then utilized multiple discriminant function analysis to identify those variables which differentiated best between cases where maltreatment occurred and where it did not. They then developed different scales for physical abuse and neglect as they were seen to derive from somewhat different predictors:

Based on discriminant function analysis, the strongest predictors of abuse were prior reports of abuse, prior placements, number of

children in the home, and negative social relationships. These variables were positively related to the recurrence of physical abuse. The two strongest predictors of neglect were single-parent homes (recurrence more likely) and age of caretaker (the older a caretaker, the less likely a recurrence). (McDonald & Marks, 1991, p. 118)

Fryer and Miyoshi conducted an epidemiological study of 24,507 case records from the Colorado Child Abuse and Neglect Registry. When the results were published in 1994 they wrote that, "Professionals from the county departments of social service confirm and handle the cases for which there are registry records. Those records were found to be complete, of high quality, and totally adequate for the purposes of our study." (p. 1064) As the variables that they discuss in their results are relatively amenable to clear measurement their assessment of the quality of the data may be correct, however, when compared to other work in this field it is evident that the interpretive range of the variables which are examined is limited. While the methodological quality of this work is very high it is of marginal social-psychological interest.

Using survival analysis they found that the probability of a recurrence event was greatest immediately after the first incident and that a child that had been the subject of maltreatment was unlikely to ever reach the safety level of children who had never been abused or neglected. The gender of the child was of only marginal relevance with male children experiencing consistently slightly lower rates, while age was of greater importance with recurrence being inversely proportional to age. When age

and gender were inter-related the results indicated that girls aged from one year to less than six years were the group at greatest risk. The revictimization rate was higher for child neglect than for either physical or sexual abuse and it is conceivable that this represents a greater willingness for the state to intervene, thus there may be more opportunity for neglect to occur. The revictimization rates vary between approximately 16.5% and 0%, with the former being cases of emotional neglect with infants and the latter the sexual abuse of infants. As in other studies, this probably is a measure of the willingness of the system to intervene in proportion to the potential harm that is perceived in the case. It is worthy of note that these rates are much lower than would be predicted on the basis of the opinions of many practitioners. (Sigurdson & Reid, 1987, 1990)

Some particularly interesting research has been done by Milner, et al. in developing the *Child Abuse Potential Inventory (CAP)*. It is a 160 item, self-administered, device which is intended to assess an individual's propensity to perpetrate child physical abuse. The use of these items and their organization with the CAP derived from a study in which the researchers matched 65 abusing and 65 nonabusing parents gathered their responses to 160 items and through factor analysis, discriminant analysis and regression analysis identified 77 items which were relevant to discerning the differences between the two groups of subjects. The discriminant analysis equation correctly classified 96% of the cases. (Milner & Wimberley, 1980)

Subsequent testing has shown the CAP to be effective in identifying the potential for physical abuse but the results with respect to child neglect and, in particular, failure-to-thrive children, have been at best marginal. (Milner, Gold, Ayoub & Jacewicz, 1984; Ayoub & Milner, 1985; Milner, 1994) An interesting study which examined the correlation of CAP results with the Mental Health Index (MHI) items which measure loss of behavioral/emotional control, psychological distress, and psychological well-being showed CAP scores to be positively correlated with the first two scales, and inversely correlated with the latter. (Milner, Charlesworth, Gold, Gold, Friesen, 1988)

The present study provides supportive convergent validity for the CAP abuse scale...the abuse scale has the strongest relationships with the MHI summary and factor scales that measure psychological distress. The regression analysis revealed that the Loss of Behavioral/Emotional Control factor was the most explanatory MHI factor regardless of the group tested. While a strong relationship between abuse and the Loss of Behavioral/Emotional Control factor was predicted, the strength and uniformity of findings across groups is important because the CAP abuse scale purports to measure factors related to abusive behaviour. The present findings support other construct data (Robertson & Milner, 1985) that indicate that the CAP abuse scale measures an individual's tendency to act-out physically. (Milner, Charlesworth, Gold, Gold, Friesen, 1988, p. 284)



The CAP has good psychometric properties and is intended primarily for use by clinical psychologists and other professionals. (Milner, J. S. 1994) While it is well researched it is of limited practical utility within most child protection situations as it requires the active cooperation of the client. Given the adversarial nature of child protection work it is evident that, at minimum, many child protection clients are highly resistant to the agency's notion of help. This problem is of decisive significance within child welfare work where there are considerable rewards for the protagonists to conceal their motives and to portray the facts in the most positive light. Thus, while it would be unwise to rely entirely on a client's self-disclosures, Milner's work is still of considerable interest. This is particularly important with respect to the assessment of the probability of child physical abuse occurring.

The CAP has been relatively stable since 1977 with the 77 items that comprise the physical child abuse scale being unchanged. These are organized into:

...six descriptive factor scales: distress, rigidity, unhappiness, problems with child and self, problems with family, and problems from others. The CAP Inventory also contains three validity scales: a lie scale, a random response scale, and an inconsistency scale. The validity scales are used in various combinations to form three response distortion indexes: the faking-good index, the faking-bad index, and the random response index. In addition, two special scales

have been developed, which are the ego-strength scale (Milner, 1989) and the loneliness scale (Milner, 1990). (Milner, 1994, pp. 548-549)

While this work is articulately related to psychosocial research and theory and has been the subject of a good deal of empirical work by Milner and his colleagues its relevance to the problem of the prediction of future maltreatment is still not established. A 1984 study used confirmed future incidents of maltreatment as the criterion variable and is subject to the same weaknesses as other studies of this design. In particular, treatment was a critical intervening variable and its effects were not adequately assessed. (Milner, Gold, Ayoub & Jacewicz, 1984; Milner, 1994, pp. 574-575) A subsequent study by Milner and Ayoub in 1985 with respect to the parents of failure-to-thrive children was not conclusive (Milner, 1994, p. 575)

In the 1994 article Milner summarized the findings from the CAP research as linking the following characteristics to parents who are physically abusive to children. The comparisons are between those persons with high abuse scores and those with low scores:

1. Were they recipients of childhood abuse or observed abuse when they were children?
2. Low social support as children and as adults.
3. Less likely to use community resources.
4. Less amenable to treatment.

5. **Hyper-reactive to children and to stress in general.**
6. **High levels of stress and distress.**
7. **Low self-esteem and poor self-image.**
8. **Withdrawn and low life satisfaction.**
9. **Few appropriate assertiveness skills.**
10. **Depressed, anxious and angry.**
11. **Higher frequency of somatic complaints.**
12. **Higher frequency of physical illness.**
13. **Higher frequency of emotional problems.**
14. **Poorly developed cognitive skills.**
15. **Confused thinking patterns.**
16. **Unique perceptions.**
17. **Difficulty in interpersonal relations.**
18. **Poor parent-child interaction.**
19. **Less available to their children.**
20. **Less responsive changes in their children's behaviour.**
21. **Greater likelihood that they will perceive their children as having  
behaviour problems.**
22. **Higher ranking of the seriousness of their child's behaviour.**
23. **Less likely to use praise as a means of discipline.**
24. **More likely to use verbal or physical assault as means of  
discipline.**

(Milner, 1994, p. 578)

While all of these points seem reasonable, their comprehensiveness would also seem to define the limitations of the use of such a set of characteristics. Virtually all of the clients who receive service from the child welfare systems can be described by some combination of these properties. The primary practice problem for child protection-based risk assessment is not whether maltreating caretakers can be differentiated from non-maltreating caretakers. The issue is whether those persons who are likely to persist in maltreatment can be differentiated from those whose future parenting will remain within acceptable bounds. In all probability, the people in both of these groups will continue to experience severe problems. While it is conceivable that those persons who are least likely to perpetrate further maltreatment events are those with low scores on the CAP inventory items this is as yet undemonstrated. The possibility remains that the critical variables, or combinations of variables, are different from those that Milner has considered.

The studies by Johnson and L'Esperance (1984, 1994) based upon California information and the work of Baird, et al. in Alaska (1988) remain the core of the published empirical work on this topic. This research has been usefully augmented by the reviews of large numbers of files by Fryer and Miyoshi (1994), Jones and McCurdy (1990), and McCurdy and Daro (1994). The extensive published work by Milner and his co-researchers is as yet a supplement to this literature since their perspective is quite different from that of a child protection worker. The

difficulties are a consequence of practical problems in the application of the tool rather than any fundamental questions of theory.

It is striking that there is almost no published research concerning the issue of risk assessment and emotional abuse. Other than the observation by Jones and McCurdy (1990) that the children in these situations are young and that older mothers tend to be involved, there is little to be learned from the research with respect to this matter. This is likely a consequence of the difficulties involved in defining emotional abuse in a way that is generally acceptable to practitioners as well as the law. There is a resulting lack of a clear mandate for child protection services to intervene in these situations. Only those situations where the assault on the child's sense of self is so acute and persistent as to be beyond dispute, and where there is no other caregiver available who is even marginally acceptable, are authorities able to intervene.

While there is an extensive therapeutic and forensic literature concerned with child sexual abuse there has been very little work done with respect to the prediction of sexual abuse in the context of child protection work. Finklehor's early research (1984) remains the most significant work on risk assessment with sexual abuse situations and his checklist is still relevant. The "Eight Vulnerability Factors" which are relevant to the likelihood of a girl being a victim of sexual abuse are: the presence of a stepfather, whether the child has ever lived without her mother, the child is not emotionally close to her mother, mother never finished high school, sex-punitive mother, no physical affection from father, income under \$10,000 and the child having 2 or fewer friends in

childhood. These items are used in an additive fashion with the presence of a higher number of factors predicting a greater level of risk. (pp. 28-29)

...among children with none of the factors present in their backgrounds, victimization was virtually absent. Among those with five factors, two-thirds had been victimized. The presence of each additional factor increased a child's vulnerability between 10% and 20%. The relationship is fairly linear and quite dramatic. (p. 28)

As the samples that have been used are, of necessity, samples of convenience the selection of variables which have been tested has been determined more by matters of practicality than pure research interest. Thus, there is strikingly little agreement upon variables that are of relevance and can be supported by empirical evidence. The research questions have also been somewhat different in different studies, with Baird developing separate devices for neglect and physical abuse, Johnson and L'Esperance examining physical abuse cases and Johnson later writing about predictors of general value for all types of maltreatment.

One question considered important by both Baird, and Johnson and L'Esperance is whether the perpetrator is compliant with the agency's intervention and the motivation to change probably tests the same substantive issue. Whether or not the perpetrator was a victim of maltreatment was also seen as being of interest and evidence of a

caregiver having a history of perpetrating maltreatment is of critical interest.

The presence of substance abuse problems is consistently understood to contribute to higher risk levels and there is generally a concern with respect to mental health problems on the part of caretakers. The precise definitions of the relevant diagnostic categories and matters of the relative intensities of dysfunction have not been developed in detail. Baird also found the presence of a criminal record and the related issue of negative social relationships to be important in the prediction of physical abuse, but were not statistically important in identifying the risk of neglect in Alaska. The number of children in the home was seen as significant by Johnson and L'Esperance, as well as Baird, and may be an indirect measure of a variety of issues, including poverty, stress, and differing levels of parenting complexity.

Johnson and L'Esperance emphasized the questions of the quantity and quality of child care that was available. Baird found the question of the presence of more than one maltreatment type in a single family to be highly relevant and it is possible that this provides an indicator of more intense, and more complex, forms of pathology. For Baird the number of adults in the home was important for physical abuse but not for neglect, and he found that single-parent families were significantly associated with neglect but not with physical abuse. Jones and McCurdy also linked single parent families to neglect and stressed the issue of poverty as well. Jones and McCurdy found that the presence of young mothers was

important for physical abuse and Baird found that the question of young caretakers was relevant for physical abuse but not for neglect.

Baird noted that the presence of a protective non-perpetrating caretaker was significant for physical abuse but not for neglect. Jones and McCurdy also noted that young children are critical victims of neglect and the general relevance of age was confirmed by McCurdy and Daro as well as Miyoshi and Fryer. While Johnson highlighted the question of social isolation and Jones and McCurdy provided evidence that the occurrence of physical abuse was tied to increased concentrations of population and neglect was associated with smaller communities the research concerning social variables is rudimentary at this point in time. Johnson's suggestion of a small negative correlation between the presence of the biological father in the home and the probability of maltreatment is also of interest.

#### Issues in Child Maltreatment Risk Research

It is evident that there is little agreement in the literature concerning the proper variables to be considered when estimating the risk of child maltreatment. It seems likely that the root problem is that the data which exists within child welfare systems are created to serve legal and administrative purposes as well as to record those items where there is a consensus concerning their relevance. As has been shown this consensus is not itself founded on demonstrably viable theoretical propositions and



the limitations of the research are a replication of the limitations of the theory.

What is perhaps of greatest importance is that a large number of variables have been eliminated from the analysis. Eliminating those items which have displayed no association with recurrence is an essential first step in the evolution of this area of study. (Baird, 1988; Johnson and L'Esperance, 1984; McDonald & Marks, 1991) Researchers have had no choice but to analyze the data which were available to them. The problems associated with recurrence as a criterion variable, when combined with the small sample sizes common to this research, require that we be tentative concerning any conclusions at this point in the development of our understanding.

In 1992, Pogge in his summary of the findings from child maltreatment risk assessment research wrote:

In order to determine risk factors adequately, we need better definitions of abuse and some consensus about those definitions among researchers. It appears inevitable that methodological constraints will permanently limit our ability to identify and validate risk factors. Mental illness, personality disorder, and personality traits have not proven to be effective predictors of either physical abuse or sexual abuse, regardless of their possible etiological role. Demographic factors-age, race, ethnicity, socioeconomic status-do not appear to be strong predictors of abuse, although some constructs related to them, particularly stress and family integrity, may be

related. The Abuser-Abused Hypothesis is probably over-rated as an explanation for abuse and does not appear to be an effective predictor of abuse. History of abuse is a statistically significant risk factor, but by itself it appears to provide far too many false positives to be effectively employed. It seems likely that the strongest predictor variables are psychological aspects of the abuser and stress factors in the environment. These are also the variables least likely to be accessible prior to the occurrence of the abuse, and the most difficult to evaluate empirically. Consensus concerning definitions, systematic programmatic research, and the development of substantive data-driven models of the various processes which lead to the various types of child abuse will be necessary before the identification of populations at risk will be practical. (pp. 246-247)

Subject to these caveats, Pogge identified a series of factors which were, and were not, associated with child maltreatment.

**PHYSICAL ABUSE:**

**Positive Association:**

- Stress levels.
- Limited knowledge concerning child care.
- Low tolerance for stimulus behaviour by children.
- Misattribute negative meanings to children's behaviour.
- Cultural tolerance of aggression.

- Caretaker physically abused as a child.
- Witnessed family violence as a child.
- Limited anger management skills.

**No Association:**

- Mental illness.
- Personality traits.
- Economic Status.
- Ethnicity.

**SEXUAL ABUSE:**

**Positive Association:**

- Victim-related factors:...
- Perpetrator-related factors:
- Paraphilias, particularly pedophilia.
- Victim of sexual, physical or emotional abuse. (Doubtful Value).
- Significant Psychopathology.
- Criminal Record.
- Poor Social Skills.
- Poor self-esteem.
- Passive-dependency.
- Problems in sex role identity.
- Difficulty functioning in adult sexual relationships.

- **Over/Under-control of anger or aggression.**

**No Association:**

- **Socioeconomic status.**
- **Ethnicity.**
- **Mental illness, other than paraphilia and personality disorder.**
- **Substance Abuse. (pp. 245-246)**

**It is well to bear in mind that the hopes for statistically-based risk assessment as yet exceed our ability to provide scientific guidance for these decisions. An over-estimation of the viability of current work in this area is likely to blind us to the need for us to refine the concepts further and also to greatly improve our research designs. In the resource materials which they provide to child protection advisors, Britain's National Society for the Prevention of Cruelty to Children articulately argues the case for professional judgment, using a basic conceptual framework, as the means of assessing risk. While they are silent concerning the specific roots of these judgments in fundamental theory, and what the evidence would be that validates that theory, they are very persuasive concerning the limits of the empirically-based risk research which has been published to date. Following an effective critique of the claims presented at differing points in time by Kempe and Greenland they state the case for a judgment-based approach to risk assessment. (pp. R-1-1 - R-1-9)**

"The amount of scientifically validated research on child abuse and neglect is vanishingly small.' (Dingwall, 1989) Although risk assessment schedules are in widespread use throughout North America, and the Department of Health's publication "Protecting Children" (HMSO 1988) runs the risk of being used as one in over-anxious hands, we must still conclude that the value of any predictive checklist is slight. Indeed, such instruments probably do more harm than good because of the way they tend to undervalue and undermine professional judgment.

Does all this mean that attempting to assess risk in child protection work is misconceived? If we do not have the data; if there are no thresholds; if we cannot predict - what possible value can "risk assessment" have? This is a tempting line of thought, but it is mistaken. The conclusion we can draw is that any concept of "risk" which is too closely tied to actuarial statistics will not be of much use. (p. R-1-9)

The actuarial vs. consensus dispute with respect to risk assessment in child protection work is generally misunderstood. In both cases the variable scores are the result of measurements and cognitive constructs applied by child protection workers. Thus the potential variables are limited to those concepts which are meaningful to the workers and within their competencies to apply. The issues of measurement error, and the significance and clarity of the concepts, are identical for both groups.

The difference between the two is found with the means used to process the information: actuarial systems use formal, repetitive information processing systems, such as statistical analysis; the consensus systems are not explicitly concerned with how the information is to be analyzed. Indeed, the variables which are used and their weightings are applied using an interpretive method which will vary from worker to worker, and case to case.

There are significant limitations to both approaches. Actuarial systems have tended to overestimate the quality of the data available and to underestimate the difficulties resulting from practical problems concerning experimental design. Consensus systems have made uncritical use of poorly conceptualized measures and unspecified, perhaps unknown, methods of drawing inferences. The reflective processes of the worker and statistical analysis are different means of reaching conclusions, however, they should ultimately become mutually consistent. The characteristics of a particular family, and the relationships of these characteristics with recurring child maltreatment, are a reality which is approximated by either method. If the methods are valid, and are subjected to detailed scrutiny and successive approximations, the results from differing methods will converge over time. If the same variables, measured in the same manner, produce different answers when processed by different methods, one or both of the methods would be judged to be inaccurate.

## RESEARCH DESIGN

### Rationale and Background

In 1993, funding was secured from the Family Violence Prevention Division of Health Canada, The Winnipeg Foundation, and the Thomas Sills Foundation to acquire data in order to gather empirical information concerning risk assessment within child welfare systems. The Manitoba Risk Estimation System had been implemented, and approximately 1,200 child welfare staff trained in its use, within the cities of Winnipeg, Brandon, Ottawa and Thunder Bay. The relevant organizations are the Winnipeg Child and Family Services Agency, Child and Family Services of Western Manitoba, The Children's Aid Society of Ottawa-Carleton, and The Thunder Bay Children's Aid Society. The agencies agreed to make copies of MRES forms that were completed concerning their active intakes during the calendar year 1994, available to the project.

It was consequently possible to create a data set composed of basic information concerning the age, gender and relationships of a set of children and adults from families where maltreatment was occurring. In addition, the adults were described by a set of measures of their social and psychological characteristics which had been seen to be relevant to child maltreatment by practitioners, and also received support within the risk assessment literature. These were defined and provided with operational measures so that they could be applied by differing workers in a standardized manner. (Sigurdson & Reid, 1990).

The fundamental practical limitation to research concerning risk assessment in child protection systems is the inherent difficulty with respect to measuring and interpreting the recurrence of child maltreatment. Confirmed rates of recurrence are of doubtful accuracy and there is no practical means of securing a control group, where the characteristics of the family can be measured without the intervening effects of child protection interventions. Few researchers would suggest leaving a child in a dangerous situation merely for research purposes. It is conceivable that there are families and individuals which are alike in all obvious measurable characteristics, but, whereas one family or individual may perpetrate child maltreatment, apparently similar persons and families will not. Consequently, it is possible that many characteristics are spuriously correlated with maltreatment. One result of this observation is that it is extremely difficult to predict the first maltreatment event that someone may perpetrate.

However, the primary problem for child welfare practitioners is to predict the recurrence of maltreatment, rather than the first incident. This simplifies the research problem considerably as the breach of the child care norms has already occurred and the individual is thus differentiated from the general population. While recurrence has been shown to be problematic as a criterion variable, child welfare law presupposes that such judgments are both practical and valid. (Wald & Woolverton, 1990) These decisions are premised upon the assumption that we understand what characteristics typify families that are likely to reoffend if intervention does not occur, and the authority for the



intervention is based upon the probability of a recurrence of maltreatment. Recurrence, while certainly a measure of the perpetrator's predisposition to perpetrate maltreatment, also measures the ability of a perpetrator to avoid detection, the structure of the agency, the nature of the intervention, the characteristics of the worker, and the relationship between the worker and the individuals involved. As these variables are inextricably tied together, recurrence is severely flawed as a standard to assess particular predictors.

In the absence of control group data and an adequate standard for measuring recurrence, the fundamental hypothesis-in-use with respect to the prediction of recurrence is that to the extent a particular adult manifests specific characteristics which resemble those which are known to be associated with child maltreatment, it is likely that an instance of maltreatment is imminent. The primary strategy which will be employed in this research is to explore whether there are measurable characteristics which are evident within the data set which describe children who are victims of maltreatment, and the adults who are perpetrators of maltreatment.

#### **The Data Collection Instrument:**

#### **The Manitoba Risk Estimation System**

Version 3.5 of the MRES, which was used as the data collection device for this research, is a set of 25 standardized scales which are intended to assess the adults involved with maltreatment events. Risk is

thus understood to be primarily a characteristic of the adults, not the children. While the behaviour of the child is relevant, maltreatment is not justified by the child's behaviour. Stimulus behaviour on the part of a child can elicit aggressive, aversive, or nurturing responses on the part of the adult and the relevant component of this issue is the adult's response. The adult's attitudes which are relevant to this issue can be measured by the scales concerning the adult's "Perception of the Child" or the nature of the "Attachment" between the parent and the child. The intervention of the state in the family through child welfare legislation is primarily premised upon a judgment concerning the viability of the caregivers. Whatever the characteristics of the child, the state will decline to intervene if a competent caregiver is present.

The scale data can be compressed into 6 composite scales and further compressed to the three components of risk: the vulnerability of the child, the likelihood of a recurrence of maltreatment and the probable severity of such an event. These three concepts and the interactions between them comprise the operational definition of risk in the context of child protection work. The instrument also contains additional questions concerning the age and gender of the caregivers and all children in the family; as well as a specification of the family type which defines the relationships between the adults, and between the adults and the children.

The maltreatment types are defined as cases manifesting physical abuse, sexual abuse, emotional abuse, neglect or some combination of these categories. These terms have both legal and clinical meanings and

the definitions are standardized within the MRES by requiring clinical indicators to be consistent with the legal definitions. The differences in statutes between the Provinces of Ontario and Manitoba have not been seen to produce any substantial problems with respect to standardized meanings within the data set. (Reid & Sigurdson, 1990).

The following material provides brief descriptions of the relevant scales and their operational definitions. Full definitions are included in the manual for the MRES which is appended as Appendix A.

**Adult Caregiver Descriptors:**

- **Perpetrator (Yes/No).**

Indicates whether or not the adult was an agent of maltreatment. This includes omission of adequate care for a child as well as active harm.

- **Gender.**

Male, Female.

- **Age.**

In years.

- **Relationship to Child.**

While there are many categories that describe this relationship within the instrument, for this analysis the data have been grouped into two categories that define the relationship distance between the adult and the child: a biological parent and a caregiver that is not a biological parent.

- **Maltreatment Type.**

The categorization of the maltreatment event as exemplifying physical abuse, an adult intentionally inflicting serious physical injury upon a child; sexual abuse, an adult engaging in sexual activity with a child; and, neglect, exposing a child to significant threats to his/her well-being through an omission of care.

- **Access to Child.**

The ease with which the perpetrator can gain admission to the presence of the child.

- **Adequacy as Protector of Child.**

An assessment of the extent to which a relevant non-offending adult is able to protect the child.

- **Substance Abuse.**

The level of addiction which is evident. The persistence of the drug-seeking behaviour of the adult.

- **Psychopathology/Incapacity.**

The degree to which the functioning of the adult is limited by a serious psychiatric disorder or intellectual incapacity.

- **History of Violence.**

Evidence that this adult has engaged in violence directed towards other adults. A general predisposition to violent behaviour.

- **Stress.**

The presence of factors in the adult's environment that serve to destabilize the behaviour of the adult. (e.g. poverty, major changes in life situation, significant health problems.)

- **Perception of the Maltreatment Incident.**

The accuracy of the adult's understanding of the maltreatment incident. The extent to which the adult blames the maltreatment on the child is of particular importance.

- **Perception of the Child.**

The degree to which the adult's understanding of the child is appropriate and includes a judgment of the extent to which the adult finds the child to be intrinsically important.

- **Attachment.**

The depth and quality of the affective connection between the adult and the child.

- **Attitude Re: Discipline.**

The adult's understanding that discipline is intended to act in the child's interests, not as an outlet for the adult's aggression. Under-intervention is as problematic as excessive discipline. The question of the conformity of the adult's opinion concerning appropriate physical discipline with the law is of particular importance.

- **Parenting Knowledge & Skills.**

The degree to which the adult possesses adequate knowledge concerning child development and the skills necessary to apply this knowledge in assisting the child to develop.

- **Reference Group Values.**

The presence of an identifiable and important reference group for the adult that provides normative support for, or opposition to, child maltreatment.

- **Social Isolation.**

The degree to which an individual possesses viable social relationships.

**Child Descriptors:**

- **Gender.**

Male, Female.

- **Age.**

In years.

- **Ability to Protect Self.**

The extent to which the child is able to protect her/himself from the relevant maltreatment.

**Family Characteristics:**

- **Family Type.**

A series of nominal categories which define the relationships between the adults, and between the adults and the child.

These have been reduced to three types for this research: I: two biological parents; II: Single-parent, female-headed families; and, III: Families in which at least one parent is not a biological parent of the child.

- **Marital Conflict/Support.**

A summary judgment concerning the viability of the family relationships. The may range from positive and supportive to overtly violent and destructive.

- **Reinforcement.**

The extent to which the relationship between the family members and their behaviour increases the likelihood of child maltreatment occurring.

- **Siblings.**

The presence of other children in the home and the extent to which they are displaying problematic behaviour, or are subject to maltreatment.

#### **Indicators of the Maltreatment Pattern:**

- **Actual/Potential Severity of Injury (Current).**

An assessment of the degree of seriousness of the actual or potential harm to the child. There are equivalencies between different maltreatment types.

- **Actual/Potential Severity of Injury (Prior Incidents).**

The application of the scale concerning current injuries to prior instances of maltreatment.

- **More Than One Abuse/Neglect Type.**

The simultaneous occurrence of more than one type of maltreatment.

- **Recency (Prior Incidents).**

The distance in time of prior incidents of maltreatment from the current incident.

- **Frequency (Lifetime).**

The number of instances of maltreatment perpetrated by an adult in the course of their life.

- **Severity Trend.**

An observation that the severity of the instances of maltreatment perpetrated by an adult is increasing, remaining constant, or decreasing, over time.

- **Frequency Trend.**

An observation that the number of occurrences of the instances of maltreatment perpetrated by an adult are increasing, remaining constant, or decreasing, over time.

There are three questions omitted which are basic to the child welfare belief system: these are the questions of the use of criminal convictions as predictors, the use of the client's compliance with the agency's plan as a predictor variable, and the belief that being abused or neglected as a child is a predictor of whether that person will perpetrate maltreatment as an adult. While many of the clients of the child welfare system fulfill all these criteria, many or most persons who have been maltreated as



children and most criminals do not perpetrate child maltreatment. If a person has been convicted of a crime of violence, that may indicate that violence is a preferred adaptive technique, and this is particularly important if the offense involved personal violence, such as spousal abuse. In those cases the particular crime is highly relevant. The relevant issue is the caretaker's proneness to physical violence, not the more general question of criminal behaviour.

The use of the extent of perpetrator's compliance with the agency's wishes as a part of a risk assessment could permit the organization to elevate the risk level of a non-compliant client and thus make it more likely that intervention will occur. This is not the appropriate point at which this issue should be considered. The condition of risk is a quality of the family's existence within its environment without the active engagement of the agency. Once it is decided that the risk of maltreatment to the child justifies intervention, one may appropriately consider the level of compliance on the client's behalf with the agency's intervention as a part of the assessment. A highly noncompliant client will restrict the possible interventions that are available, and thus will often force the organization to be more obtrusive than would have otherwise been the case. The question of compliance should not alter the primary risk assessment, only the intervention strategy.

With respect to the inter-generational transmission of maltreatment it is possible that a person may learn to legitimize maltreatment by being a victim of this behaviour or by observing its chronic presence in their family of origin. However, it remains the case that many or most persons

who experience maltreatment as children do not perpetuate this behaviour when they become adults. Indeed, it is possible that being the object of violence may well have the effect of lessening the likelihood of that person becoming a perpetrator of maltreatment. In those cases where a person has not resolved these issues, the problems will become evident when measured by a number of scales within the MRES, including the way this person thinks about their child, the norms of parenting behaviour that they espouse, their beliefs concerning appropriate discipline, and whether or not they display a defective attachment to the child. (Pogge, 1992; Kaufmann & Zigler, 1987)

In summary, the MRES thus provides a broad based picture of a family manifesting problems with respect to child maltreatment. The picture is formed from workers' perceptions, as framed by a uniform set of concepts with standardized abstract and operational definitions. These measures encompass basic demographic and clinical material, including both social and psychological indicators. The latter are not treated as different modes of discourse but rather as interrelated manifestations of the self. Such a regularized set of ideas and procedures enables cases to be compared across jurisdictions.

### Data Analysis Strategy

The intention of this research is to examine the characteristics which are common to persons who perpetrate child maltreatment. Such characteristics may cluster as typologies which are sufficiently detailed

as to distinguish between qualitatively different situations. The profiles are the product of an analysis of the variables contained in the MRES, which were just described in previous section, and are more completely described in the MRES Manual, Appendix A. These variables provide descriptions of the participants, particularly the caregivers, including their attitudes towards the child, their personal characteristics, and their social relationships.

The issue of the validity of the practice of constructing typologies of maltreatment is central to this study. It is generally held that different types of maltreatment are associated with different critical variables. It seems reasonable that the psychological, social, and relationship characteristics of a family that is acting out a father-adolescent daughter incest scenario will differ from a family involved with chronic neglect and active substance addiction. The preponderance of the relevant empirical work that has been done has been delimited to attempting to differentiate between neglect and physical abuse situations. To date there are no child welfare risk assessment studies that empirically identify sub-sets within the maltreatment categories and examine the problem of sexual abuse as well as neglect and physical abuse. This is due, in part, to the fact that risk assessment research concerning child protection work is a comparatively new field of study. Within the brief time period that these issues have been studied, our understanding of these concepts and their applications has changed to some extent. Child maltreatment may result from a variety of causes and reasons, and one would expect

that there may be different combinations of variables that typify different forms of maltreatment.

Child maltreatment was originally seen in the form of “the battered child” often portrayed in terms of physical abuse. Today, four general categories of child maltreatment are generally recognized: (1) abuse, (2) sexual abuse, (3) neglect, and (4) emotional maltreatment. Each category covers a range of behaviors...

These four categories have become the focus of separate studies of incidence and prevalence, etiology, prevention, consequences, and treatment, with uneven development of research within each area and poor integration of knowledge across areas. Each category has developed its own typology and framework of reference terms, revealing certain similarities (such as the importance of developmental perspectives in considering the consequences of maltreatment) but also important differences (such as the predatory behaviour associated with some forms of sexual abuse that do not appear in the etiology of other forms of child maltreatment). National Research Council (U.S.), Panel on Research on Child Abuse and Neglect, (1993).

Given the absence of agreement concerning theoretical explanations for maltreatment behaviour, risk researchers have attempted to provide aetiological analyses, to the extent that statistical analysis can be considered aetiological. The usual strategy has been to first examine bivariate associations between predictors and recurrence, and to then

attempt to differentiate on a multivariate basis between those who reoffend and those who do not, by the use of discriminant function analysis. The independent variables are selected from those variables which have shown a bivariate association with the confirmed recurrence of maltreatment. While some progress has been attained, particularly with respect to the elimination of variables that seem to be unrelated to recurrence, research in this field is at an early point of development.

If the analysis of these data is able to establish patterns of distinct characteristics which differentiate between maltreatment types, it can provide a basis for designing further work to investigate the relationship between measurable characteristics and theory concerning the causes and reasons for the perpetration of child maltreatment. Thus the primary question for this dissertation is the description of differing maltreatment typologies and an assessment of their similarities and differences. If such differences exist they may well be amenable to interpretation by a range of theories.

A preliminary analysis of these data has suggested that increased relationship distance between the adult and the child expresses a lowered expectation that the adult has a duty to act in the child's interests. (Reid, Sigurdson, Christianson-Wood & Wright, 1995) Explanations of the impediments to adequate affective connections between the adult and the child range from intrapsychic issues to social bonding theories. If the characteristics associated with different family

types within these data differ markedly, this result would suggest that further research concerning this issue would be useful.

In summary, as it is difficult to confirm the recurrence of child maltreatment, and control groups are not available, an alternate strategy is required. An analysis of the characteristics of families at the point when maltreatment occurs may reveal patterns of individual variables, or combinations of variables, which are associated with particular forms of maltreatment, and/or different family types. Given the significance of the question of relationship distance, and the differing clinical pictures that the maltreatment types suggest, these two concepts: family type, and maltreatment type, have been used as the fundamental grouping variables for the following analysis. If the presuppositions are correct, the typologies should differ from each other in measurable ways.

The identification of characteristics which are common between maltreatment types will provide the ground for this analysis. In accordance with the criterion of parsimony, the most desired outcome would be the identification of the smallest number of variables that are consistent with occurrences of child maltreatment. However, to the extent that differences between maltreatment types and family types describe qualitatively different situations, these characteristics are lost when all data are subjected to a single analysis.

## Design

All cases which have been included in the data set have had the occurrence of the maltreatment event substantiated, and the agent(s) of the maltreatment identified. Any cases where this question was uncertain were eliminated from the analysis. The emphasis has been on the acquisition of thorough and accurate data, and therefore staff were instructed to indicate that information was unknown rather than provide an estimate when the available information was inadequate. While these data were acquired at differing points in the casework process, the unifying idea was that the assessment was intended to describe the family at the point when the maltreatment incident occurred. It is highly likely that the same scores would be assigned if these cases were reevaluated at a later date, given the same information.

The cases were classified initially by placing them into one of twenty-seven possible family categories. As many of these family categories had very few occurrences in the data these categories were grouped into five family types. The decision concerning the amalgamation of these data was based upon the relationship distance between the adults and the children. As only Family Types I, II, and III occurred in sufficient numbers to permit multivariate analysis, Family Types IV and V were removed from the data set.

**Family Type 1 (F.T. 1):** This family type refers to those families in which both caregivers are the biological parents of the child(ren).

**Family Type 2 (F.T. 2):** This family type refers to those families in which the caregiver is a single biological female parent of the child(ren).

**Family Type 3 (F.T. 3):** This family type refers to those families in which there are two caregivers, male and female; one of the caregivers is a biological parent of the child(ren), and the other is not a biological parent of the child(ren).

**Family Type 4 (F.T. 4):** This family type refers to those families in which one or more extended family member(s) or substitute parent(s) provide care to the child(ren). This category includes all those types that do not fall into Family Types 1 through 3.

**Family Type 5 (F.T. 5):** This family type refers to those families in which the caregiver is a single biological male parent of the child(ren). (Reid, Sigurdson, Christianson-Wood & Wright, 1995, p. 1)

Since we are concerned with the primary descriptions of the adults the scales representing summaries or composite scores of other scales were deleted from the analysis. The scales concerning the frequency and severity trends were thus omitted as were the scales which summarize the individual sections of the instrument. In addition, the variables concerning the vulnerability of the child were deleted as, while they are critical to the question of risk, they are peripheral to the question of the characteristics of adults who perpetrate maltreatment.



The following issues are fundamental to improving our understanding of risk assessment, and comprise the central research questions for this study:

- To identify variables which measure the characteristics which are common to differing maltreatment types.
- To identify characteristics which measure the characteristics which are common to differing family types.
- To investigate whether it is possible to identify child maltreatment typologies within these data.
- To determine whether or not the MRES variables differentiate between persons who are perpetrators of maltreatment at low levels of severity and those who perpetrate maltreatment at high levels of severity.
- To identify the predictors of the probable severity of a future instance of a particular form of child maltreatment, if they are present in these data.

### Typologies

The grouping variables which have been used, maltreatment type and family type, define the following research questions:

- If there are characteristics of maltreatment types, or family types, which are held in common, these will be shown by variable scores that are consistent across categories.
- If differing maltreatment types represent distinct phenomena; the measurable characteristics of perpetrating adults, and the characteristics of children who are victims, will differ between types.
- If differing family types represent distinct phenomena; the measurable characteristics of perpetrating adults, and characteristics of the children who are victims, will differ between types.

For the purposes of this study a typology will be defined as a set of child maltreatment cases which display differing patterns of central tendency when compared to other sets of maltreatment cases. Such differences must, at minimum, meet a test of bivariate statistical significance. The sets are defined by the criteria of Family Type (I, II or III), and Maltreatment Type (Neglect, Physical Abuse, or Sexual Abuse).

The cases are being compared with respect to the characteristics of the children who are the victims of maltreatment, and the characteristics

of the most prominent perpetrating adult (Adult A), As there is a great deal of data missing concerning the second adult in the family, Adult B, it is not possible to perform even simple statistical tests concerning these individuals and rely upon the results. Consequently, the characteristics of persons represented as Adult B are not used in this analysis. The variables<sup>1</sup> which were used in this analysis are:

**Child:**

Age.

Gender.

**Adult A:**

Age.

Gender.

Severity of the Current Incident

Severity of a Prior Incident

Perception of the Incident.

Perception of the Child.

Attachment.

Attitude re: Discipline.

Parenting Knowledge and Skills.

Substance Abuse.

History of Violence.

Psychopathology/Incapacity.

Stress.

Reference Group Values.

Social Isolation.

Descriptive statistics and tests of significance are calculated with respect to comparisons within the following data sets:

---

<sup>1</sup> For definitions and explanations of the variables please refer to Appendix A, pp. 269-312.

- The three maltreatment types: neglect, physical abuse, and sexual abuse. If there are differences between these groups that are not dependent upon the family type, they will be evident at this point.
- The three Family Types: I, II or III. If there are differences between these groups that are not dependent upon the maltreatment type, they will emerge from this analysis.

Logistic Regression analysis is being used to attempt to find multivariate predictors of both Family and Maltreatment Types using variables that have displayed bivariate statistical significance. As listwise deletion of cases is being used to deal with missing data, and as the possible variance is limited by the scale categories, it will be very difficult to produce viable multivariate predictions. (Allen & Yen, 1979, pp. 34-48) Whenever these analyses produce statistically significant results, the variables and their interpretation will be of interest.

Factor analysis is being used for the subsequent analysis of the full data set as well as the individual typologies and latent structure was evident within these data. This analysis provides additional information concerning covariance within differing maltreatment categories, and also allows for an assessment of whether the grouping of the variables within the MRES are appropriate.

### Severity

- If the MRES variables measure different intensities of the characteristics which are associated with child maltreatment, higher scores on individual variables, or clusters of variables, will be associated with higher degrees of severity of maltreatment.
- Different combinations of variables may be associated with differing levels of severity of maltreatment, within different typologies.

The severity of instances of maltreatment may be related to questions of maltreatment type and family type. When cases are grouped by family type and maltreatment type, differences are apparent with respect to the variables which are relevant to the prediction of severity. Therefore, the same categories, grouped by maltreatment type and family type, that were used to examine the issue of the identification of typologies are used to explore the problem of the prediction of severity.

The probable of severity of a future maltreatment event may be tested by treating the severity of the current incident as the outcome variable; and using the variables describing the child and the adult, and/or the severity of a prior instance of maltreatment, as predictors. As the variables are of different data types, and most of the variables are measured by ordinal scales, the appropriate statistical technique is logistic regression.

The ability to discern the differences between situations where the potential for severe maltreatment is imminent, and those where the possible maltreatment would be at a low level of severity, is critical to child welfare practice. As it is not desirable to remove children from their families if there are other options available, the best solution to a particular child welfare problem may be to permit the child to remain in the parent's care although there is a possibility that continuing, low severity maltreatment will occur.

The contrast between low and high severity cases is enhanced within these data when the variable measuring the severity of the current incident is transformed from an ordinal to a dichotomous variable by placing the cases manifesting very low and low levels of severity in one set, and those scored as very high and high severity in a second set. By omitting the middle group from the analysis, it is possible to test whether the MRES variables discriminate between cases based upon the intensity of the maltreatment which has been perpetrated, and whether these patterns differ by maltreatment type. Bivariate tests of significance have been used to assess the relevance of individual variables.

---

### Issues Concerning Statistical Analysis<sup>2</sup>

The usual questions of the linearity of the variables and problems with respect to skew and homoscedasticity are not problematic for this analysis as the statistical tests in use are designed for use with ordinal and nominal variables with non-normal distributions. Thus, logistic regression, is the test of choice for the prediction of severity; and the factor analyses are carried out using Spearman's rho. Kendal's tau is also used at some points as a comparative measure of non-parametric correlation. In general, Spearman's rho will provide lower correlation coefficients than either Kendal's tau or Pearson's r, and is thus the most conservative measure of association. (Gorsuch, 1983, pp. 128-129; Darlington, 1990, pp. 369-377.)

Age is the only continuous variable within the data set. The others are category scales with a maximum of seven, ordinal categories. As a consequence of the restricted range of possible scores and non-parametric correlation, the variance is attenuated, and the possibility of observing statistically significant results from multivariate analysis is quite limited. Thus any statistically viable results have fulfilled very stringent methodological tests.

There is no precise means to determine the quantum of difference that must be present in the data which are analyzed in order to conclude that these differences are of substantive importance with respect to the problems which are under consideration. The standard statistical tests

---

<sup>2</sup> The program JMP: Statistics for the Apple Macintosh was used for all the statistical

provide a valid answer to this question in proportion to the extent that these data represent precise measurements, and that is clearly not the case with respect to these data as they are, for the most part, 5 to 7 point, ordinal scales. A prudent approach to this question, and the one that will be utilized, is that while marginal differences in results will not be taken as meaningful, differences of large magnitudes that are evident in the results, given the general conventions of ordinal scaling, will be considered a viable basis for judging differences. For the bivariate analyses, statistical significance must equal or exceed the .05 level for both the Likelihood Ratio Chi Square and the Pearson's Chi Square in order for the association between the variables to be considered as meaningful. For logistic regression, only the Log Likelihood Chi Square is calculated.

A final consideration is that, since a large number of bivariate analyses have been calculated, some observed associations may result from random variation. The greater the level of significance shown, the lower the probability that the association is spurious. As a result of the extent of the missing data, the presence of ordinal scales, and the restricted range of the scores, the possibility of valid results emerging from multivariate analyses is limited. In consequence of these practical limitations, bivariate tests must be used, but the results should be interpreted with caution.



## THE DATA SET

This chapter describes the technical arguments with respect to the nature of the data set, and assesses the quality of these data. While information was collected concerning 2,866 cases, only 955 of these cases are used for this analysis. The two major reasons that were used to exclude case descriptions from this analysis are: (1) the cases are missing data to the extent that the results are not meaningful, and (2) the elimination of repeated counting of the characteristics of the same adults when there were a number of children who were victims in the same incident.

In brief, the sample selection procedures and the editing of the data set which was necessitated by the missing data determine that there is no valid procedure which may be used to generalize from the results of this analysis to a population. However, the remaining information concerning confirmed instances of maltreatment is of reasonable quality, and the data set is of sufficient size to permit the formation of conclusions concerning the viability of typologies which describe the characteristics of the differing family types which are associated with specific types of child maltreatment. The primary goals to be achieved by editing the data set, the elimination of incorrectly scored cases and of those containing too little information to be of use in the analysis, has been achieved. The following analysis presents the evidence and analysis supporting these conclusions.

The initial expectation was that analyses of an adequate number of cases would be received from the participating organizations, however, this did not occur. Thus, data resulting from the use of the instrument in these organizations during the calendar year 1994 was supplemented by a review of closed files from the Winnipeg Agency. Participating agency staff had been trained in the use of the MRES by the researchers, and 7 undergraduate social work students and 1 graduate student were also trained so that they could conduct the review of the closed files. As the agency staff worked within a traditional supervisory structure and the students worked as teams with a researcher supervising them, the scores are the consequence of a consultative process. The quality of the data was thus improved and the idiosyncratic views of individual practitioners were minimized.

The acquisition of this information was intended to rectify some of the difficulties evident within the literature. The foremost of these is the assumption that concepts are understood and operationalized by workers in a standardized fashion. Previous researchers have been dependent upon the existing child welfare services for data collection and have generally not had independent resources available to train staff. In preparation for this study, staff received three days formal training in the use of the instrument and this was supplemented by ongoing supervision. The results of assessments carried out during training sessions indicate that child protection staff are competent to score cases accurately if they are motivated to do so. The combination of extensive

training, close supervision, and the provision of a detailed manual<sup>1</sup> ensured that a high quality of data was possible. Variance from the correct answers as defined by the scales may be assumed to occur randomly. Thus the mean values and outcomes of correlation-based statistical tests should not be affected in a substantial manner. The existing supervisory structure, regular monitoring of performance, and group case evaluation techniques served to standardize the ratings. In summation, the measurement qualities of these data are reasonable when assessed by the usual social science conventions.

In order to minimize data entry errors the data set was scrutinized on a random basis, sampling approximately 10% of the cases, by two project researchers, neither of whom was entering data. In addition, a macro-program was written that examined the data set for non-permissible scores and for other defined errors, such as mistakes resulting from recopying an entry at a later point in the data entry process. This process was very successful at identifying recognizable errors, and the systematic errors resulting from data entry also appear to be acceptably low, and may be presumed to be randomly distributed around the predefined correct score.

These data were then screened to remove cases which were missing critical information. In order for these data to be useful for this research it was essential that the maltreatment be clearly substantiated and that there be sufficient information for the analysis to be adequately performed. The primary point of the research is to investigate whether

---

<sup>1</sup> See Appendix A, pp. 269-312.

specific variables are associated with particular typologies of child maltreatment and to explore the interrelations between these variables. As such, it is essential that the analysis be based upon substantiated instances of child abuse or neglect. Many of the cases were missing basic factual information, particularly with respect to the characteristics of a second caregiver. One may infer from this, and from personal communications with child protection staff, that many case decisions are made using partial information and without the worker directly contacting both caregivers.

In situations where a single maltreatment event included a number of victims, only the scores relevant to the youngest child were retained. This solution avoids the distorting effect in the analysis of the repeated counting of the same perpetrators, and the child variables describe the most vulnerable child. There were also cases where the scores were uninterpretable. The particular scores which were assigned to these cases did not permit a coherent explanation and it was not possible to rectify what were probably coding errors. These cases were also removed from the analysis. In addition, the low numbers of cases concerning Family Type IV, extended families as caregivers; and Family Type V, single, male biological parents; meant that they were removed from the data set.

Table 1 groups the data using the particular type of abuse or neglect that has occurred as the primary grouping variable, and the family type as the secondary grouping variable. The counts show their comparative frequencies of occurrence in the data set. Family types I, II and III are the most common within all of the maltreatment categories and numbers of

cases in each group for Family Types IV and V are too low to be of use within this analysis.

The Sexual Abuse-Family Type II category seems to have been scored incorrectly, and thus has also been excluded from the analysis. While these are defined as single-parent female headed families the sexual maltreatment of the children appears to have been carried out by men. If this is correct, the proper categorization would be have been neglect as the primary concern with respect to the female caregiver in these families is her willingness and her ability to protect the child, not her characteristics as a sexual offender. While miscategorization of these cases seems to be the most plausible explanation, the manner in which these data have been scored leaves some considerable ambiguity concerning their meaning and the safest solution will be to omit this category from consideration.

The eight most frequently occurring categories will provide the basis for the analysis of typologies: Family type I - Neglect, Physical Abuse and Sexual Abuse; Family type II - Neglect and Physical Abuse; and, Family type III - Neglect, Physical Abuse and Sexual Abuse. These typologies can be compared to each other; as can different maltreatment types across variables; and, also, family types across variables. It may thus be possible to see whether the relationship distances which the family types represent are indicative of substantial differences between the typologies; and whether the values of particular variables are of greater significance to differing family types, or to differing maltreatment categories.

Table 1

**Composition of the Data Set by Maltreatment Type & Family Type:**

MALTREATMENT TYPE	FAMILY TYPE (N)				
	I	II	III	IV	V
Neglect	110	259	52	11	22
Physical Abuse	216	125	90	15	22
Sexual Abuse	59	29	62	12	8

The data set was intended to provide a comprehensive set of social and psychological measures of individuals, which had been collected in a standardized manner, using uniformly defined and operationalized concepts. The possible values for individual scales range from 'Protective', which records the presence of a positive characteristic in the family which contributes to the safety of the child; through to 'Very High', which represents the highest level of possible contribution of a single variable to the threat to the child. A score of 'Very Low' defines the threshold which represents a significant contribution to a threat to the child. 'Not applicable' is defined as positive knowledge that this item is not relevant to a particular situation and the absence of a score indicates that this information was not known by the person completing the form. Structuring the data in this manner results in the creation of scales which have a maximum of seven ordinal categories.<sup>2</sup>

---

<sup>2</sup> Please refer to pages 199-205 for examples of the scale indicators.

The data representing the scale results are coded with the following scores:

Protective	-1	Not Applicable	0
Very Low	1	Low	2
Medium	3	High	4
Very High	5	Unknown	Blank

The instructions that were given to the agency staff and the research assistants emphasized that it was critical that particular scores be accurate and that it was preferable that a scale be scored as 'unknown' than to guess and record an inaccurate opinion. While these procedures provide some comfort that the data are reasonably accurate they no doubt also contributed to high levels of missing data within the data set.

The data collection process thus resulted in the creation of a data set containing cases involving families involved in a single, current maltreatment incident. The maltreatment event has been substantiated in each case and, while particular scales may have been scored at different points in time following the incident, the scores are descriptive of the characteristics of the individuals at the point when the maltreatment occurred. The resulting data set consists of information concerning 955 incidents of maltreatment and the sources of these data are distributed as follows:

Table 2

Composition of the Data Set by Location:

<u>Location</u>	<u>Cases Collected</u>		<u>Cases Analyzed</u>		
	<u>Number Collected</u>	<u>% of Total</u>	<u>Number Retained</u>	<u>% of Total</u>	<u>% Retained</u>
<u>Ottawa</u>	186	6.5%	123	12.9%	66.1%
<u>Thunder Bay</u>	148	5.2%	102	10.7%	68.9%
<u>Winnipeg Staff</u>	139	4.9%	80	8.4%	57.6%
<u>Winnipeg Rater</u>	2,375	82.9%	637	66.7%	26.8%
<u>Western Manitoba</u>	11	.4%	8	.8%	72.7%
<u>Other</u>	7	.2%	5	.5%	71.4%
<u>Total</u>	2,866	100%	955	100%	

The greatest loss of data occurred in the category of the closed files which were scored by the student raters. The final analysis utilized 637 of these cases while 1,738 (73.2%) were omitted. This loss stems from the fact that these files contained less information than the cases which were scored by workers using the MRES as a framework. Nonetheless, the rater-scored cases from Winnipeg still represented two-thirds of the cases in the final data set. As rater-scored cases exceed the staff-scored cases in an approximate ratio of 2:1, they will have a disproportionate effect upon the outcome of the analysis. In addition, the loss of data was somewhat higher for the staff-scored cases in Winnipeg than for those in other jurisdictions. The cause for this result is not apparent.



Tables 3 and 4 show that the rater-scored data contain slightly higher proportions of neglect and sexual abuse cases than is true for the staff-scored data, and proportionately lower percentages of physical abuse cases. In spite of having the higher number of neglect cases the rater-scored data have a smaller percentage of cases involving Family Type II. The result is that this group contains a slightly higher proportion of neglect cases where the adults are from Family Type I. The differences with respect to maltreatment type are statistically significant at the .05 level, while the differences with respect to family type are not statistically significant.

Bivariate tests of significance with respect to the differences between the scoring patterns for raters and full time staff are not feasible as there are too many cells containing fewer than five cases. However, there are no obvious anomalies which are evident and, since the main focus of this research is upon the analysis of substantiated cases, rather than the creation of a description of the intake profile of the participating organizations, it would not seem that moderate differences of this type would have a decisive effect upon the results of the data analysis and, consequently, it is reasonable to retain data received from the two groups within a single data set.<sup>3</sup>

---

<sup>3</sup> Complete results of this analysis are presented in Appendix C, pp. 342-327.

Table 3

**Comparison of Rater & Staff-Scored Cases by Maltreatment Type:**

	<u>Staff- Scored</u>	<u>% of Total</u>	<u>Rater- Scored</u>	<u>% of Total</u>
<u>Neglect</u>	135	42.5%	291	45.7%
<u>Physical Abuse</u>	156	49.1%	264	41.4%
<u>Sexual Abuse</u>	27	8.5%	82	12.9%
<u>Total</u>	318	100%	637	100%

Table 4

**Comparison of Rater & Staff-Scored Cases by Family Type:**

	<u>Staff- Scored</u>	<u>% of Total</u>	<u>Rater- Scored</u>	<u>% of Total</u>
<u>Family Type I</u>	118	37.1%	263	41.3%
<u>Family Type II</u>	138	43.4%	239	37.5%
<u>Family Type III</u>	62	19.5%	135	21.2%
<u>Total</u>	318	100%	637	100%

The case types involving more than one maltreatment type, as well as those cases related to emotional abuse, were very few in number within the initial data set and since an analysis of them is inappropriate for this study they were removed from the data set. The most important changes for the representation of the major maltreatment types, as a consequence of the deletions, is that the proportion of neglect cases decreases substantially from 67.8% of the total in the initial data to

44.6% of the total in the final data. Consequently, the proportion of the cases representing physical abuse increases to 44% from 22%, and the proportion of sexual abuse cases increases to 11.4% from 8.3%. (See Table 5).

Table 5

Composition of the Data Set by Maltreatment Type(s):

	<u>Number Collected</u>	<u>% of Total</u>	<u>Number Used</u>	<u>% of Total</u>
<u>Emotional Abuse</u>	10	.4%	0	0%
<u>Neglect</u>	1,942	67.8%	426	44.6%
<u>Neglect &amp; Emotional Abuse</u>	5	.2%	0	0%
<u>Physical Abuse</u>	630	22.0%	420	44.0%
<u>Physical Abuse &amp; Emotional Abuse</u>	11	.4%	0	0%
<u>Physical Abuse &amp; Neglect</u>	19	.7%	0	0%
<u>Physical Abuse Neglect &amp; Emotional Abuse</u>	6	.2%	0	0%
<u>Sexual Abuse</u>	239	8.3%	109	11.4%
<u>Sexual Abuse &amp; Physical Abuse</u>	4	.1%	0	0%
<u>Total</u>	2,866	100.1%	955	100%

In addition, 39.9% of the cases in the final data set describe individuals from Family Type I while the initial data set received 29.4% of its cases from this group (see Table 6). There is a small decrease in the representation of Family Type II, and a larger decrease in the number of individuals from Family Type III. In effect, the data were least complete in cases of neglect and those involving Family Type III. It is possible that the cases that are at the extremes of severity are the most likely to be inadequate with respect to thoroughness of data collection. At the lowest levels of severity it may be a low priority for the worker to pursue complete data and with the more severe cases, which often involve criminal prosecution, alleged offenders may be protected by the legal system from being questioned by child protection staff. These possibilities are analyzed below.

Table 6

Composition of the Data Set by Family Type:

	<u>Number Collected</u>	<u>% of Total</u>	<u>Number Used</u>	<u>% of Total</u>
<u>Family Type I</u>	843	29.4%	381	39.9%
<u>Family Type II</u>	1,175	41.0%	377	39.5%
<u>Family Type III</u>	848	29.6%	197	20.6%
<u>Total</u>	2,866	100%	955	100%

After the cases have been eliminated which are clearly inappropriate for this research, there is still the question of data which are missing from particular cells within the remaining cases. Since the amount of data that is available concerning individual variables differs greatly this is of considerable importance for the analysis. The options for dealing with missing data vary depending on whether the information is randomly absent or whether there are discernible patterns present. If the omissions are random there will be approximately equal numbers of cases missing data for all variables. If patterns can be identified it may be possible to estimate their effects upon the interpretation of the data.

One factor that could explain systematic differences would be that different maltreatment types were scored differently. It may be that caseworkers' reactions to different types of maltreatment would result in them giving greater attention to some cases or variables than others. Another possibility is that the more severe the perceived seriousness of the incident, the greater the attention to completing the data collection. If the latter were the case the higher the score on the scale which assesses the severity of the injury in the current incident, the lower the amount of data which would be missing.

Table 7 shows a selection of variables, organized by maltreatment type, where the amount of missing data per variable varies significantly between maltreatment types. While the amount of missing data per variable is generally approximately equal when the neglect and physical abuse categories are compared, the sexual abuse cases often contain less data than the other groups, particularly with respect to the less

prominent adult in the situation, Adult B. It may well be in these situations that the worker's attention is directed to the offending adult and the second adult, who is often non-offending or culpable of failing to protect the child from the perpetrator rather than being actively involved in the sexual abuse, receives less attention.

The variables "Attitude Re: Discipline" and "History of Violence" differ from the general rule when comparing cases of neglect and those of physical abuse. The missing data on these variables is much higher for neglect than for physical abuse for both Adult A and Adult B. Since these variables will, in the following analysis, be of greater relevance for physical abuse cases than neglect cases, a possible explanation is that workers focus on information that is important for the particular case that they are considering and do not attend to variables that they do not perceive as immediately relevant. Were this the case, a blank cell would be the equivalent of a "not applicable" score. While it is impossible to confirm or reject this conjecture it nonetheless provides a credible explanation for one factor affecting the missing data.

While the information concerning Adult A is relatively complete the variables concerning Adult B and those concerning the issues of family interaction are generally missing a high percentage of the data in all of the maltreatment categories. In addition, when the three variables concerning family interaction are examined with respect to the differing amounts of data missing for each variable, no particular pattern concerning the maltreatment categories is apparent. The following variables, in Table 7, have been selected based upon the presence of a

difference equal to, or greater than, ten percent in the amounts of missing data for this variable when maltreatment types are compared.

It is of interest that there is very little data missing concerning the variables that can be scored based upon direct observation or from information that may be secured from the child. Conversely, the variables with the largest amount of missing data require interaction between the caseworkers and the adults and the formation of judgments concerning the person's attitudes and complex inner states, such as the quality of the attachment between the adult and the child.

**Table 7<sup>4</sup>**  
**Missing Data Ordered By Maltreatment Type**

<u>Variable</u>	<u>Missing Data (≥ 10% difference between Types)</u>		
	<u>Highest %</u>		<u>Lowest %</u>
<u>(Adult A)</u>			
Age	Sexual Abuse	Physical Abuse	Neglect
Perception of Child	Sexual Abuse	Physical Abuse	Neglect
Attitude Re: Discipline	Neglect	Sexual Abuse	Physical Abuse
History of Violence	Neglect	Sexual Abuse	Physical Abuse
Stress	Sexual Abuse	Neglect	Physical Abuse
Reference Group Values	Sexual Abuse	Physical Abuse	Neglect

<sup>4</sup> The information in this table has been selected from Appendix B, pp. 313-323.

<b><u>(Adult B)</u></b>			
<b>Severity of Injury (Current)</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>
<b>Severity of Injury (Prior)</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>
<b>Perception of Incident</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>
<b>Perception of Child</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>
<b>Attitude Re: Discipline</b>	<b>Neglect</b>	<b>Sexual Abuse</b>	<b>Physical Abuse</b>
<b>Parenting Knowledge &amp; Skills</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>
<b>Substance Abuse</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>
<b>Psychopathology/ Incapacity</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>
<b>History of Violence</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>
<b>Stress</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>
<b>Social Isolation</b>	<b>Sexual Abuse</b>	<b>Physical Abuse</b>	<b>Neglect</b>



**Family Interaction**

<b>Conflict/Support</b>	<b>Neglect</b>	<b>Physical Abuse</b>	<b>Sexual Abuse</b>
<b>Reinforcement</b>	<b>Neglect</b>	<b>Sexual Abuse</b>	<b>Physical Abuse</b>
<b>Siblings</b>	<b>Sexual Abuse</b>	<b>Neglect</b>	<b>Physical Abuse</b>

Table 8 contains variables, organized by the level of the severity of the current injury, where the amount of missing data per variable differs substantially between severity categories. When these data are examined there is a clear pattern for Adult A which indicates that the higher the level of the perceived severity of the case, the greater the amount of missing data. The pattern is less clear for Adult B and the variables concerning Family Interaction which suggests that an additional, or a different, factor may be affecting the pattern for these categories.

There seems to be a tendency to focus on a smaller number of variables as the severity of the case increases, although this association is not invariable. Rather than workers collecting a more comprehensive set of information concerning the most severe cases they tend to focus on a smaller number of variables, presumably those which are felt to be of greatest importance to the immediate problems concerning the case.

Table 8<sup>5</sup>

**Missing Data By Variable - Ordered By the Severity Level of the Current Maltreatment Incident**

(The Roman numeral indicates the ordinal position of the amount of missing data per variable, and the letter indicates the severity level: VL: Very Low, L: Low, M: Medium, H: High, VH: Very High.)<sup>6</sup>

Variable	Severity Level				
	Highest (Amount of Missing Data)				Lowest
	V	IV	III	II	I
<b><u>(Adult A)</u></b>					
Age	M	H	VH	L	VL
Perception of Incident	H	VH	L	M	VL
Perception of Child	H	VH	L	M	VL
Attachment	VH	H	M	L	VL
Attitude Re: Discipline	VH	H	M	L	VL
History of Violence	H	M	VH	VL	L
Stress	VH	M	(VL-Tie-	H)	L
Reference Group Values	VL	M	VH	H	L
<b><u>(Adult B)</u></b>					
Age	H	L	VH	M	VL
Relationship to Child	H	L	VL	VH	M
Gender	H	L	VL	VH	M

<sup>5</sup> The information in this table has been selected from Appendix B, pp. 313-323.

<sup>6</sup> Please refer to page 200 for examples of the severity levels.

Severity of Injury (Current)	H	L	VH	VL	M
Severity of Injury (Prior)	H	L	VH	VL	M
Perception of Incident	L	H	VH	(VL-Tie-	M)
Perception of Child	L	H	VH	M	VL
Attachment	H	L	VH	M	VL
Attitude Re: Discipline	VH	H	L	M	VL
Parenting Knowledge & Skills	(L -Tie-	H)	VH	M	VL
Substance Abuse	H	L	VH	VL	M
Psychopathology/Incapacity	H	L	VH	M	VL
History of Violence	H	L	VH	VL	M
Stress	H	L	VH	VL	M
Reference Group Values	H	L	M	VH	VL
Social Isolation	H	L	(VH-Tie-	M)	VL
<b><u>Family Interaction</u></b>					
Conflict/Support	H	VH	L	M	VL
Reinforcement	H	L	VH	VL	M
Siblings	H	VH	M	L	VL

One further possible source of systematic error is the issue of gender bias. Child protection systems replicate the societal norm that child care is considered to be primarily the responsibility of women. Men are perceived as being less culpable for the neglect of children and the preponderance of the information contained in child protection files is from, and about, women.

...It is not men's work, and the fact that he does this - even once - suggests he is helpful, cooperative, and willing to do more than his share. The very fact that he is shown to be doing this work in a case marked as child neglect also reflects badly on the mother, because he appears to be doing *her* work. However, failure to provide care and in fact the complete abandonment of children by their fathers generally produces no comment at all in these files. In cases of neglect, fathers are usually not mentioned if they are not living in the home. If they are living at home, files seldom comment on the quality, quantity, or frequency of their financial input. Clearly, these files are not about fathers, but about mothers and the responsibilities they are supposed to carry out. (Swift, 1995, pp. 104-105)

Another factor that exacerbated this problem is that workers tend to gather information from the woman in the household and thus one would expect that there would be somewhat more complete information concerning women than men. This is partly a result of the preeminence of male perpetrators for sexual and physical abuse, and lawyers insistence that their clients be protected from improper disclosures to child protection staff. The need to preserve the prohibition on self-incrimination by an alleged perpetrator results in relatively little information being available even concerning the perpetrators of serious offenses.

The analysis of the following tables, 9 & 10, does not support this hypothesis. When the circles to the right of the diagrams overlap they indicate that the confidence intervals for the estimates of the means are not discrete. Women in the Adult A category show a greater range of missing data scores than do the men and their mean scores are significantly higher, indicating that a greater percentage of the data is missing from the observations concerning women than is the case for the men.

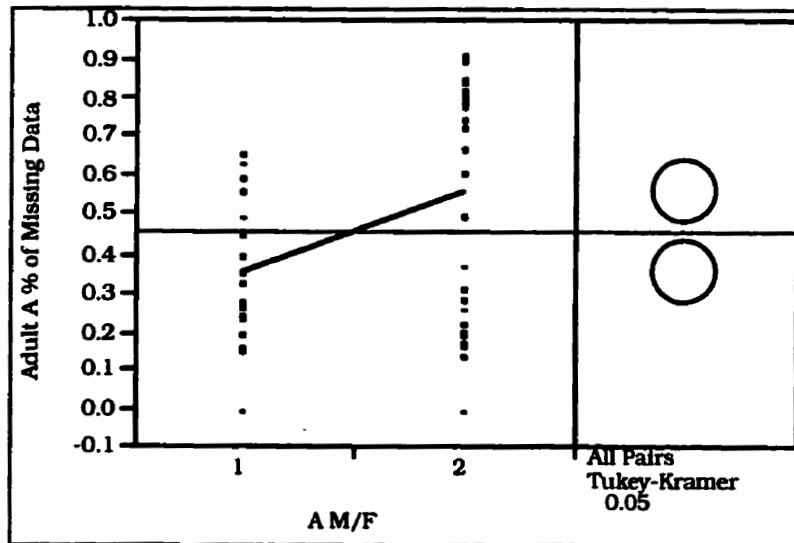
When the missing data scores for men and women defined as Adult B are compared the differences are not statistically significant. While the scores for men are more dispersed and the mean score for men is higher than that for women the confidence intervals overlap.

Table 9

**Adult A: Missing Data By Gender**

(1: Male; L: Female)

(% of Data Missing per Variable)



**Means Comparisons**

Difference = Mean[i] - Mean[j]

	L	1
L	0.000000	0.205098
1	-0.2051	0.000000
	Alpha =	0.05

Comparisons for each pair using Student's t

Absolute(Difference)-Least Significant Difference

	L	1
L	-0.12244	0.082658
1	0.082658	-0.12244

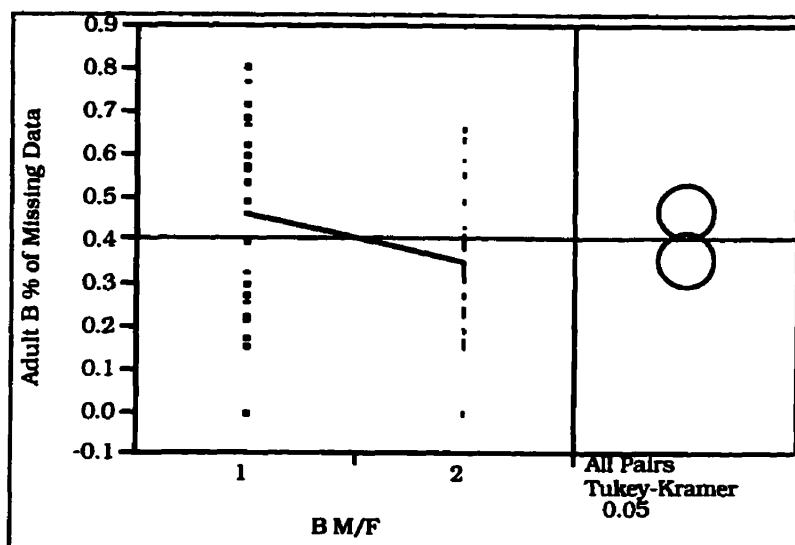
Positive values show pairs of means that are significantly different.

Table 10

**Adult B: Missing Data By Gender**

(1: Male; L: Female)

(% of Data Missing per Variable)

**Means Comparisons**

Difference = Mean[i] - Mean[j]

	1	L
1	0.000000	0.110048
L	-0.11005	0.000000
Alpha =		0.05

Comparisons for each pair using Student's t

Absolute(Difference)-Least Significant Difference

	L	1
1	-0.09576	0.014289
L	0.014289	-0.09576

Positive values show pairs of means that are significantly different.

The variables which concern interaction within the family and the assessment of complex qualitative concepts are the least often scored. It

is also of note that as the severity of the case increases, the amount of missing data also increases. In addition, the data are much more complete concerning Adult A than Adult B, and, the information is more complete concerning men than women in the Adult A category.

It seems possible that missing information may, at times, be the equivalent of a worker's decision that this information is not relevant to the case. As such, it may be more a measure of the worker's focus of attention, knowledge, and values than it is of the qualities of the clients. Thus it is impossible to tell the difference between missing data which represents an accurate "not applicable" score, and data which are missing as a consequence of the worker failing to pursue the question, which would properly be scored as "unknown".

The next question to be pursued is the formation of decision rules to determine which variables will be excluded from the analysis and which of the remaining variables can be used in which data analysis procedures. Tabachnick and Fidell (1989) observed that "Unfortunately, there are as yet no firm guidelines for how much missing data can be tolerated for a sample of a given size" (p.61)

These data, having been selected on the basis of the relative completeness of the information are, by definition, atypical. Thus it is not possible to generalize from these statistics to the characteristics of the general caseloads of the participating agencies or, indeed, to any other population. While the possibility exists that the results of this study may be characteristic of similar individuals elsewhere there is no basis within the limits of this research to reach such a conclusion, or to



form any estimation of the probable accuracy of such a prediction. As we are not concerned with parameter estimation, the central issue is whether the statistical procedures, including the means of dealing with missing information, provide a meaningful and accurate analysis of these specific data.

The three most common solutions to the problems of missing data are to fill in the missing variable scores by estimating the score, pairwise deletions, and listwise deletions. As the value estimation procedure is premised upon the similarity of the case containing the missing score to other cases, and this is the question under consideration in this analysis, this solution cannot be applied. There is no a priori means of identifying which cases are equivalent to other cases.

Pairwise deletions calculate covariances only when both the variable scores are known. As this can mean that each result in a variance-covariance matrix is calculated on a different set of cases this procedure can lead to anomalous results such as multiple correlations which exceed 1.

Listwise deletion means that if a case is missing any variable score for a particular analysis, the case is removed from that analysis. It is apparent that there are patterns with respect to the missing data that bias the results and there are two patterns that are of particular importance: the more complete the data, the greater the bias towards cases of higher severity; and as the information concerning Adult A is much more complete than that concerning Adult B. Listwise deletion will be used as the appropriate solution in this research with the result that

there will be differing cases subject to analysis in many, possibly all, of the analyses. As the variables under analysis change, the cases which are deleted will change. In addition, the analysis will be primarily focused on Adult A and any analysis concerning Adult B will be supplementary to this central concern. It remains the case that the analysis is predicated upon child protection workers' judgments concerning the values ascribed to individual variables. The results are meaningful to the extent that these judgments are accurate.

Table 11 shows that there are a number of variables which are of little utility because of the amount of data that they are missing. The larger the amount of missing data, the smaller the resulting sample size for any statistical analysis utilizing that variable. Consequently, the variables concerning "Adult B", and "Family Interaction" are not functional for this research. The five variables specified on this table concerning "Adult A" will have a limiting effect upon any statistical analysis in which they are included.

Table 11<sup>7</sup>**Missing Data ( $\geq 30\%$ ) By Variable - Total Data Set.**

<b>Variable</b>	<b>% Missing</b>	<b>Variable</b>	<b>% Missing</b>
<b><u>Adult A:</u></b>			
Age	45.5%	Attachment	37.3%
Attitude re: Discipline	57.7%	Reference Group Values	52.8%
Social Isolation	32.9%		
<b><u>Adult B:</u></b>			
Age	56.9%	Perception of Incident	47.1%
Severity of Injury (Prior)	46.0%	Severity of Injury (Current)	38.9%
Perception of Child	48.4%	Attachment	58.0%
Attitude re: Discipline	70.4%	Substance Abuse	50.5%
Parenting Knowledge & Skills	46.7%	Psychopathology/ Incapacity	47.9%
History of Violence	52.8%	Stress	49.7%
Reference Group Values	72.7%	Social Isolation	60.9%
<b><u>Family Interaction:</u></b>			
Conflict/Support	65.5%	Reinforcement	62.6%
Siblings	64.9%		

---

<sup>7</sup> The information in this table has been selected from Appendix B, pp. 313-323.

The three Family Interaction variables have very large amounts of missing data and, in addition, the meanings of these scales are ambiguous. The definitions of the scales cover the behaviour of both the adults and the children and, consequently, it is impossible to determine whether the variables measure the characteristics of the adults, those of the children, the interaction between the adults and the children, or the interaction between the children. Thus, as a consequence of these two problems, these scales are inappropriate for this analysis and will not be utilized.

Most of the variables concerning the persons in the role of Adult B are missing a great deal of data. There are two subsets of cases relating to copetrating partners and non-offending partners that are sufficiently complete to be compared to each other with respect to some of the critical variables. However, the amount of data which is missing determines that simultaneous multivariate analysis of both Adults A and B is not possible.

The descriptions of both Adults A and B are missing significant amounts of data with respect to the variables measuring Age, Attachment, Attitude re: Discipline, Reference Group Values, and Social Isolation. In consequence they will be of limited utility in multivariate analyses as the listwise deletion procedure will greatly reduce the size of the sample that is being examined.

## TYPOLOGIES

### Introduction

The central issue which provides the focus for this chapter is a comparison of the family types and the maltreatment types represented within these data. Common characteristics are identified as well as the differences between these groups. As these data have been extensively edited, the results of this analysis cannot be taken as typical of the caseloads of any of the participating organizations.

If child protection workers were able to recognize the characteristics that are associated with particular forms of child maltreatment they may be able to intervene earlier, and to greater effect, than is currently the case. If differing forms of maltreatment are associated with different variables this could imply that there may be different etiologies for the maltreatment, and that the nature of the problems that people are experiencing may be qualitatively different. In consequence, the interventions will necessarily differ.

The family and maltreatment types which were developed for this study are described by the mean values of the ages of the children and the adults, the frequency counts of the gender distributions, and the median values of the scores which were attributed to them using the scales from the Manitoba Risk Estimation System (MRES). Brief examples of instances of maltreatment which illustrate differing levels of the scales are presented in Figure 6, which is located at the end of this

chapter. These examples are not intended to be comprehensive definitions, but they were used by practitioners who completed the MRES and reflect the meaning they were trained to attach to the items. They were provided here to help orient the reader to the meanings which are attributed to the scale scores which are being analyzed. More comprehensive definitions are contained in Appendix A, the MRES Manual.

The first task at hand is to describe the maltreatment types and family types, the demographic data and the scale values for the respective groups are then compared using significance tests. These tests help determine whether there are differences between the groups which are systematic, rather than attributable to random variation. Lastly, the data set is examined using factor analytic procedures to help conceptualize the intercorrelation between the variables.

The grouping variables, maltreatment type and family type provide alternate ways of conceptualizing child welfare issues. As is clear from both Table 1 and Figure 1 (A & B), these ideas are highly interrelated. The largest number of cases in the Family Type I group manifest physical abuse, Family Type II is associated with neglect, and Family Type III contains cases from all three maltreatment types, with the largest component of these being incidents of physical abuse.<sup>1</sup>

---

<sup>1</sup> The term, "Total Data Set", refers to the 955 cases being analyzed. The "Maltreatment Types", and "Family Types", are thus sub-sets of the Total Data Set.

Table 1

Definitions of the Family Types

Family Type I: Biological Parents.

Family Type II: Single Female Biological Parent.

Family Type III: Blended Family.

Figure 1A

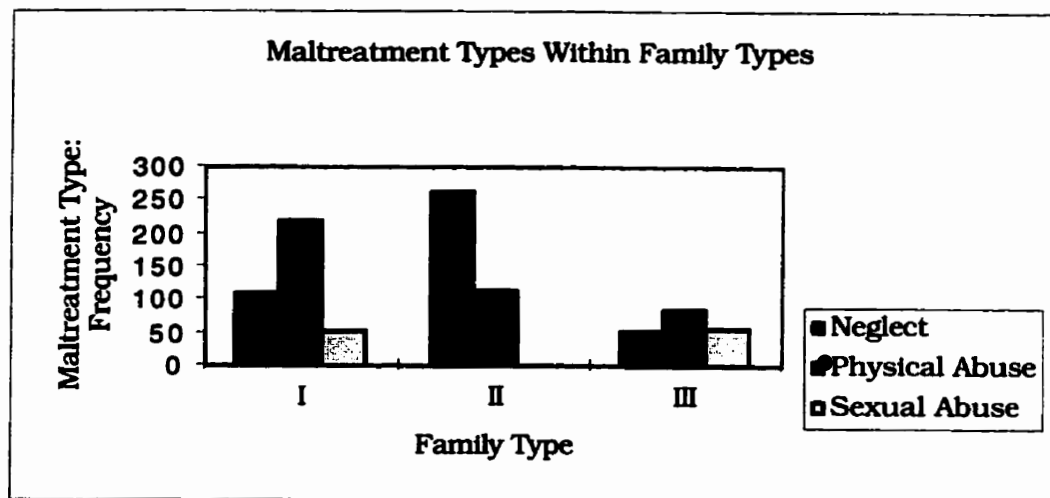
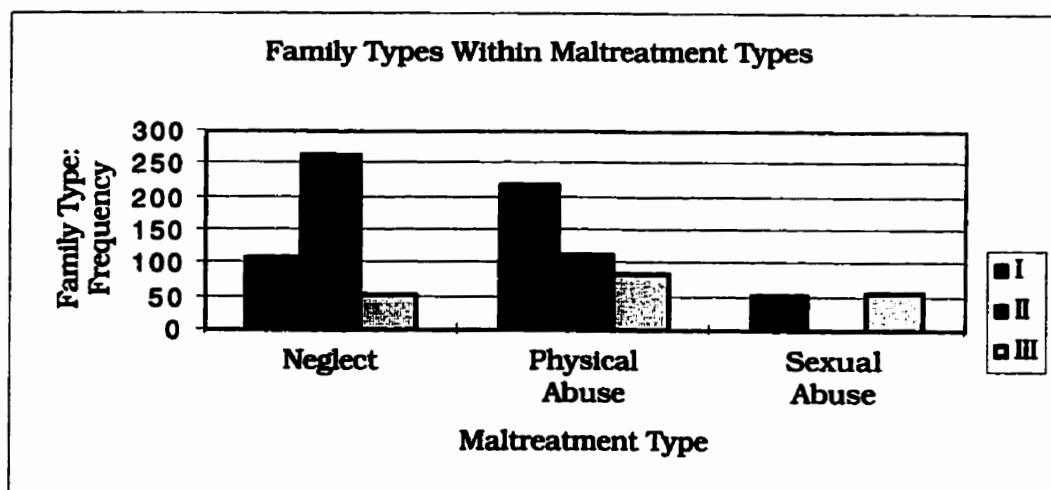
Frequency of Occurrence of Maltreatment Types and Family Types

Figure 1B

Frequency of Occurrence of Family Types Within Maltreatment Types

When the maltreatment type is used as the categorical variable it shows that Family Type II predominates within the neglect group, and the majority of the physical abuse cases are from Family Type I. Family Type II sexual abuse cases were deleted from the analysis because they were incorrectly scored. Thus, it is important to note that the absence of Family Type II cases from the sexual abuse category is a condition of these data, and is not typical of the cases which receive service from child protection organizations. The other two family types are approximately equally represented within the sexual abuse category.

Table 2 displays the levels of variable scores which characterize the differing maltreatment types. Neglect cases (44.6%) and physical abuse cases (44.0%) are represented approximately equally in these data, and the sexual abuse cases are a much smaller component (11.4%). The two sub-groups that are most highly represented within these data are the Family Type II, neglect cases, (27.7%), and the Family Type I, physical abuse cases, (23.0%). As they together represent 50.7% of the total data their characteristics have a considerable effect upon the summary statistics.



Table 2

Composition of the Data Set:

<b>Family Type</b>	<b>Maltreatment Type</b>	<b>N</b>	<b>% of Family Category</b>	<b>% of Total Data</b>
<b>Family Type I</b>	<b>Neglect</b>	<b>110</b>	<b>28.9%</b>	<b>11.5%</b>
	<b>Physical Abuse</b>	<b>220</b>	<b>57.7%</b>	<b>23.0%</b>
	<b>Sexual Abuse</b>	<b>51</b>	<b>13.4%</b>	<b>5.4%</b>
<b>Total</b>		<b>381</b>	<b>100.0%</b>	<b>39.9%</b>
<b>Family Type II</b>	<b>Neglect</b>	<b>264</b>	<b>70.0%</b>	<b>27.7%</b>
	<b>Physical Abuse</b>	<b>113</b>	<b>30.0%</b>	<b>11.8%</b>
	<b>Sexual Abuse</b>	<b>0</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Total</b>		<b>377</b>	<b>100.0%</b>	<b>39.5%</b>
<b>Family Type III</b>	<b>Neglect</b>	<b>52</b>	<b>26.4%</b>	<b>5.4%</b>
	<b>Physical Abuse</b>	<b>87</b>	<b>44.2%</b>	<b>9.1%</b>
	<b>Sexual Abuse</b>	<b>58</b>	<b>29.4%</b>	<b>6.1%</b>
<b>Total</b>		<b>197</b>	<b>100.0%</b>	<b>20.6%</b>
<b>Total Data Set<sup>2</sup></b>		<b>955</b>	<b>100.0%</b>	<b>100.0%</b>

<sup>2</sup> The term, "Total Data Set", refers to the 955 cases being analyzed. The "Maltreatment Types", and "Family Types", are thus sub-sets of the Total Data Set.

**Table 2 (continued)**

<b>Maltreatment Type</b>	<b>Family Type</b>	<b>N</b>	<b>% of Maltreatment Category</b>	<b>% of Total Data</b>
<b>Neglect</b>	<b>I</b>	<b>110</b>	<b>25.8%</b>	<b>11.5%</b>
	<b>II</b>	<b>264</b>	<b>62.0%</b>	<b>27.6%</b>
	<b>III</b>	<b>52</b>	<b>12.2%</b>	<b>5.5%</b>
<b>Total</b>		<b>426</b>	<b>100.0%</b>	<b>44.6%</b>
<b>Physical Abuse</b>	<b>I</b>	<b>220</b>	<b>52.4%</b>	<b>23.1%</b>
	<b>II</b>	<b>113</b>	<b>26.9%</b>	<b>11.8%</b>
	<b>III</b>	<b>87</b>	<b>20.7%</b>	<b>9.1%</b>
<b>Total</b>		<b>420</b>	<b>100.0%</b>	<b>44.0%</b>
<b>Sexual Abuse</b>	<b>I</b>	<b>51</b>	<b>46.8%</b>	<b>5.3%</b>
	<b>III</b>	<b>58</b>	<b>53.2%</b>	<b>6.1%</b>
<b>Total</b>		<b>109</b>	<b>100.0%</b>	<b>11.4%</b>
<b>Total Data Set<sup>3</sup></b>		<b>955</b>	<b>100.0%</b>	<b>100.0%</b>

<sup>3</sup> The term, "Total Data Set", refers to the 955 cases being analyzed. The "Maltreatment Types", and "Family Types", are thus sub-sets of the Total Data Set.

**Total Data Set<sup>4</sup>**  
**Comparison of Maltreatment Types**

**Demographic Data**

While a child of any age or gender may be subject to any form of maltreatment, and an adult of any age or gender may perpetrate any form of maltreatment, there are nonetheless some patterns evident which differentiate between the characteristics of the maltreatment types. These differences are examined in this chapter using bivariate tests of significance. A logistic regression model is used to show multivariate differentiation between the neglect and physical abuse groups.

The mean age of the children in the complete data set, is 7.2 years, with one quarter of the children being less than two years of age (See Figure 2). This general pattern is substantially affected by the characteristics of the neglect cases as they comprise 44.6% of the total data. There is a gradual decrease in the number of children represented in each year group, with the exception of a comparatively high representation of children of 15 years of age. This anomaly is a consequence of the large number of adolescent, female children who are victims of sexual abuse. Female children are more highly represented in the total data set with 56.2% of these children being female and 43.8% being male.<sup>5</sup> While both genders are represented approximately equally in the neglect group, girls are more common within the other two

---

<sup>4</sup> Complete significance tests for this section are contained in Appendix D.

maltreatment types. The percentages of each gender group represented within the total data set is exactly the same as for the gender groups within the physical abuse group. The slightly higher numbers of boys (50.8%) than girls (49.2%) in the neglect group are balanced within the total data set by the much higher presence of girls (83.8%) as victims of sexual abuse.

The age patterns for the children in each of the maltreatment types are distinct, with all comparisons between maltreatment types exceeding a .05 level of significance. Very young children are, because of their inability to care for themselves, highly represented in neglect situations, with a mean age of 4.8 years for the neglect group. The frequency with which children who are victims of neglect occur in the data set decreases gradually with age (See Figure 2). Fifty percent of the children in this group are three years of age or less, and 90% are 12 years or less. Both boys (50.8%) and girls (49.2%) are equally represented within this maltreatment type.

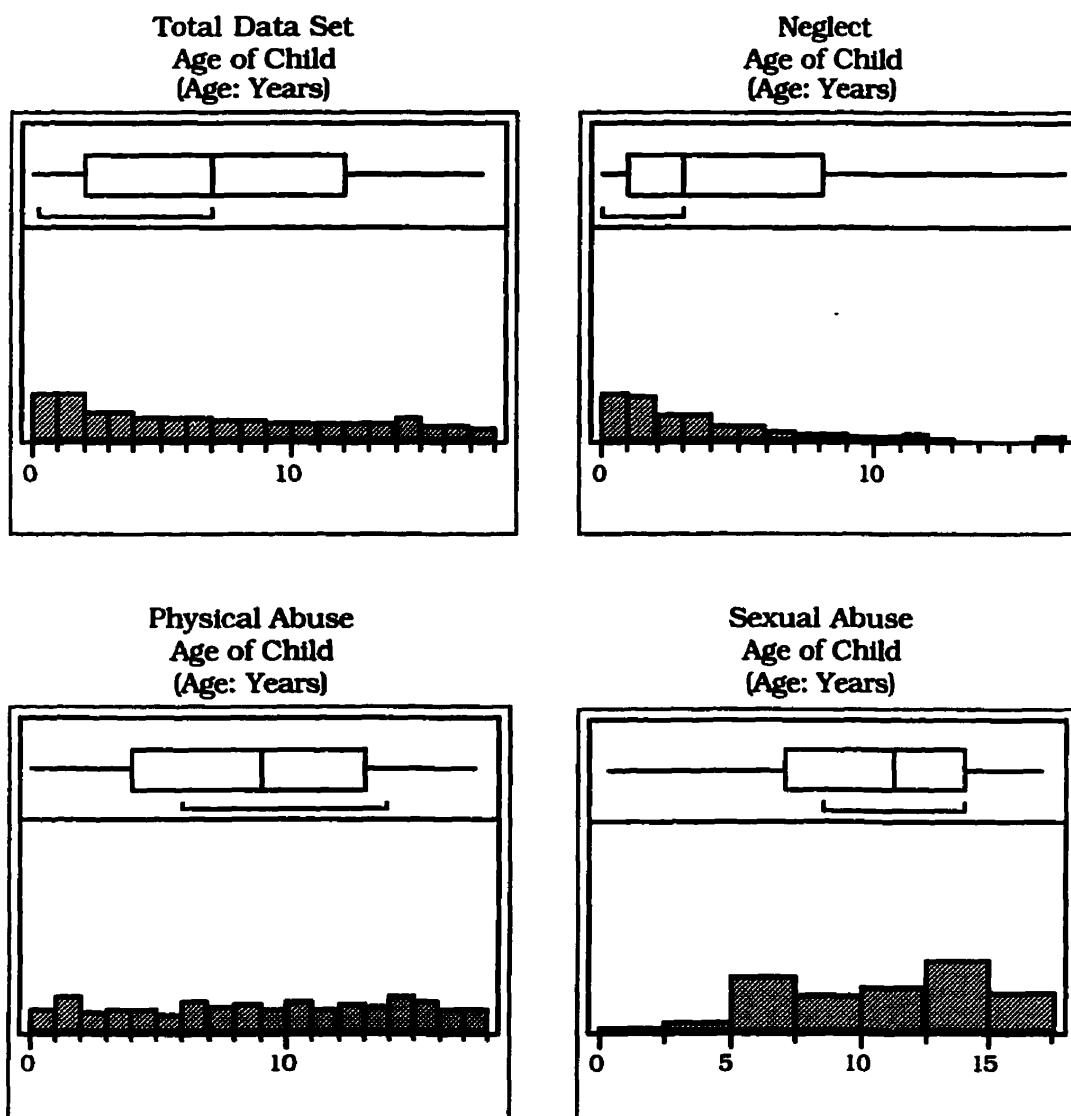
The physical abuse cases occur in similar numbers throughout the age groups. The median for this group is nine years of age, and 25% of these children are aged four years or less. Twenty-five percent of these children are less than 18, and more than 13, years of age. The standard deviation for this group is 5.1, which is somewhat higher than the deviation scores of 4.6 for the neglect group, and 4.2 for the sexual abuse group. Girls (56.2%) occur more frequently in this group than do boys (43.8%).

---

<sup>5</sup> See Appendix D, pp. 328-346.

The children who are victims of sexual abuse are somewhat older than the other children, with 50% of this group being less than 15, and more than six years of age. The gender distribution is quite different than that of the other two groups, with 83.8% of these children being female and 16.2% male.

Figure 2

Age Distributions of Children:

As Figure 3 indicates, the preponderance of the adults in these data (87.5%) are more than 17 years old and less than 41 years of age, with a mean age of 29.8 years and a standard deviation of 7.9. As this distribution corresponds with the normal child-rearing years it is much what one would expect. The mean ages of the sexual abuse group (34.4 years) and the physical abuse group (31.5 years) are not significantly different. However, the neglect group (27.6 years) is substantially younger than either of the other two groups. This reflects the comparative youth of parents with young children; as young children are more vulnerable to neglect than are older children.

All of the maltreatment types display greatly differing dispersal patterns (See Figure 3).<sup>6</sup> While the ages of the adults in the physical abuse group approximate a normal distribution, with its peak in the early to mid-thirties, the highest frequencies in the neglect group occur in the early to mid-twenties, with steadily decreasing frequencies as age increases. The median for the neglect group is 26 years, and 90% of these persons are 38.1 years of age or less. The median for the physical abuse group is 31 years, and 90% of these persons are 40 years old or less.

The sexual abuse group contains a striking number of adults, 25% of the cases in this classification, who are over 40 years of age. The occurrence of neglect decreases with age, for both the children and the adults, in consequence of the increased ability of the children to care for themselves as they become older. In a similar manner, the relatively high frequency of adults who are over 40 years of age mirrors the older victims

---

<sup>6</sup> See also Appendix D, pp. 328-346.

within these data, when compared to the neglect and physical abuse groups.

The great differences with respect to the numbers of men (24.6%) and women (75.4%) who are represented as perpetrators of child maltreatment in these data is of considerable interest.<sup>7</sup> The differences may result primarily from the expectation that child care continues to fall predominantly to women within this culture, thus child care workers focus mainly on the characteristics of the female caregiver. In addition, when marriages dissolve women generally assume responsibility for the majority of the child care. This reality is reflected within these data by the prominence of female-headed single-parent families, comprising 39.5% of the data set. As women perform the majority of the child care, they will be over-represented within any data concerning child maltreatment. It is also of interest that men are represented more highly within the physical abuse group (32.2%), than they are in the neglect group (24.6%). This is explicable, in part, by the absence of male-headed single-parent families, as these case types were deleted from the data set.

The predominance of women (62.4%) over men (37.6%) within the sexual abuse group obviously differs from what is otherwise known about men as the predominant perpetrators of sexual abuse. (National Research Council, 1993, p. 113) This aberration may result from criminal charges being laid against male perpetrators, and the resulting inability of child protection workers to secure information concerning these persons. These cases were subsequently excluded because there was too

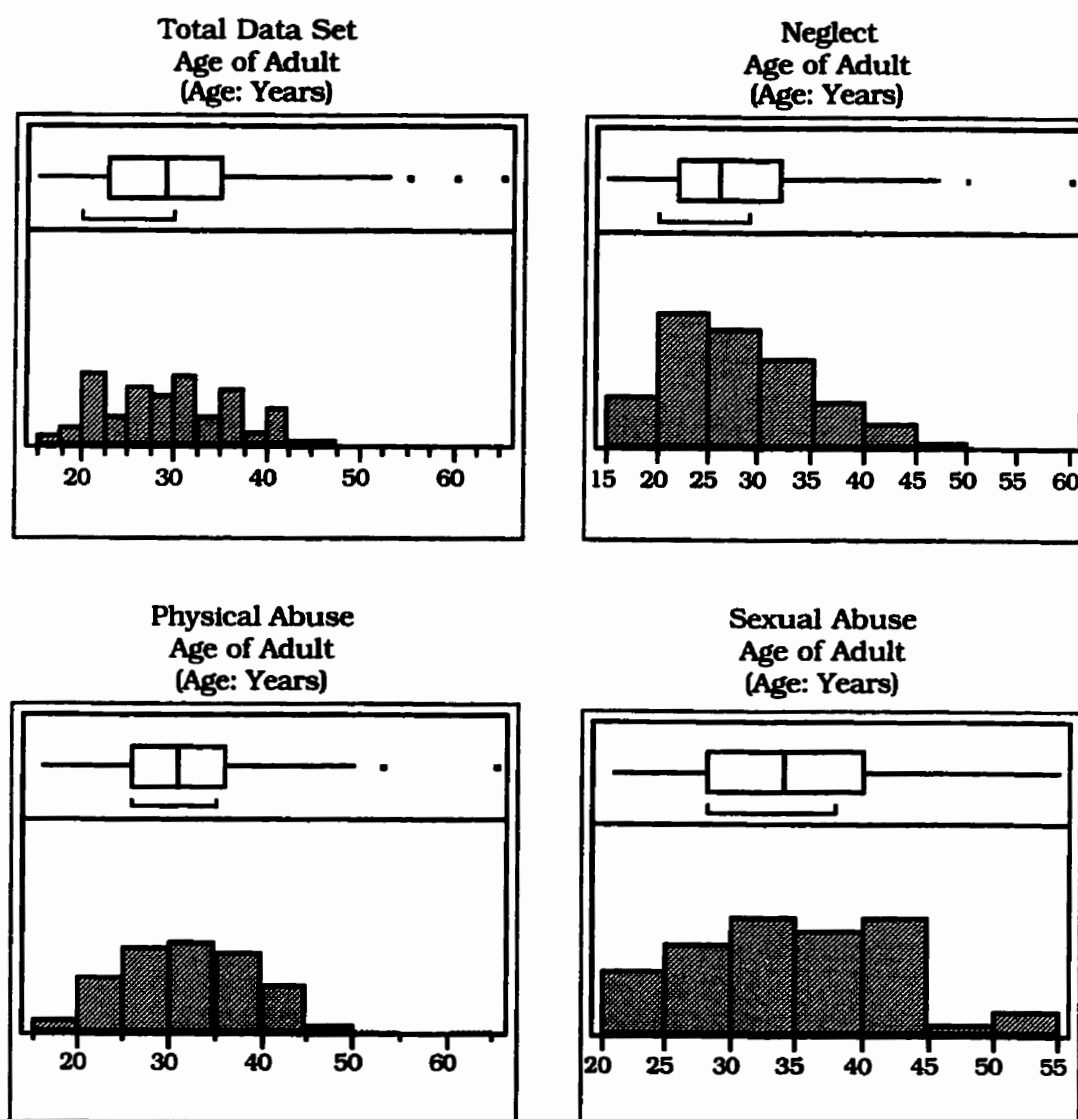
---

<sup>7</sup> See Appendix D, pp. 328-346.

little data in these case files to permit the analysis to occur. Whatever the reason for the missing information, the data concerning sexual abuse differ markedly from the norm for these cases within child protection work.

Figure 3

Age Distributions of Adult:





## Maltreatment Types: Similarities & Differences

### Statistical Analysis Procedures

The data which are presented in Table 4 summarize the scores attributed to these cases with respect to demographic information concerning the children and the adults, as well as the median scores the adults received concerning the assessment scales. The initial section of the table presents the central tendency scores for all the maltreatment types combined, and the second section shows the scores for the individual maltreatment types which comprise subsets of the total data set. The information which forms the basis for comments in the text concerning The distributions and significance levels of the maltreatment types are taken from the results of the bivariate analyses which are presented in Appendix D.

Before proceeding with the data analysis it is necessary to briefly discuss the procedure used to distinguish significance deriving from interpretable patterns in these data, and those which stem from uninterpretable patterns in the data. The differences between the mean and median values of the maltreatment types may represent actual distinctions between the groups, or they may result from random variation. Thus the significance level which assesses the differences between these groups with respect to individual variables is also presented in this table. These differences were assessed by both the log likelihood chi square and the Pearson chi square. The value which is

reported here is the value that indicates the least significant result from this analysis.

Table 3

**Summary of Statistical Results Concerning Maltreatment Types: Measures of Central Tendency & Chi Square Tests For Significant Differences Between Maltreatment Types**

**DATA SET:** Total Data Set. (n = 955)

**Dependent Variable:** MALTREATMENT TYPE.

	<u>Mean/ Median</u>		<u>Mean/ Median</u>
<b><u>CHILD:</u></b>		<b><u>ADULT:</u></b>	
Age	7.2 yr.	Age	29.8 yr.
Gender: Male	43.8%	Gender: Male	24.6%
Female	56.2%	Female	75.4%
<b><u>ADULT:</u></b>			
Severity of Injury (Current)	3	Substance Abuse	0
Severity of Injury (Prior)	2	Psychopathology/Incapacity	0
Perception of the Incident	3	History of Violence	0
Perception of the Child	3	Stress	4
Attachment	3	Reference Group Values	3
Attitude re: Discipline	3	Social Isolation	3
Parenting Knowledge & Skills	4		

**Scale Categories as Defined By Numerical Scores<sup>8</sup>**

-1: Protective.	0: Not Applicable.
1: Very Low.	2: Low.
3: Medium.	4: High.
5: Very High.	

<sup>8</sup> Please see pages 200-205 for the operational definitions of these scales.

		<u>Mean/ Median</u>	<u>Mean/ Median</u>	<u>Mean/ Median</u>	<u>Significance Level</u>
<u>SUBSET:</u>		NEGLECT	PHYSICAL ABUSE	SEXUAL ABUSE	
		(n = 426)	(n = 420)	(n = 109)	
<u>CHILD:</u>					
Age		4.8 yr.	8.8 yr.	10.5 yr.	.05
Gender:	Male	50.8%	43.8%	16.2%	.0000
	Female	49.2%	56.2%	83.8%	
<u>ADULT:</u>					
Age		27.6 yr.	31.5 yr.	34.4 yr.	.05
Gender:	Male	24.6	32.2	37.6	.0000
	Female	75.4	67.8	62.4	
Severity of Injury (Current)		3	3	3	.0000
Severity of Injury (Prior)		2	2	3	.0028
Perception of the Incident		3	3	4	.0083
Perception of the Child		3	3	4	.0024
Attachment		3	2	3	.0065
Attitude re: Discipline		2	3	3	.0000
Parenting Knowledge & Skills		4	3	4	.0000
Substance Abuse		3	0	0	.0001
Psychopathology/Incapacity		0	0	0	.8262
History of Violence		0	0	0	.3706
Stress		4	4	4	.1248
Reference Group Values		4	2	4	.0025
Social Isolation		4	3	3	.0006

Chi square tests can indicate that the differences between the variables are significant when the differences are merely the consequence of anomalous distributions, rather than an indication of important distinctions between the groups. Thus, it is important to examine the results of the tests that show significant differences in order to distinguish between differences that have an important interpretation, and those that are merely statistical artifacts.

When a chi-square test of independence or homogeneity is carried out on the data of a 2 x 2 contingency table, the interpretation of the results is straightforward and unambiguous...When we perform chi-square tests of independence and homogeneity on the data of contingency tables yielding more than one degree of freedom, the interpretations of the outcomes are not as clear-cut...we do not know whether the independence occurs uniformly among all categories or only among certain categories, since independence among some categories masks or dilutes independence among others... (Daniel, 1990, p. 203)

The first test for differences between the maltreatment types is a comparison of the mean or median values for individual variables. The second test is the presence of a significance level of .05 or better, when individual variables are used as predictors of the maltreatment type. The last test is an examination of the detailed distributions within the results of the bivariate tests which displayed statistical significance. This

analysis can help determine whether the differences in the distributions display a pattern which is consistent with important and interpretable differences in the characteristics of the maltreatment groups. The following example demonstrates the decision rule which has been utilized to determine whether the observation of statistical significance is to be considered a useful distinction between the groups for the purpose this analysis.

Table 4 shows the results of a chi square test when the variable assessing the severity of a prior incident is used to predict membership in either the neglect or the physical abuse group. Table 5 shows the results of a similar analysis with the severity of the current incident as the independent variable. Both display very high levels of statistical significance,<sup>9</sup> however, the distribution of the cases in the former group is much easier to interpret as there is a clear tendency for the deviation values to become increasingly positive for the neglect group, and negative for the physical abuse group, as the severity score increases. The proportionate frequency of occurrence of cases in the 0 category are relatively equal for both neglect and physical abuse. It is evident that the neglect cases are more highly represented in the two categories which assess the highest levels of severity, and that the physical abuse group is more highly represented in scale categories 1 to 3. Both groups have medians of 3, and the differences of detail become apparent only when

---

<sup>9</sup> The term, "Count", refers to the number of cases contained within the cell; "Deviation" is the result when the expected frequency is subtracted from the observed frequency. ("Count").

significance tests are conducted and the distributions within the chi-square table are analyzed.

The pattern for the severity of the current incident analysis (Table 5) is much less clear as there is no obvious trend within these data. The physical abuse group is proportionately over-represented in scale categories 1, 3, and 5, and the neglect group predominates in categories 2 and 4. In addition, 64.6% of the cases in the neglect group, and 63.1% of the cases in the physical abuse group are in the three highest scale categories. Thus, while there are marginal differences which are apparent when these distributions are compared, it is not clear that one set of scores can be considered more severe than the other.

In the following analysis, differences will be taken as important only if statistical significance is present as assessed by both the Pearson and Likelihood Ratio chi-square tests, and the patterns in the data suggest the presence of a clear trend with respect to the interpretation of the distribution of the data within the scale categories. This method is consistent with the idea that fine distinctions with respect to statistical methodology cannot be taken as meaningful when the data is measured by basic categorical scales. Even when one assumes the most conscientious application of the scales, the error variance resulting from differing rater characteristics determines that meaningful results can only become apparent when the differences in the results are clear and unambiguous.

Table 4

Chi Square Analysis: Maltreatment Type By the Severity of a Prior Incident.

TOTAL DATA SET-ADULT							
(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)							
(N: Neglect; P: Physical Abuse; S: Sexual Abuse)							
MALTREATMENT TYPE	SEVERITY OF A PRIOR INCIDENT <sup>10</sup>						
Count	0	1	2	3	4	5	
N	114	30	35	46	50	66	341
Row %	33.43	8.80	10.26	13.49	14.66	19.35	
Deviation	1.36	-8.40	-0.33	-13.39	12.62	8.14	
P	106	45	34	70	23	47	325
Row %	32.62	13.85	10.46	21.54	7.08	14.46	
Deviation	-1.36	8.40	0.33	13.39	-12.62	-8.14	
	220	75	69	116	73	113	666
	Test		Chi-square		Prob>Chi-Sq		
	Likelihood Ratio		21.380		0.0007		
	Pearson		21.080		0.0008		

Table 5

Chi Square Analysis: Maltreatment Type By the Severity of the Current Incident.

TOTAL DATA SET-ADULT						
(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)						
(N: Neglect; P: Physical Abuse; S: Sexual Abuse)						
MALTREATMENT TYPE	SEVERITY OF THE CURRENT INCIDENT <sup>11</sup>					
Count	1	2	3	4	5	
N	71	80	80	112	83	426
Row %	16.67	18.78	18.78	26.29	19.48	
Deviation	-10.07	6.99	-25.24	30.93	-2.60	
P	90	65	129	49	87	420
Row %	21.43	15.48	30.71	11.67	20.71	
Deviation	10.07	-6.99	25.24	-30.93	2.60	
	161	145	209	161	170	846
	Test		Chi-Square		Prob>Chi-Sq	
	Likelihood Ratio		40.773		<.0001	
	Pearson		39.988		<.0001	

<sup>10</sup> Please see page 200 for the operational definitions of this scale.<sup>11</sup> Please see page 200 for the operational definitions of this scale.

### Comparisons of the Maltreatment Groups

Table 5 summarizes the data concerning the mean and median values for all variables which are being employed in this analysis. They are presented for the total data set and each of the three maltreatment types. The results of the significance tests which compare the three maltreatment types with respect to their median scores on each variable are displayed in the same line as the median scores.

The scores for the adults on the scale variables show that the medians were high for these individuals on all but three scales: those assessing substance abuse, psychopathology/incapacity and their history of violent behaviour. This does not mean that these issues were never problematic for the respondents, but that they were not an issue for the majority of individuals at the point when the maltreatment incident occurred.

It is important to remember that even for a scale score of "1" there has already been the identification of the presence of behaviour, or an

---



attribute, that is understood to be problematic by the caseworker.<sup>12</sup> For the median scores to have been as high, scores of 2, 3, and 4, as they are many individuals must have simultaneously scored above zero on more than one scale. The highest median scores, at category 4 of the scales, were those which measured stress, and parenting knowledge and skills. This indicates there were many events and conditions in the lives of these persons that were seriously challenging their abilities to cope, and that there were many individuals with significant deficiencies with respect to the knowledge that they possessed concerning child care, and their ability to put their knowledge into practice. The generally high median levels for the scale scores would indicate that the scales are measuring items that are relevant with respect to assessing the characteristics of individuals who perpetrate child maltreatment. This is not, however, evidence that differentiates between these individuals and persons who do not perpetrate maltreatment. We do not have data concerning the latter group and it is possible that this group would display high scores on one or more of these variables.

When the maltreatment subsets are examined the pattern of high scores remains much the same as for the total data set. One significant variation is that the neglect pattern shows a high median score for substance abuse, 3, while the medians of the other two groups remain at 0. While the sexual abuse group shows an overall pattern of scores that are somewhat higher than those for the other two groups, the differences between the neglect and physical abuse groups are less evident. The

---

<sup>12</sup> Please see pages 202-203 for the operational definitions of these scales.

issues of substance abuse and problematic reference groups would appear, at this level of the analysis, to be the major points of difference between them

There are six possible severity scores ranging from 0, the absence of maltreatment; to 5, a incident with severe consequences for the child, including threats to the child's life and incest. The median levels for the severity of the current incident are all at scale category 3, however, the distributions of the scores differ significantly between maltreatment types. The high median scores indicate that all maltreatment types represent serious cases within these data. This point is further demonstrated by 66.39% of all cases being in the three highest levels of severity concerning the current incident (Table 6).

While the patterns are not simple, and the scores for all maltreatment types are high, it is evident that the sexual abuse cases are over-represented at the higher levels of severity, scale categories 3 to 5, and the physical abuse cases tend to lower severity scores.<sup>13</sup> The sexual abuse cases at the two highest levels of severity comprise 45.87% of the total sexual abuse cases, while 32.38% of the physical abuse cases are found in the same categories. While 36.91% of the physical abuse cases are found in the two categories representing the lowest levels of severity, only 13.76% of the sexual abuse cases are found with these scores. The neglect cases also demonstrate high levels of severity with 64.6% being scored in the three highest categories. The neglect cases are

---

<sup>13</sup> Overrepresentation, for chi-square results, is defined as a proportionately higher frequency within a particular cell, when the results for the variables are compared. This is expressed as a positive deviation score.

proportionally under-represented at level 3, and over-represented at level 4.

**Table 6**

**Maltreatment Type by the Severity of the Current Incident<sup>14</sup>**

	1	2	3	4	5	
Count						
Row %						
Deviation						
N	71	80	80	112	83	426
	16.67	18.78	18.78	26.29	19.48	
	-3.49	11.31	-32.86	31.71	-6.66	
P	90	65	129	49	87	420
	21.43	15.48	30.71	11.67	20.71	
	16.56	-2.73	17.73	-30.16	-1.40	
S	6	9	44	19	31	109
	5.50	8.26	40.37	17.43	28.44	
	-13.06	-8.58	15.12	-1.55	8.06	
	167	154	253	180	201	955
	17.49	16.13	26.49	18.85	21.05	
Test		Chi-Square		Prob>Chi-Sq		
Likelihood Ratio		70.689		0.0000		
Pearson		66.790		0.0000		

The maltreatment groups differ with respect to the greatest severity of any prior known incident, with neglect and physical abuse having medians of 2, and sexual abuse a median of level 3. Sexual abuse and neglect cases are comparatively over-represented in the highest two scale levels, and physical abuse comparatively under-represented. The severity of the current incident is higher than that of the prior incident for both neglect and physical abuse, while the scores for the sexual abuse group

<sup>14</sup> Please see page 200 for the operational definitions of this scale.

are the same for both these variables. The former pattern suggests increasing difficulties emerging over time, while the latter indicates that the problems may have been constant at a comparatively high level.

Table 7

Maltreatment Type by the Severity of a Prior Incident<sup>15</sup>

Count Row % Deviation	0	1	2	3	4	5	
N	114 33.43 1.70	30 8.80 -6.37	35 10.26 1.36	46 13.49 -14.47	50 14.66 12.26	66 19.35 5.53	341
P	106 32.62 -1.03	45 13.85 10.33	34 10.46 1.93	70 21.54 12.36	23 7.08 -12.96	47 14.46 -10.63	325
S	27 32.14 -0.66	5 5.95 -3.96	5 5.95 -3.29	17 20.24 2.10	10 11.90 0.70	20 23.81 5.10	84
	247 32.93	80 10.67	74 9.87	133 17.73	83 11.07	133 17.73	750
	Test		Chi-Square		Prob>Chi-Sq		
	Likelihood Ratio		27.568		0.0021		
	Pearson		26.817		0.0028		

Differences are also evident between the Maltreatment Types with respect to the adult's perceptions of both the incident (Table 8), and the child (Table 9). The neglect and physical abuse groups do not differ greatly, with the neglect cases being slightly more highly represented in the higher scale categories than the physical abuse cases. However, both differ markedly from the sexual abuse cases, with 79.11% of the latter being in the three highest categories with respect to their perception of

<sup>15</sup> Please see page 200 for the operational definitions of this scale.

the incident, and 77.93% concerning their perception of the child. This would indicate that the attitudes and beliefs of the perpetrators of sexual abuse concerning children are distinctly more negative in their consequence for children than is the case for the other groups. While these problems are evident in all of these groups, a clearly observable characteristic of the sexual offenders within these data is an extreme objectification of the children who are their victims.

Table 8

Maltreatment Type by the Adult's Perception of the Incident<sup>16</sup>

Count Row % Deviation	-1	1	2	3	4	5	
N	51 13.49 4.81	44 11.64 -3.60	30 7.94 -3.46	74 19.58 6.12	67 17.72 4.78	112 29.63 -8.65	378
P	39 11.71 -1.69	55 16.52 13.06	32 9.61 2.51	54 16.22 -5.79	52 15.62 -2.80	101 30.33 -5.29	333
S	8 8.79 -3.11	2 2.20 -9.46	9 9.89 0.94	16 17.58 -0.33	13 14.29 -1.97	43 47.25 13.95	91
	98 12.22	101 12.59	71 8.85	144 17.96	132 16.46	256 31.92	802
	Test		Chi-Square	Prob>Chi-Sq			
	Likelihood Ratio		26.772	0.0028			
	Pearson		23.764	0.0083			

<sup>16</sup> Please see page 201 for the operational definitions of this scale.

Table 9

Maltreatment Type by the Adult's Perception of the Child<sup>17</sup>

Count Row % Deviation	-1	1	2	3	4	5	
N	57 16.29 6.93	34 9.71 -7.80	25 7.14 -5.77	59 16.86 0.67	94 26.86 12.24	81 23.14 -6.27	350
P	47 14.03 -0.92	55 16.42 14.99	32 9.55 2.55	52 15.52 -3.83	65 19.40 -13.26	84 25.07 0.47	335
S	5 6.49 -6.01	2 2.60 -7.20	10 12.99 3.23	16 20.78 3.17	19 24.68 1.01	25 32.47 5.80	77
	109 14.30	91 11.94	67 8.79	127 16.67	178 23.36	190 24.93	762
Test	Chi-Square		Prob>Chi-Sq				
Likelihood Ratio	29.901		0.0009				
Pearson	27.203		0.0024				

The attachment scores, Table 10, also differ between groups, with physical abuse cases having a median of 2, and neglect and sexual abuse both having medians of 3. The sexual abuse situations, with 21.67% of the cases in scale category 5, display more severe problems with respect to attachment than do the other two maltreatment types. The neglect and physical abuse scores differ somewhat in detail, but the general patterns are similar with 50.91% of the neglect cases, and 50.0% of the physical abuse cases, in the three highest categories.

<sup>17</sup> Please see page 201 for the operational definitions of this scale.

Table 10

**Maltreatment Type by the Attachment Between the Adult & the Child<sup>18</sup>**

Count Row % Deviation	-1	1	2	3	4	5	
N	56 20.51 5.87	59 21.61 2.94	19 6.96 -8.35	75 27.47 9.37	32 11.72 -0.82	32 11.72 -9.02	273
P	50 18.80 1.15	54 20.30 -0.62	29 10.90 2.36	59 22.18 -4.95	29 10.90 -2.97	45 16.92 5.03	266
S	4 6.67 -7.02	10 16.67 -2.32	12 20.00 5.99	10 16.67 -4.42	11 18.33 3.79	13 21.67 3.99	60
	110 18.36	123 20.53	60 10.02	144 24.04	72 12.02	90 15.03	599
	Test		Chi-Square		Prob>Chi-Sq		
	Likelihood Ratio		24.431		0.0065		
	Pearson		24.250		0.0070		

The adults' opinions concerning discipline, Table 11, are similar for sexual abuse and physical abuse, with both showing high scores as compared to the neglect cases. The latter have a median score of 2, and the other two groups median scores of 3. In addition, while parenting knowledge and skills were most severely deficient for the neglect and sexual abuse cases, with median scores of 4, and the physical abuse cases have a median of 3.<sup>19</sup> The beliefs and knowledge concerning child care shown by all of the groups indicate serious inadequacies and this is particularly acute regarding the perpetrators of sexual abuse.

<sup>18</sup> Please see page 201 for the operational definitions of this scale.

<sup>19</sup> See page 141.

**Table 11**  
**Maltreatment Type by the Adult's Attitude Concerning Discipline<sup>20</sup>**

Count	-1	1	2	3	4	5	
<b>N</b>	47	18	19	27	17	17	145
<b>Row %</b>	32.41	12.41	13.10	18.62	11.72	11.72	
<b>Deviation</b>	17.93	-6.05	2.85	-9.97	0.85	-5.61	
<b>P</b>	29	43	23	67	27	32	221
<b>Row %</b>	13.12	19.46	10.41	30.32	12.22	14.48	
<b>Deviation</b>	-15.31	6.35	-1.62	10.66	2.38	-2.46	
<b>S</b>	5	6	3	9	1	14	38
<b>Row %</b>	13.16	15.79	7.89	23.68	2.63	36.84	
<b>Deviation</b>	-2.62	-0.30	-1.23	0.69	-3.23	8.07	
	81	67	45	103	45	63	404
	20.05	16.58	11.14	25.50	11.14	15.59	
		<b>Test</b>		<b>Chi-Square</b>		<b>Prob&gt;Chi-Sq</b>	
		<b>Likelihood Ratio</b>		38.459		0.0000	
		<b>Pearson</b>		40.915		0.0000	

**Table 12**

**Maltreatment Type by the Adult's Parenting Knowledge & Skills<sup>21</sup>**

Count	-1	0	1	2	3	4	5	
<b>N</b>	53	1	27	20	50	83	118	352
<b>Row %</b>	15.06	0.28	7.67	5.68	14.20	23.58	33.52	
<b>Deviation</b>	2.27	0.55	-8.47	-1.55	-12.41	16.55	3.06	
<b>P</b>	57	0	48	24	73	43	103	348
<b>Row %</b>	16.38	0.00	13.79	6.90	20.98	12.36	29.60	
<b>Deviation</b>	6.84	-0.44	12.93	2.69	11.30	-22.69	-10.63	
<b>S</b>	3	0	4	4	16	22	35	84
<b>Row %</b>	3.57	0.00	4.76	4.76	19.05	26.19	41.67	
<b>Deviation</b>	-9.11	-0.11	-4.46	-1.14	1.11	6.14	7.57	
	113	1	79	48	139	148	256	784
	14.41	0.13	10.08	6.12	17.73	18.88	32.65	
		<b>Test</b>		<b>Chi-Square</b>		<b>Prob&gt;Chi-Sq</b>		
		<b>Likelihood Ratio</b>		45.156		0.0000		
		<b>Pearson</b>		41.093		0.0000		

<sup>20</sup> Please see page 201 for the operational definitions of this scale.

<sup>21</sup> Please see page 202 for the operational definitions of this scale.



Substance abuse, Table 13, appears to be a much more common problem for the neglect group than for the other two groups. The median for the former is 3, and for the latter two groups, the median is 0.<sup>22</sup> However, the median values are somewhat deceptive. The majority of the cases in either the physical abuse or the sexual abuse groups do not manifest difficulties with respect to this question, but these distributions are characterized by clustering at the extremes. The neglect cases are also clustered at the extremes of the scale scores, but with somewhat higher scores on the intermediate levels and a lower percentage in the lowest scale category. Neglect is, proportionately, the highest scoring group in all but number four, of the five possible scale categories for this variable, although substance abuse is also a severe problem for the other two groups. It would appear that, given the bimodal distributions for the physical and sexual abuse groups, substance abuse is either not a significant matter, or it is a severe problem.

Table 13

Maltreatment Type by the Adult's Substance Abuse<sup>23</sup>

Count	0	1	2	3	4	5	
Row %							
Deviation							
N	127	8	5	29	30	120	319
	39.81	2.51	1.57	9.09	9.40	37.62	
	-37.69	1.08	1.97	6.52	3.20	24.91	
P	208	7	2	20	23	76	336
	61.90	2.08	0.60	5.95	6.85	22.62	
	34.54	-0.29	-1.19	-3.68	-5.23	-24.16	

<sup>22</sup> See page 141.<sup>23</sup> Please see page 202 for the operational definitions of this scale.

S	46	1	0	3	9	24	83
	55.42	1.20	0.00	3.61	10.84	28.92	
	3.15	-0.80	-0.79	-2.85	2.03	-0.74	
	381	16	7	52	62	220	738
	51.63	2.17	0.95	7.05	8.40	29.81	

Test	Chi-Square	Prob>Chi-Sq
Likelihood Ratio	38.184	0.0000
Pearson	36.950	0.0001

The maltreatment types also differ with respect to both reference group values, Table 14, and social isolation, Table 15. The neglect and sexual abuse groups have median scores of 4 on the reference group values scale, which indicates strong social support for their maltreatment behaviour, while the median score for the physical abuse group is 2.<sup>24</sup> The social isolation scores are high for all groups, with physical abuse and sexual abuse groups having medians of 3, and the neglect cases have a median of 4. These scores indicate that many of these individuals are isolated from others and that, to the extent social support for their abusive behaviour is available to them, it tends to act to foster undesirable behaviour towards children. Social isolation is thus a more acute problem for the neglect group than is the case for the other groups, and the neglect cases are much more highly represented in the two highest scale categories, 4 and 5, than are the physical abuse cases.

---

<sup>24</sup> See page 141.

**Table 14**  
**Maltreatment Type by the Adult's Reference Group Values<sup>25</sup>**

Count Row % Deviation	-1	0	1	2	3	4	5	
N	31 14.62 -8.02	1 0.47 0.53	16 7.55 -8.44	16 7.55 -4.21	34 16.04 2.04	59 27.83 14.34	55 25.94 3.76	212
P	46 22.77 8.83	0 0.00 -0.45	33 16.34 9.71	24 11.88 4.74	31 15.35 0.54	25 12.38 -17.55	43 21.29 -5.82	202
S	6 16.22 -0.81	0 0.00 -0.082	3 8.11 -1.27	3 8.11 -0.53	3 8.11 -2.58	11 29.73 3.21	11 29.73 2.06	37
	83 18.40	1 0.22	52 11.53	43 9.53	68 15.08	95 21.06	109 24.17	451
					Test			
					Likelihood Ratio	Chi-Square	Prob>Chi-Sq	
					Pearson	31.630	0.0016	
						30.369	0.0025	

**Table 15**  
**Maltreatment Type by the Adult's Social Isolation<sup>26</sup>**

Count Row % Deviation	-1	1	2	3	4	5		
N	25 8.42 -8.36	38 12.79 -10.19	25 8.42 -3.73	41 13.80 -3.48	91 30.64 14.55	77 25.93 11.21	297	
P	42 15.44 11.45	56 20.59 11.87	32 11.76 5.69	37 13.60 -0.74	53 19.49 -17.02	52 19.12 -8.26	272	
S	5 6.94 -3.09	10 13.89 -1.68	5 6.94 -1.96	18 25.00 7.22	21 29.17 2.47	13 18.06 -2.95	72	
	72 11.23	104 16.22	62 9.67	96 14.98	165 25.74	142 22.15	641	
					Test			
					Likelihood Ratio	Chi-Square	Prob>Chi-Sq	
					Pearson	30.952	0.0006	
						31.682	0.0005	

<sup>25</sup> Please see page 204 for the operational definitions of this scale.

<sup>26</sup> Please see page 205 for the operational definitions of this scale.

All three groups have median scores of 0 for both their history of violence and psychopathology/incapacity and the differences between the maltreatment groups are not statistically significant.<sup>27</sup> A history of violent behaviour (Table 16) is associated with only a minority of individuals (16.5%), and the positive scores, indicating the presence of violent behaviour, are distributed throughout the scale categories. However, while psychopathology/incapacity was not an issue for over 60% of all individuals, when problems with respect to the individual's mental functioning were present, the adults tended to score at the higher end of the scale. This was particularly important for the sexual abuse cases, with 24.68% of all the scores in the highest scale category, indicating severe mental disturbance.

Table 16  
Maltreatment Type by the Adult's History of Violence Towards Adults<sup>28</sup>

Count Row % Deviation	0	1	2	3	4	5	
N	286 79.44 -14.73	24 6.67 3.81	11 3.06 1.78	16 4.44 2.39	10 2.78 3.85	13 3.61 2.90	360
P	323 86.83 12.24	18 4.84 -2.87	9 2.42 -0.53	12 3.23 -2.06	3 0.81 -3.35	7 1.88 -3.43	372
S	76 86.36 2.49	4 4.55 -0.94	1 1.14 -1.25	3 3.41 -0.33	1 1.14 -0.50	3 3.41 0.53	88
	685 83.54	46 5.61	21 2.56	31 3.78	14 1.71	23 2.80	820
		Test		Chi-Square		Prob>Chi-Sq	
		Likelihood Ratio		11.129		0.3476	
		Pearson		10.834		0.3706	

<sup>27</sup> See page 141.

<sup>28</sup> Please see page 203 for the operational definitions of this scale.

Table 17

Maltreatment Type by the Adult's Psychopathology/Incapacity<sup>29</sup>

Count	0	1	2	3	4	5	
Row %							
Deviation							
N	187	11	3	23	18	44	286
	65.38	3.85	1.05	8.04	6.29	15.38	
	5.48	-1.70	-0.69	1.28	1.61	-5.99	
P	209	18	5	26	18	59	335
	62.39	5.37	1.49	7.76	5.37	17.61	
	-3.62	3.12	0.68	0.56	-1.20	0.45	
S	47	2	1	4	4	19	77
	61.04	2.60	1.30	5.19	5.19	24.68	
	-1.87	-1.42	0.01	-1.85	-0.41	5.54	
	443	31	9	53	40	122	698
	63.47	4.44	1.29	7.59	5.73	17.48	
Test			Chi-Square		Prob>Chi-Sq		
Likelihood Ratio			5.869		0.8262		
Pearson			5.952		0.8192		

The stress variable, Table 18, is scored very high for all groups, with median scores of 4.<sup>30</sup> The differences between the maltreatment types with respect to these variables is not statistically significant. Positive stress scores are present for 86.58% of all persons assessed, and 55.79% of these individuals were evidencing stress at the two highest levels. These results suggest that stress is a very serious problem with respect to the etiology of child maltreatment.

<sup>29</sup> Please see page 202 for the operational definitions of this scale.

<sup>30</sup> See page 141.

Table 18

**Maltreatment Type by the Adult's Level of Stress<sup>31</sup>**

Count Row % Deviation	0	1	2	3	4	5	
N	38 12.34 -3.33	24 7.79 -3.84	17 5.52 -0.84	49 15.91 -0.16	73 23.70 2.09	107 34.74 6.07	308
P	46 14.07 2.12	38 11.62 8.44	22 6.73 3.06	55 16.82 2.81	74 22.63 -1.28	92 28.13 -15.15	327
S	11 15.07 1.21	2 2.74 -4.60	2 2.74 -2.23	9 12.33 -2.65	16 21.92 -0.81	33 45.21 9.08	73
	95 13.42	64 9.04	41 5.79	113 15.96	163 23.02	232 32.77	708
		Test	Chi-Square	Prob>Chi-Sq			
		Likelihood Ratio	16.293	0.0916			
		Pearson	15.204	0.1248			

The majority of the adults in this sample were perceived by the child protection workers as manifesting serious problems. This was shown by generally high median scores on most of the variables which were tested. The only exceptions were the questions of whether these individuals were generally violent towards others, and whether significant disturbances to mental functioning were apparent. These variables were not relevant to most of those persons who were scored.

These data represent severe instances of maltreatment, with all maltreatment types having median scores of 3 on the severity scale for the current incident, and 52.6% of these cases had at least one prior,

<sup>31</sup> Please see page 203 for the operational definitions of this scale.

confirmed instance of maltreatment. In addition, it is notable that the stress variable was at a median value of 4 in all groupings which would indicate that these people are under very severe pressure from factors in their social and personal environments.<sup>32</sup>

The results of the bivariate analyses indicate that the sexual abuse cases within these data differ from the other two groups with respect to most of the variables which were examined. It was not possible to conduct a logistic regression analysis concerning the sexual abuse group because of missing data and the small sample size for this maltreatment type. When the cases missing data on the variables in the model were deleted, there were too few cases to produce a valid result. The specific differences which distinguish the sexual abuse group from the other maltreatment types, which emerged from the bivariate analysis are:

- The children are older than in both of the other maltreatment types.
- A higher percentage of sexually abused children are female than is the case for neglect or physical abuse.
- Incidents of sexual abuse (current and prior) are of a higher severity than the incidents of neglect and physical abuse.
- The adult perpetrator of sexual abuse is more likely to deny that the event has taken place or to blame situational stresses for its occurrence rather than accept responsibility than is the case for neglect or physical abuse.

---

<sup>32</sup> See page 141.

- The adults in the sexual abuse category are more likely to have unrealistic or inappropriate conceptions of the child than perpetrators in the other two categories.
- The sexual offender is less likely to form appropriate attachments with children than perpetrators of neglect or physical abuse.
- A higher level of disturbance of mental function is shown by sexual offenders.
- Perpetrators of sexual abuse are older than those in the neglect group.
- The adults in the sexual abuse group show more inappropriate opinions concerning discipline than those in the neglect group.
- The adults in the sexual abuse group, like those in the physical abuse group, show less evidence of difficulties concerning addictions issues than those in the neglect group.
- The sexual offenders are more isolated than the perpetrators of neglect.
- The perpetrators of sexual abuse have fewer parenting skills than the physical abuse group and less knowledge concerning child development.
- The reference groups for the sexual abuse group display more problematic values than the physical abuse group concerning appropriate child care.

While the sexual abuse group differs clearly from the other two groups, there are many similarities between the neglect and physical



abuse maltreatment types. However, there are a number of distinctive characteristics which distinguish between them. These characteristics, which differentiate between these maltreatment types, as assessed by bivariate tests of significance, may be summarized as follows:

- Neglect cases are characterized by very young children, and by adults who are younger than those in the physical abuse maltreatment type.
- There are larger number of female adult perpetrators in the neglect group than in the physical abuse group.
- The neglect cases display higher levels of severity for the current, and prior incidents of maltreatment than the physical abuse group.
- There are more pronounced problems with respect to attachment for the neglect cases than the physical abuse cases.
- While substance abuse is an issue to some extent for the physical abuse cases it is a factor which is much more significant for child neglect cases at all levels of severity.
- Perpetrators of neglect are much more isolated than those involved in physical abuse and are more likely to have reference groups who condone violence and are supportive of the perpetrator.
- There is a slightly higher proportion of female children in the neglect group than in the physical abuse group.

- The physical abuse group manifests more distorted ideas concerning appropriate discipline for children than do the neglect group. This includes a greater predisposition to support higher levels of physical punishment.

While the differences that are revealed by bivariate tests are of interest, the possibility remains that there are a variety of differing combinations of variables which differentiate between maltreatment types. As a consequence of missing data, particularly for sexual abuse cases, and the restricted variance within these data, multivariate analysis procedures are of limited utility. However, an statistically significant result was produced when a logistic regression model was used to attempt to differentiate between only the neglect and the physical abuse groups. The variables were selected from those which distinguished between the two maltreatment types as assessed by the bivariate tests.

These results, which are displayed in Table 19, indicate that, for the 154 cases which were analyzed, there are distinct differences between the physical abuse and the neglect groups. The Rsquare value of 0.4985 shows that, to a considerable extent, the variance of the dependent variable is explained by this model. The lack of fit statistics verify that the model corresponds with the data adequately, and whole model test indicates that it is extremely improbable that these results could have occurred randomly. The variables concerning the gender of the child, the age of the adult, the gender of the adult, and attachment do not

contribute significantly to the task of differentiating between these groups. However, the following variables, when acting simultaneously, distinguish between the neglect and physical abuse maltreatment types.

- **Age of the child:** The children in the neglect group are younger than those in the physical abuse group. The younger children are highly vulnerable to harm that results from inadequate care. Another factor which may be operating here is that the older children in the physical abuse group may provide a greater stimulus for the adults' aggression.
- **Attitude re: Discipline:** The scores for the physical abuse group are higher than those for the neglect group. The legitimation of high levels of physical discipline serves both to preserve the self esteem of the perpetrator, and to encourage the perpetuation of the physical abuse.
- **Parenting Knowledge & Skills:** The scores for the neglect group are higher than those for the physical abuse group. Inadequate knowledge concerning the needs of children can have serious consequences although the harm is unintentional. Also, the assessment that the adults in the physical abuse group have comparatively adequate knowledge and skills concerning child care is consistent with the idea that physical abuse is often associated with a specific intent to harm a child, rather than an inadvertent lapse in an otherwise satisfactory pattern of child care.

- **Substance Abuse:** The scores for the neglect group are higher than those for the physical abuse group. Chronic substance abuse may have the effect of lowering the parenting capacities of these individuals below a level that is tolerable for their children. While substance abuse is shown to be less frequent for physical abuse cases, it is still a critical matter. When substance abuse is combined with a willingness to assault a child, the perpetrator will act on the aggression with less stimulus than would otherwise be the case; and will also carry the assault to a higher level of severity than they would without the disinhibiting effects of the narcotic.

These results provide a means for differentiating between these groups and confirm that the differences are sustained by a cautious statistical analysis of these data. Given the methodological difficulties with respect to missing data, and the limited variance which is possible with the category scales, this outcome provides support for the approach taken by this study. It also provides a beginning point for future work relating theoretical explanations to empirical descriptions of families experiencing maltreatment.

Table 19

Neglect and Physical Abuse: Logistic Regression Analysis

Whole-Model Test				
Source	DF	-LogLikelihood	Chi-Square	Prob>Chi-Sq
Model	24	51.54770	103.0954	0.000000
Error	129	51.84794		
C Total	153	103.39564		
	RSquare (U)		0.4985	
	Observations		154	
Lack of Fit				
Source	DF	-LogLikelihood	Chi-Square	
Lack of Fit	129	51.847938	103.6959	
Pure Error	0	0.000000	Prob>Chi-Sq	
Total Error	129	51.847938	0.950509	
Effect Test				
Source	Nparm	DF	Wald Chi-Square	Prob>Chi-Sq
Gender of Child	1	1	0.090765	0.7632
Age of Child	1	1	15.083148	0.0001
Age of Adult	1	1	0.377913	0.5387
Gender of Adult	1	1	2.793803	0.0946
Attachment	5	5	8.699473	0.1217
Attitude re: Discipline	5	5	13.406112	0.0199
Parenting Knowledge & Skills	5	5	12.550962	0.0280
Substance Abuse	5	5	19.906359	.00013

### Comparison of Family Types<sup>33</sup>

Table 20 shows the relationship between family types and maltreatment types. Family Type III<sup>34</sup> is defined as a blended family where at least one caregiver is not a biological parent. This group has the largest proportion of sexual abuse cases and physical abuse is the largest single maltreatment type represented within this Family Type.

Table 20

Distribution of Family Types By Maltreatment Type:

	Family Type			
	I	II	III	
N	28.9%	70.0%	26.4%	
P	57.7%	30.0%	44.2%	
S	13.4%	0.0%	29.4%	
% of Total Data Set	39.9%	39.5%	20.6%	100%
Column Total	100.0%	100.0%	100.0%	

Neglect comprises the preponderance of cases for Family Type II, the single parent, female-headed family. This is a consequence, in part, of the absence of sexual abuse cases for Family Type II in this data set. However, as women are much less likely to perpetrate sexual abuse than men, it is likely that neglect would remain the predominant form of maltreatment for this group.

<sup>33</sup> Complete significance tests for this section are contained in Appendix E, pp. 347-366.

<sup>34</sup> The differing family types are characterized by numbers rather than descriptive terms as a consequence of the unfortunate history of the practice of descriptive associations

The majority of cases for Family Type I, characterized by the presence of two biological parents, are from the physical abuse group. While the proportion of neglect cases is similar to Family Type III, there is a much smaller representation of sexual abuse cases within Family Type I.

The age patterns (Figure 4) for the children in the three family types are markedly different. The children in Family Type II are the youngest of any of the groups, with a mean of 6.0 years with a standard deviation of 4.8; 50% are older than two years but less than five years; and there is a general trend to decreased frequency with increased age. The latter is similar to the age distribution for children in the neglect group (Figure 2) and 70.0% of the Family Type II cases fall into the neglect group.

Family Type III contains the children who are oldest, with a mean of 8.8 years and a standard deviation of 5.0. The curve describing the age distribution is fairly flat, and half of these children are between the ages of 5 and 13 years. While all three maltreatment types are found in this group, the most frequent maltreatment type represented here is physical abuse at 44.2%.

In contrast, the children from Family Type I have a mean age of 7.6 years, a standard deviation of 5.5, and the values are dispersed throughout the age range with slightly higher frequencies at the upper and lower extremes. The relatively flat distribution is similar to that for physical abuse. The high frequencies of young children in the Family Type I group, are accounted for by the presence of neglect cases, and the comparatively high scores at the top of this range describe sexually

---

within child welfare. When such terms have been used in the past they have commonly

abused adolescents. The increased spread of the ages of the children in the sexual abuse group, when compared to the other two family types, is shown by an interquartile range of 2 years to 13 years. The majority of children in this classification, 57.7%, (Table 2) are victims of physical abuse.

Figure 4

Age Distributions of Children:

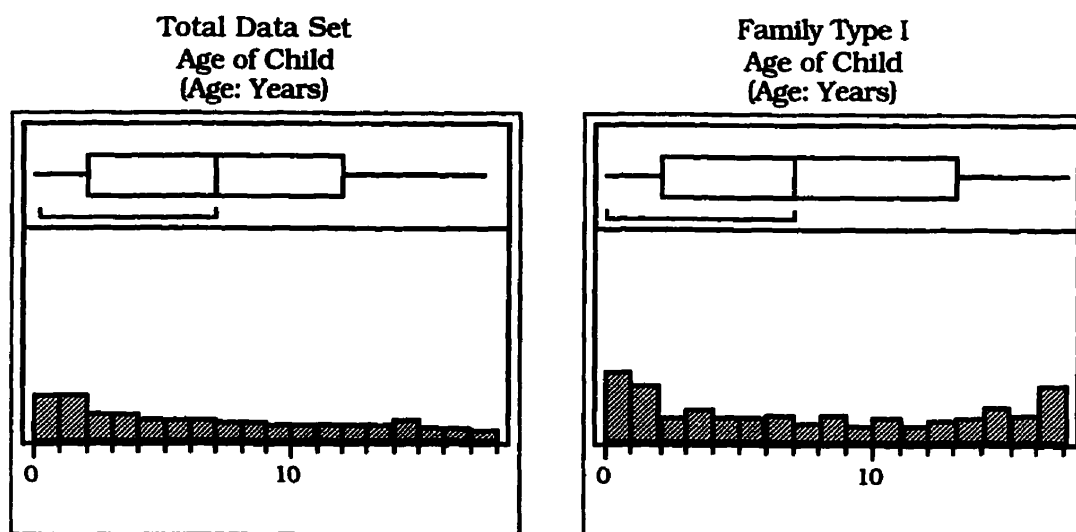
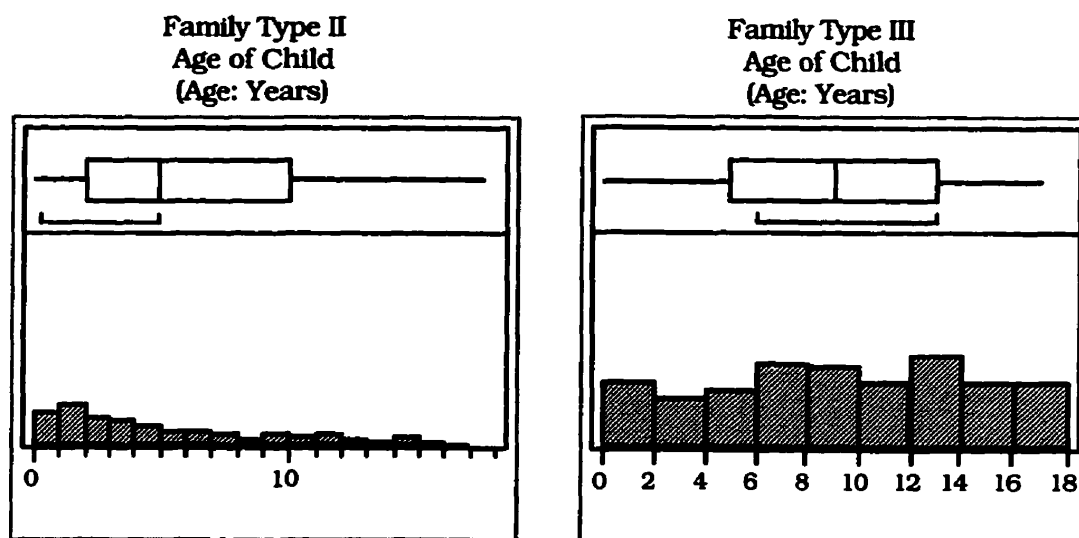




Figure 4 (continued).



Girls are the majority in all of the family types.<sup>35</sup> While Family Type III has a larger percentage of girls than the other two groups, 61.7% as compared to 56.4% in Family Type I and 53.1% in Family Type II, these differences are not statistically significant.

The mean age of adults from Family Types I (31.8 years) and III (30.6 years) are approximately the same, while Family Type II is significantly younger at 28 years of age. Family Type III approximates a normal distribution for these ages (Figure 5), while the curves for the other two groups are somewhat flatter. The standard deviations from Family Types II and III are similar, both being approximately 7.4. Family Type I is somewhat more dispersed with a standard deviation of 8.4.

As the Family Type II group is composed of single mothers, and there is no matching group for single fathers, this group necessarily differs markedly from the others with respect to gender distribution. Nevertheless, when Family Types I and III are compared separately with respect to gender the differences are still statistically significant. Family Type III contains 66.8% female perpetrators and Family Type I is somewhat lower at 55.3%.<sup>36</sup>

---

<sup>35</sup> See Appendix E, pp. 347-366.

<sup>36</sup> See Appendix E, pp. 347-366.

Figure 5

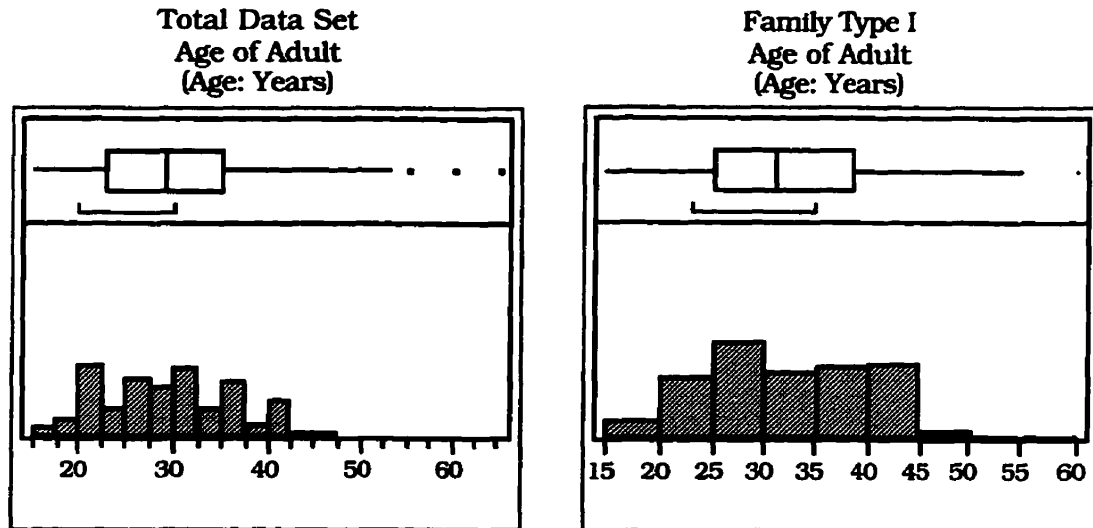
Age Distributions of Adult:

Figure 5 (continued)

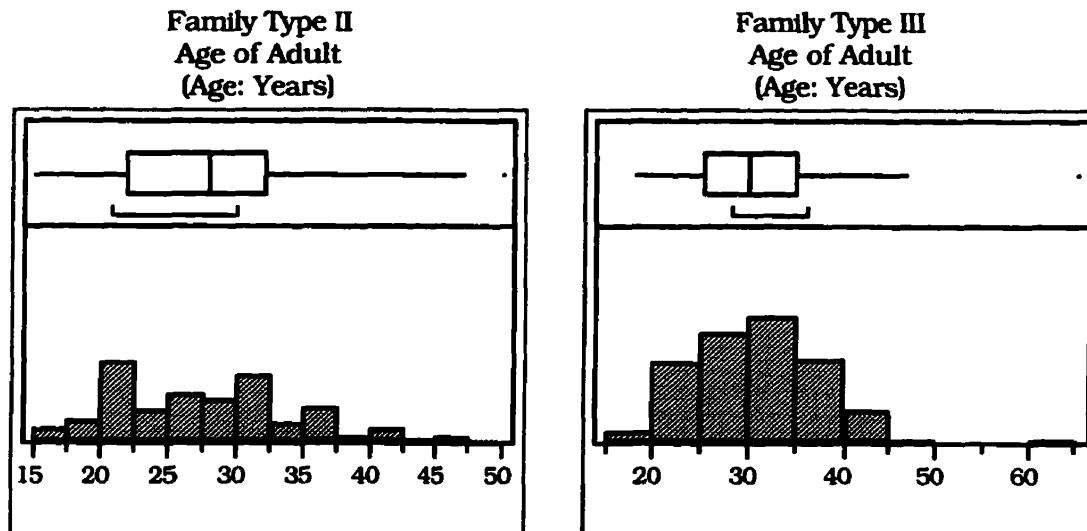


Table 21 presents a summary of the central tendency scores and the results of the significance tests which assess the relevance of individual variables to discerning differences between the family types. Family Type III is characterized by generally higher scores than the other two groups. The medians for Family Type III are either the single highest score for the

variable, or the Family Type III scores are tied with another group for the highest score.

The differences between Family Types I and II are less evident, although these results suggest that the child protection issues for each group may differ in important ways. The most apparent point is that Family Type I shows slightly higher median scores concerning the scales which assess the following characteristics of the adults:

- Adult's Perception of the Incident.
- Attachment.
- Attitude re: Discipline.
- Stress.
- Parenting Knowledge and Skills.

Table 21

**Summary of Statistical Results Concerning Family Types: Measures of Central Tendency  
& Chi Square Tests For Significant Differences Between Family Types**

		<u>Mean/ Median</u>	<u>Mean/ Median</u>	<u>Mean/ Median</u>	<u>Significance Level</u>
<u>SUBSET:</u>		FAMILY TYPE I (n = 381)	FAMILY TYPE II (n = 377)	FAMILY TYPE III (n = 197)	
<u>CHILD:</u>					
Age		7.6 yr.	6.0 yr.	8.8 yr.	.05
Gender:	Male	43.6%	46.9%	38.3%	.154
	Female	56.4%	53.1%	61.7%	
<u>ADULT:</u>					
Age		31.8 yr.	28.0 yr.	30.6 yr.	.05
Gender:	Male	44.7%	0.0%	33.2%	.0000
	Female	55.3%	100.0%	66.8%	
Severity of Injury (Current)		3	3	4	.0000
Severity of Injury (Prior)		2	2	3	.0000
Perception of the Incident		4	3	4	.0009
Perception of the Child		3	3	4	.0003
Attachment		3	1	3	.0004
Attitude re: Discipline		3	2	3	.0005
Parenting Knowledge & Skills		4	3	4	.0006
Substance Abuse		0	0	4	.0001
Psychopathology/Incapacity		0	0	0	.1515
History of Violence		0	0	0	.6341
Stress		4	3	4	.0897
Reference Group Values		2	3	4	.0124
Social Isolation		3	3	4	.0785

Family Types I and II both have median scores of 3 for the severity of the current incident, and the scores for Family Type III are slightly higher with a median of 4. While these differences are statistically significant the patterns of the distributions (Table 22) are somewhat complicated. Type III has 60.9% of the group's data in the two highest severity levels. The comparable number for Family Type I is 22.1%, and for Type II it is 47.0%. In addition, Family Type II has 41.4% of the data in the two lowest categories and Type I has 27.3% in these categories. Thus Type II families display higher scores than Type I families in both the highest and lowest scale categories, while Type I predominates in the middle level. Severity scores of 3 represent serious, but not life-threatening, injuries to the child, while severity scores of 4 and 5 are severely damaging, including, at the extreme, incest and attempted homicide.<sup>37</sup> While there are differences with respect to the distribution of these scores for the differing Family Types, what is perhaps of greatest interest is that these scores are very high in all of the groups examined.

In effect, Type III shows the highest scores, while the maltreatment incidents concerning Family Type II are somewhat more severe than those for Type I. The concentration of sexual abuse in Family Type III is an important contributing factor to the relatively high scores for this group.

---

<sup>37</sup> For further examples, please refer to the operational definitions of the scale on p. 200 at the end of this chapter.

Table 22

**Family Type by the Severity of the Current Incident<sup>38</sup>**

Count Row % Deviation	1	2	3	4	5	
1	83 21.78 16.38	21 5.51 -40.44	193 50.66 92.07	19 4.99 -52.81	65 17.06 -15.19	381
2	69 18.30 3.07	87 23.08 26.21	44 11.67 -55.88	113 29.97 41.94	64 16.98 -15.35	377
3	15 7.61 -19.45	46 23.35 14.23	16 8.12 -36.19	48 24.37 10.87	72 36.55 30.54	197
	167 17.49	154 16.13	253 26.49	180 18.85	201 21.05	955
	Test	Chi-Square	Prob>Chi-Sq			
	Likelihood Ratio	313.021	0.0000			
	Pearson	294.880	0.0000			

The patterns for the severity of a prior incident (Table 23) are slightly different than those for the current incident. The relative positions of the median scores remains the same, with Type III the having the highest score at 3, and the others both scoring 2. Family Type III has the highest scores in the distribution and the scores for Family Type II are slightly higher than those for Type I. While the distributions differ, these differences are marginal with respect to degrees of severity. It is of interest that 67.07% of these cases have confirmed prior occurrences. This indicates that the maltreatment incidents which have been observed

<sup>38</sup> Please see page 200 for the operational definitions of this scale.

are not isolated anomalies, but may be best understood as part of an established life pattern.

Table 23

Family Type by the Severity of A Prior Incident<sup>39</sup>

Count	0	1	2	3	4	5	
Row %							
Deviation							
1	92	43	13	80	20	42	290
	31.72	14.83	4.48	27.59	6.90	14.48	
	-3.51	12.07	-15.61	28.57	-12.09	-9.43	
2	115	28	36	33	48	49	309
	37.22	9.06	11.65	10.68	15.53	15.86	
	13.24	-4.96	5.51	-21.80	13.80	-5.80	
3	40	9	25	20	15	42	151
	26.49	5.96	16.56	13.25	9.93	27.81	
	-9.723	-7.11	10.10	-6.78	-1.71	15.22	
	247	80	74	133	83	133	750
	32.93	10.67	9.87	17.73	11.07	17.73	
Test							
			Chi-Square	Prob>Chi-Sq			
Likelihood Ratio			75.671	0.0000			
Pearson			76.268	0.0000			

The distribution of the results concerning the perception of the incident, Table 24, and attachment, Table 25, are similar. Family Types I and III are approximately equally represented in the highest score categories, and Type II has somewhat lower scores. These results indicate that, while the results for Family Type II are somewhat less severe, the perpetrators in all of these groups have experienced difficulties in forming adequate relationships with children. In addition, they may

<sup>39</sup> Please see page 200 for the operational definitions of this scale.



reframe the maltreatment incident in their own minds so that the blame is shared with the child. The perpetrators in Family Type II do not show the same degree of difficulty with respect to forming an adequate attachment with children as the other two Family Types.

**Table 24**  
**Family Type by the Adult's Perception of the Incident<sup>40</sup>**

Count	-1	1	2	3	4	5	
Row %							
Deviation							
1	30 9.46 -8.74	36 11.36 -3.92	31 9.78 2.94	57 17.98 0.08	51 16.09 -1.18	112 35.33 10.81	317
2	55 17.24 16.02	51 15.99 10.83	25 7.84 -3.24	62 19.44 4.72	44 13.79 -8.50	82 25.71 -19.83	319
3	13 7.83 -7.28	14 8.43 -6.91	15 9.04 0.30	25 15.06 -4.81	37 22.29 9.68	62 37.35 9.01	166
	98 12.22	101 12.59	71 8.85	144 17.96	132 16.46	256 31.92	802
Test	Chi-Square			Prob>Chi-Sq			
Likelihood Ratio	29.804			0.0009			
Pearson	29.984			0.0009			

**Table 25**  
**Family Type by the Attachment Between the Adult and the Child<sup>41</sup>**

Count	-1	1	2	3	4	5	
Row %							
Deviation							
1	38 16.24 -4.97	42 17.95 -6.05	22 9.40 -1.44	57 24.36 0.75	36 15.38 7.87	39 16.67 3.84	234
2	62 25.00 16.46	63 25.40 12.08	21 8.47 -3.84	52 20.97 -7.62	22 8.87 -7.80	28 11.29 -9.26	248
3	10 8.55 -11.49	18 15.38 -6.03	17 14.53 5.28	35 29.91 6.87	14 11.97 -0.06	23 19.66 5.42	117
	110 18.36	123 20.53	60 10.02	144 24.04	72 12.02	90 15.03	599
Test	Chi-Square			Prob>Chi-Sq			
Likelihood Ratio	32.836			0.0003			
Pearson	32.167			0.0004			

<sup>40</sup> Please see page 201 for the operational definitions of this scale.

<sup>41</sup> Please see page 201 for the operational definitions of this scale.

Family Type III has the highest scores for the variable concerning the adult's attitude concerning discipline (Table 26), Type II the lowest scores, and Type I in an intermediate position. Their respective median scores are 3, 2 and 3.<sup>42</sup> This result is consistent with the increased presence of male caregivers in Family Types I and III, and the objectification of the child by the perpetrator increases as the relationship distance increases. As substitute caregivers have entered the children's' lives at a later date than is the case for biological parents, some of these individuals experience difficulty forming appropriate bonds with the child. The variable that assesses the adults' parenting ability has a similar pattern with median scores as follows: Type I, 4; Type II, 3; and Type III, 4.<sup>43</sup>

Table 26  
Family Type By The Adult's Attitude Concerning Discipline<sup>44</sup>

Count	-1	1	2	3	4	5	
Row %							
Deviation							
1	28	26	16	58	22	27	177
	15.82	14.69	9.04	32.77	12.43	15.25	
	-7.49	-3.35	-3.72	12.87	2.29	-0.60	
2	46	30	21	27	12	18	154
	29.87	19.48	13.64	17.53	7.79	11.69	
	15.12	4.46	3.85	-12.26	-5.15	-6.02	
3	7	11	8	18	11	18	73
	9.59	15.07	10.96	24.66	15.07	24.66	
	-7.64	-1.11	-0.13	-0.61	2.87	6.62	
	81	67	45	103	45	63	404
	20.05	16.58	11.14	25.50	11.14	15.59	
Test			Chi-Square		Prob>Chi-Sq		
Likelihood Ratio			31.391		0.0005		
Pearson			31.513		0.0005		

<sup>42</sup> See Table 21, p. 175.

<sup>43</sup> See Table 21, p. 175.

<sup>44</sup> Please see page 201 for the operational definitions of this scale.

Table 27  
**Family Type By The Adult's Parenting Knowledge & Skills<sup>45</sup>**

Count	-1	0	1	2	3	4	5	
Row %								
Deviation								
1	41 13.23 -3.68	1 0.32 0.61	31 10.00 -0.24	18 5.81 -0.98	58 18.71 3.04	61 19.68 2.48	100 32.26 -1.23	310
2	62 20.06 17.46	0 0.00 -0.39	37 11.97 5.86	23 7.44 4.08	54 17.48 -0.78	50 16.18 -8.33	83 26.86 -17.90	309
3	10 6.06 -13.78	0 0.00 -0.21	11 6.67 -5.63	7 4.24 -3.11	27 16.36 -2.25	37 22.42 5.85	73 44.24 19.12	165
	113 784 14.41	1 0.13	79 10.08	48 6.12	139 17.73	148 18.88	256 32.65	
		Test		Chi-Square		Prob>Chi-Sq		
		Likelihood Ratio		35.894		0.0003		
		Pearson		34.284		0.0006		

Family Type III shows the highest level of problems with respect to their perceptions of the children (Table 28), with 62.9% of the scores in the two highest categories. Type I has 50% of their values in the comparable groups, and Family Type II has 39.6% of the scores in the same groups. These results are consistent with those from the other variables which assess the adult's basic orientation towards children but provide the most extreme example. The majority of the adults in this sample are seen to hold views which are inaccurate with respect to child development, and children may be perceived as merely extensions of the identity of the adult. Problems with respect to the adults' perceptions of

<sup>45</sup> Please see page 202 for the operational definitions of this scale.

the incidents and the children are commonly associated with excessive expectations concerning a child's capacity for self-care, and a subordination of the interests of the child to those of the adult.

While all of these groups have very high scores concerning this variable, the scores increase as the relationship distance between the adult and the child increases. The perpetrators from single-parent, female-headed families are the least prominent with respect to the most extreme scores; the substitute caregivers, Family Type III, have 62.91% of their cases in the two categories which represent the most severe distortions of perceptions; and the biological parents, Family Type II occupy an intermediate position.

Table 28  
Family Type By The Adult's Perception of the Child<sup>46</sup>

Count	-1	1	2	3	4	5	
Row %							
Deviation							
1	47	31	21	50	73	76	298
	15.77	10.40	7.05	16.78	24.50	25.50	
	4.37	-4.59	-5.20	0.33	3.39	1.70	
2	55	46	33	55	64	60	313
	17.57	14.70	10.54	17.57	20.45	19.17	
	10.23	8.62	5.48	2.83	-9.12	-18.05	
3	7	14	13	22	41	54	151
	4.64	9.27	8.61	14.57	27.15	35.76	
	-14.60	-4.03	-0.28	-3.17	5.73	16.35	
	109	91	67	127	178	190	762
	14.30	11.94	8.79	16.67	23.36	24.93	
Test			Chi-Square		Prob>Chi-Sq		
Likelihood Ratio			35.249		0.0001		
Pearson			32.360		0.0003		

<sup>46</sup> Please see page 201 for the operational definitions of this scale.

The highest scores for both social isolation and reference group values also fall to Family Type III While the differences with respect to reference group values are statistically significant, this is not the case for the isolation variable. In addition, Family Type II shows slightly higher scores with respect to reference group values than Family Type I. These results indicate that there are problems for all of these individuals with respect to both loneliness, and participation in social groups with values and beliefs that act contrary to the interests of children. The question of negative social support for child maltreatment most prominent for Family Type III.

**Table 29**  
**Family Type By The Adult's Reference Group Values<sup>47</sup>**

Count	-1	0	1	2	3	4	5	
Row %								
Deviation								
1	36 23.08 7.29	1 0.64 0.65	19 12.18 1.01	23 14.74 8.13	16 10.26 -7.52	27 17.31 -5.86	34 21.79 -3.70	156
2	38 18.72 0.64	0 0.00 -0.45	21 10.34 -2.41	14 6.90 -5.36	40 19.70 9.39	45 22.17 2.24	45 22.17 -4.06	203
3	9 9.78 -7.93	0 0.00 -0.20	12 13.04 1.39	6 6.52 -2.77	12 13.04 -1.87	23 25.00 3.62	30 32.61 7.77	92
	83 18.40	1 0.22	52 11.53	43 9.53	68 15.08	95 21.06	109 24.17	451
		Test		Chi-Square	Prob>Chi-Sq			
		Likelihood Ratio		25.880	0.0112			
		Pearson		25.543	0.0124			

<sup>47</sup> Please see page 204 for the operational definitions of this scale.

Table 30

**Family Type By The Adult's Social Isolation<sup>48</sup>**

Count Row % Deviation	-1	1	2	3	4	5	
1	33 13.69 5.93	38 15.77 -1.10	33 13.69 9.69	35 14.52 -1.09	48 19.92 -14.04	54 22.41 0.61	241
2	30 11.28 0.12	44 16.54 0.84	21 7.89 -4.73	40 15.04 0.16	77 28.95 8.53	54 20.30 -4.93	266
3	9 6.72 -6.05	22 16.42 0.26	8 5.97 -4.96	21 15.67 0.93	40 29.85 5.51	34 25.37 4.32	134
	72 11.23	104 16.22	62 9.67	96 14.98	165 25.74	142 22.15	641
		Test	Chi-Square	Prob>Chi-Sq			
		Likelihood Ratio	17.213	0.0698			
		Pearson	16.819	0.0785			

The greatest difference between the Family Types exists with respect to substance abuse (Table 31), with Family Type III having a median score of 4, and the other two groups have medians of 0.<sup>49</sup> Type III has 55.2% of its scores in the two highest scale categories, while 34.4% of the Type II scores are in the same categories, as well as 33.7% of the Type I scores. Fifty-nine percent of the Type I scores are in the 'not applicable' category, as well as 51.48% of the Type II scores, and 39.31% of the Type III scores. The scores cluster at the extremes of the scale and there are relatively few scores in the severity categories 1, 2, and 3. for all of the Family Types. It is apparent that when substance abuse appears as a problem

---

<sup>48</sup> Please see page 205 for the operational definitions of this scale.

with the cases that are described in these data it tends to be severe. In addition, it is a much more important issue for Family Type III than it is for the other two groups.

Table 31

Family Type By The Adult's Substance Abuse<sup>50</sup>

Count	0	1	2	3	4	5	
1	167	5	2	17	29	68	288
Row %	57.99	1.74	0.69	5.90	10.07	23.61	
Deviation	18.32	-1.24	-0.73	-3.29	4.81	-17.85	
2	157	10	3	30	18	87	305
Row %	51.48	3.28	0.98	9.84	5.90	28.52	
Deviation	-0.46	3.39	0.11	8.51	-7.62	-3.92	
3	57	1	2	5	15	65	145
Row %	39.31	0.69	1.38	3.45	10.34	44.83	
Deviation	-17.86	-2.14	0.63	-5.22	2.82	21.78	
	381	16	7	52	62	220	738
	51.63	2.17	0.95	7.05	8.40	29.81	
Test				Chi-Square			Prob>Chi-Sq
				Likelihood Ratio			0.0001
				Pearson			0.0001

As is the case with the maltreatment data, the median values are 0 for both the history of violence and the psychopathology/incapacity scales for all family types. In addition, the stress scores are very high for all of these groups with medians values of 4, for Family Types I and III and 3, for Family Type II.<sup>51</sup> Scrutiny of the chi square tables for these

<sup>49</sup> See page 175.

<sup>50</sup> Please see page 76 for the operational definitions of this scale.

<sup>51</sup> See page 175.



variables do not add information to the analysis which has been presented.

### **Summary of the Characteristics Which Differentiate Between Family Types**

Family Type II is clearly differentiated from the other two family types. The scores for Family Type II are consistently in the lowest scale category, with the sole exception of the question of reference group values. As 70% of the cases in Family Type II are concerned with neglect, the characteristics for this family type are similar to those of the neglect typology, and are distinct from the other two family types. These characteristics include:

- The youngest children are in the families which are headed by single women, and the adults in this group are younger than those in the other family groups.
- The adults in Family Type II are, by definition, exclusively female.
- The scores concerning the severity of the current incident for Family Type II are intermediate between the other groups. Nonetheless, the median score of 3 on the severity scale indicates that the maltreatment incidents represent a considerable threat to the child's well-being.
- The scores concerning the severity of a prior incident for Family Type II are intermediate between the other groups.

- This group has the lowest scores for their perceptions of the incident, their perceptions of the child, attachment, and their attitudes concerning discipline. While the views of these adults concerning children are at high enough levels to be consistently problematic they are less severe than those for the other two family types. Family Type II perpetrators have more positive conceptions of their children than those in the other family types, and are less violent towards those children. In particular, the attachment score, with a median of 1, is sufficiently low that it may indicate much more positive relationships between the adults and the children in this family type, and suggests that to some extent these relationships are mutually beneficial.
- The overall picture suggests that these women are subject to considerable stress, that their knowledge and attitudes concerning children are seriously deficient, and, in addition, there may be some degree of impairment of their abilities to bond with their children.

Family Types I and III are mixed with respect to their composition. All maltreatment types are represented in these groups, with Family Type I having physical abuse as the most common maltreatment type (57.7%). Physical abuse is also the largest group represented in Family Type III with 44.2% of the total number of cases. The proportions of neglect cases are approximately equal in these two Family Types, and Type III has a larger proportion of sexual abuse cases than Type I, 29.4% as compared

to 13.4%. These differences, combined with the generally higher scores on most variables for Family Type III suggest that the issue of the relationship distance between the adult perpetrator and the child is of significance with respect to the analysis of these data. Both of these Family Types give evidence of physical aggression towards children, and Family Type III, at a greater relationship distance from the children, appear more prone to perpetrating sexual abuse. The differences between these two groups which are shown by the bivariate analyses are:

- The children are older in Family Type III, and female children are a higher proportion within this group than is the case for Family Type I. This is the consequence of 29.4% of the cases in Family Type III being sexual abuse cases, the maltreatment type where adolescent girls are the primary victims.
- Female perpetrators are a higher proportion of the Family Type III group than is the case with Family Type I. This is likely an artifact of the case selection procedure that eliminated cases with large amounts of missing data. The appropriate conclusion is that the anomaly is the high number of missing cases with respect to men in Family Type III, rather than the over-representation of women.
- The scores concerning the severity of the current incident, and the severity of a prior incident, are highest for Family Type III.

- The scores concerning the perception of the child are highest for Family Type III, indicating that the needs of the children are seen as subordinate to those of the adults.
- The substance abuse scores are markedly higher for Family Type III.
- The social isolation scores are slightly higher for Family Type III, though these differences are not statistically significant.
- The pattern of these scores indicates that a recognizably higher level of dysfunction is apparent with respect to Family Type III, as compared to the other family types. The variable scores are consistently higher and are indicative of very severe problems within these families.

The variables which showed an ability, in the bivariate analysis, to predict membership in Family Type I or Family Type II in a statistically significant manner, were entered into a multiple regression model. The result of this analysis, Table 32, is a reasonable approximation of the data, with an Rsquare of 0.3389 which is high for a logistic regression analysis. The lack of fit statistics indicate that alternate combinations of the variables would not provide a better estimation, and the whole model test indicates that it is extremely improbable that these results could have occurred randomly (.0001). The following variables are of greatest significance for the multivariate differentiation between the groups.

- Age of Child
- Age of Adult

- Severity of Current Incident
- Perception of the Child

Table 32

Discrimination Between Family Types I & II: Logistic Regression Analysis

Whole-Model Test				
Model	-LogLikelihood	DF	Chi-Square	Prob>Chi-Sq
Difference	30.820209	23	61.64042	<.0001
Full	60.129004			
Reduced	90.949213			
RSquare (U)			0.3389	
Observations			144	
Lack of Fit				
Source	DF	-LogLikelihood	Chi-Square	Prob>Chi-Sq
Lack of Fit	120	60.129004	120.258	
Pure Error	0	0.000000		Prob>Chi-Sq
Total Error	120	60.129004	0.4762	
Effect Test				
Source	Nparm	DF	Wald Chi-Square	Prob>Chi-Sq
Gender of Child	1	1	1.900057	0.1681
Age of Child	1	1	14.855285	0.0001
Age of Adult	1	1	7.716725	0.0055
Gender of Adult	1	1	0.811614	0.3676
Severity of Current Incident	4	4	15.065713	0.0046
Perception of the Child	5	5	12.067935	0.0339
Stress	5	5	3.018549	0.6971
Substance Abuse	5	5	2.253868	0.8130

The point of greatest distinction between the family groups is the presence of a higher proportion of sexual abuse cases in Family Type III, those families with at least one caregiver who is not a biological parent. The results of the regression analysis, the median values for the variable scores, and the bivariate statistics, all indicate that the adults who perpetrate sexual abuse manifest particularly high levels of problems with respect to their understanding of children. Their essential orientation to these children, attachment, is also problematic. These issues are exacerbated by very high levels of substance abuse problems for these individuals.

Families within Family Type I also manifest problems with respect to all three maltreatment types, with the majority of the cases, 57.7%, concerning physical abuse. They show high values on most variables, including attachment, which indicates that severe problems are present concerning a range of issues, and that the fundamental relationships between the adults and the children are severely disturbed.

The single-parent women within these data, Family Type II, have perpetrated neglect, 70%, and physical abuse, 30%. The variables scores are lower than those for the other two groups and, in particular, the relationship and attitudinal issues concerning their children are less severe than those for the other family types. Substance abuse is much less of an issue here than with Family Type III. Nonetheless, the scores are still very high concerning most issues and the severity of the incidents is sufficiently high as to be very damaging to children.

### Factor Analysis of Variables Describing the Adult<sup>52</sup>

Factor analyses were conducted for the total data set, the physical abuse subset, and the neglect subset. It was not possible to use this procedure for the sexual abuse data as the number of cases that resulted, when the list wise procedures for eliminating missing data were applied, were insufficient to produce a result. While the sample sizes for the analyses of the other maltreatment types were less than ideal, the correlations were computable and produced interpretable results.

The variables concerning the perpetrators' social relationships, concerning reference group values and social isolation, were deleted from the analysis because of missing data. The listwise method of dealing with missing data means that the greater the number of variables utilized in an analysis, the greater the number of cases which will be deleted from this analysis. While it would have been possible to increase the sample size for the factor analysis by deleting additional variables, this was not done as the increased sample size would also mean that the results were less interpretable than the smaller sample. It would have been difficult to decide whether the output resulted from manipulation of the sample or from the characteristics of the families. The cases which are included are those for which complete data exist concerning the variables that are the basis of these analyses, thus the results correspond to the characteristics of the families where comparatively complete information

---

<sup>52</sup> Complete reports on the factor analyses used in this section are contained in Appendix J, pp. 424-434.

is present. The analyses provide a very effective picture of these cases, but it is unknown whether these cases are typical of any larger group.

Table 33

Factor Analysis Sample Sizes by Maltreatment Type

<u>Analysis Group</u>	<u>N</u>
Total Data Set	162
Physical Abuse Set	94
Neglect Set	58

The factors were extracted using the principle components method and orthogonal rotations were performed using the varimax method in order to extract five rotated factors. The extractions are based upon correlations rather than covariance. The communality values, as seen in table 34, are very high and thus indicate that the factors adequately account for the variance in the variables.

Table 34

Communalities by Maltreatment Group

	Total Data Set	Physical Abuse	Neglect
Perception of Incident	0.76150	0.73074	0.80942
Perception of Child	0.86754	0.85255	0.92400
Attachment	0.74711	0.86722	0.78987
Attitude re: Discipline	0.79173	0.90858	0.87048
Parenting Knowledge & Skills	0.78965	0.89808	0.85116
Substance Abuse	0.97648	0.84552	0.98140
Psychopathology/Incapacity	0.99109	0.74132	0.98471
History of Violence	0.90017	0.88077	0.92326
Stress	0.99693	0.95885	0.99738



Table 35 presents the results of the factor rotations for all three analyses. The numbers in bold type show the factor loading scores for each variable that are of the largest magnitude. The loadings on particular factors are clear and unambiguous, and there are no difficulties deciding the association between individual variables and particular factors.

All three analyses show that there is remarkable cohesion between the three variables that assess the adults' relationships to their children and their attitudes concerning these children. The issues of their perceptions of the incident and the child, as well as the attachment between the parents and the children provide a central focus for risk assessment analysis. The three items may be conceptualized as subsets of a single index that summarizes the quality and the attitudinal contents of the relationship between the adult and the child.

The variable concerning parenting knowledge and skills loads on the same factor as the prior three variables, for the total data set and the neglect group, but it is associated with a separate factor within the analysis of the physical abuse group. As it summarizes an issue which can be measured in a comparatively objective manner, the knowledge and skill set of the adult with respect to child care, it may measure a slightly different issue than the relationship and attitudinal issues. It seems reasonable that these items may vary independently. One may be well motivated to care for a child but be ignorant of the means to put this into practice, or, the adult may possess an adequate knowledge and skill base but be unwilling to put them into practice in the interests of the

child. A third possibility is that positive relationship and attitudinal conditions will motivate an individual to secure the knowledge and skill that are necessary to care for the child, and thus the observed association of these issues in two of the data sets.

Another issue of considerable interest is the association of the perpetrator's attitude concerning discipline and history of violence in all of the analyses. This would indicate that the issue of appropriate discipline is less a matter of attitudinal and relationship questions, than a measure of the individual's predisposition to violence. The increased proneness to violence would also be observed as an increased legitimation of violence.

The issues of substance abuse and impaired mental functioning load on the same factor within the physical abuse data, but vary independently in the other data sets. In all cases stress loads to a factor independently of the other variables. The safest interpretation would seem to be that these are discrete issues which can arise without compelling associations with the other variables.

Table 35

Loadings on Orthogonally Rotated Factor By Maltreatment Type and TheTotal Data Set

	Total Data Set				
Perception of Incident	<b>.8236740</b>	-.01553	-.252745	.0713417	-.117689
Perception of Child	<b>.8690240</b>	-.056523	-.305985	.1209929	-.029634
Attachment	<b>.8538025</b>	.0170568	-.133474	-.004881	.0002048
Attitude re: Discipline	.4733627	-.153376	<b>-.724938</b>	.1209662	.0629662
Parenting Knowledge	<b>.8488834</b>	.1930415	.1364867	.0527642	-.101823
Substance Abuse	.0635772	<b>.9705926</b>	-.085661	.0616291	-.138742
Psychopathology/Incapacity	.1155451	.1455328	-.114377	.1344153	<b>-.96198</b>
History of Violence	.0494112	.2138184	<b>-.901414</b>	.0611930	-.188991
Stress	.0996380	.0626643	-.107983	<b>.9770083</b>	-.129869

	Physical Abuse				
Perception of Incident	<b>.6243149</b>	-.114501	.4676853	-.089543	.3179883
Perception of Child	<b>.7342901</b>	-.119745	.4632419	-.142465	.2532583
Attachment	<b>.9065721</b>	-.083092	.1157646	-.028082	.1557421
Attitude re: Discipline	.2266975	.1021573	<b>.7670639</b>	-.130578	.4912364
Parenting Knowledge	.4110694	-.266787	.0339878	-.058714	<b>.8082870</b>
Substance Abuse	-.013726	<b>-.898231</b>	.1404708	.0370921	.1319435
Psychopathology/Incapacity	.2728979	<b>-.736771</b>	.0124636	-.344275	.0730603
History of Violence	.2483933	-.253157	<b>.8467951</b>	-.064209	-.183831
Stress	.0699817	-.12891	.1167859	<b>-.959469</b>	.0558549

	Neglect				
Perception of Incident	<b>.8707455</b>	-.101316	-.055899	-.155254	.1171605
Perception of Child	<b>.8904467</b>	-.264923	-.154394	.0396476	.1884374
Attachment	<b>.8696871</b>	-.159521	.0319020	.0746818	.0383824
Attitude re: Discipline	.5626916	<b>-.727268</b>	-.126455	.0585603	.0742867
Parenting Knowledge	<b>.8833853</b>	.1571137	.2142849	-.004605	.0128553
Substance Abuse	.0207301	-.095677	<b>.9850626</b>	-.03275	.0198426
Psychopathology/Incapacity	.0186004	-.125951	.0330230	<b>-.981638</b>	.0616243
History of Violence	-.014344	<b>-.917695</b>	.1882764	-.1983	.0782188
Stress	.1569184	-.092619	.0218090	-.06434	<b>.9795751</b>

## Chapter Summary

The difficulties with respect to interpreting these data which result from the data which is missing, determine that regression analysis is of limited utility with respect to the problem of attempting to determine whether distinctions between the maltreatment and family groups are real differences. However, both regression analyses produced statistically viable results which differentiated between the groups with respect to fundamental variables. These results may be taken to indicate that this approach to the research shows promise and that more interesting results, and finer distinctions between the groups, would likely emerge from an analysis of a larger and more complete set of data.

The results of the bivariate analyses and the factor analysis fit together well and suggest an approach to analyzing particular cases. This will be discussed later in the concluding chapter. The median scores on the variables which assess the characteristics of the adult are generally quite high, indicating the presence of severe problems within these families. In those instances where medians of 0 occur, bifurcated distributions of the scores are evident. Either these variables are not relevant to a case, or they tend to be serious problems. These variables are substance abuse, psychopathology/incapacity, and the adult's history of violent behaviour. These distributions are consistent with the factor loadings for these variables, which differ from the attitudinal issues.

The factor loadings concerning the attitudinal and relationship issues are unambiguous and these results may indicate that these variables measure the caregivers basic orientation towards their children. If the conceptual understanding of the children is appropriate and the bonding between the adult and the child is adequate, the adults will be both motivated, and able, to act in the child's interests.

The particular association of the perpetrator's attitude concerning discipline and their history of violent behaviour towards other adults indicate a general predisposition to physical violence on the part of these individuals. Alternately, these variables may be interpreted as measuring lower levels of the inhibition of violence within the selves of the perpetrators. These issues are associated with both the physical and sexual abuse of children. A willingness to perpetrate sexual abuse presumes a willingness to assault a child.

The remaining variables: Parenting Knowledge and Skills, Substance Abuse, Psychopathology/Incapacity, and Stress do not display associations which are as obvious as the other indicators. They may be treated as independent contributors to the presence of child maltreatment. While they are not necessary for maltreatment to occur, when they are present, they represent significant elements of the maltreatment pattern.

The next chapter discusses the issue of the prediction of the severity of incidents of maltreatment. A discussion of the interrelationships of all of the analyses will be presented in the conclusion.

Figure 6

**Manitoba Risk Assessment System: Operational Examples of Scale Categories:**

(Note: The categories "Low" and "High" are not defined with examples. The person scoring the case uses these scores for instances that they judge to be intermediate between the examples which are given.)

<b><u>NOT APPLICABLE</u></b>	<b><u>PROTECTIVE</u></b>	<b><u>VERY LOW</u></b>	<b><u>MEDIUM</u></b>	<b><u>VERY HIGH</u></b>
<b>Severity of the Current Incident &amp; A Prior Incident</b>				
<b>Physical Abuse:</b> No confirmed instance of abuse or neglect.		Mild bruising of a child (no lasting marks), such as: Spanking a child to the point where mild bruising occurs, or Pulling a child's hair to cause pain, but the hair is not pulled out of the head.	Significant injury, but does not threaten life, such as: Strapping a child and causing welts.	Intentionally breaking a limb, or Burning a child with a cigarette.
<b>Sexual Abuse:</b> No confirmed instance of abuse or neglect.		A child is encouraged to watch pornography with adults, or A step-father engages in aggressive sexual joking with a teenage step-daughter.	A single instance of sexual touching.	Anal, oral or vaginal intercourse.
<b>Neglect:</b> No confirmed instance of abuse or neglect.		A twelve year old child is often inadequately fed.	Small children are briefly left unattended in a car on a warm day, or A 10 year old child is regularly absent from school and does not receive regular medical care.	Parent denies medical care to a child in a life-threatening situation, or Small children are left unattended, overnight, in their home.

<p><b>Adult's Perception of the Incident:</b></p> <p><b>No current incident.</b></p>	<p>The adult recognizes the situation as harmful and seeks to prevent its recurrence.</p>	<p>There is a partial understanding of what has happened and why it has happened, or there is some acceptance of parental responsibilities in the incident.</p>	<p>There is a significant problem with the adult's perception of the child. There is only marginal acceptance of the parent's responsibilities .</p>	<p>Situational stresses are blamed for the abuse, or The adult is self-centered in describing the incident, or The parent denies that the substantiated event occurred.</p>
<p><b>Adult's Perception of the Child:</b></p>	<p>Child is understood to be valuable and perceived in an age appropriate manner.</p>	<p>Generally the child is seen as valuable but some age inappropriate expectations.</p>	<p>Inappropriate expectations of child, or child objectified to some degree.</p>	<p>Child blamed for problem, or child is expected to meet parent's needs.</p>
<p><b>Attachment:</b></p>	<p>There is a continuous, supportive relationship between adult and child which both find satisfying.</p>	<p>The emotional tone is positive but sometimes is overwhelmed as a consequence of other factors.</p>	<p>The emotional tone between parent and child is ambivalent.</p>	<p>Very poor relationship between parent and child. The parent may overtly reject the child.</p>
<p><b>Attitude re: Discipline:</b></p>	<p>Little reliance on physical means of discipline. Discipline is intended to help the child to grow.</p>	<p>Methods other than force are generally used to change behaviour but moderate use of force is felt to be justified as a means of discipline.</p>	<p>Physical force is regularly used. Parents believe that children must be controlled and will benefit from punishment.</p>	<p>Extreme physical force or rigid orders are used to control children. Use of force justified through such arguments as it was used on them when they were children. Force is used to express the adult's rage.</p>

<b>Parenting Knowledge &amp; Skills:</b>	<b>The parent understands the child's basic requirements for physical, emotional, and sexual development.</b>	<b>The adult has adequate understanding of immediate developmental needs.</b>	<b>The adult has some understanding of the child's needs but it is insufficient to regularly meet the basic needs of the child.</b>	<b>The adult's knowledge and/or skills with respect to the needs of children is clearly inadequate.</b>
<b>Substance Abuse:</b>	<b>No addictive behaviour.</b>	<b>Some substance abuse on the part of this person is evident in this situation; or, Severe substance abuse has been present in the past but has not been a part of their behaviour for at least the last two years.</b>	<b>Substance abuse on the part of this person is evident in this situation to the extent that it on occasion presents a significant impediment to their functioning; or Severe substance abuse has been present in the past but has not been a part of their behaviour for at least the last six months.</b>	<b>Severe, chronic substance abuse is a part of the normal functioning of this individual. Episodes of substance abuse within the last six months.</b>
<b>Psychopathology/ Incapacity:</b>	<b>Adult exhibits personality characteristics within the normal range.</b>	<b>The individual demonstrates on-going mild personality disturbances. There may be moderate limitations present due to emotional or intellectual problems.</b>	<b>The adult experiences evident psychiatric difficulties on an episodic basis, or they have limited capacity to act as a caregiver for a child and function as a caregiver only under ideal conditions.</b>	<b>The individual is psychotic or grossly out of touch with what is generally regard as reality, or, Has been assessed as currently being very severely impaired by psychopathology, or Severe intellectual limitations may be present.</b>



**History of Violence:**

No history of assaultive behaviour.

There is little history of assaultive behaviour. The subject rarely uses force or verbal threat of force to control family members.

There is occasional assaultive behaviour which is defended by the adult as acceptable under some circumstances.

The subject has learned to use violence to control other's behaviour. Clear evidence of habitual assaultive behaviour.

**Stress:**

No significant stress is evident.

Some degree of disruption is evident in the functioning of this individual in response to a single disruptive event which has occurred recently; or A chronic condition of some severity; or A combination of conditions and/or recent events which have a significant aggregate effect.

A single factor, or a set of factors, are seriously disrupting the individual's ability to function.

This person is experiencing considerable disruption and is unable to function. The source of stress can be a single, highly disruptive event which has occurred recently; or A chronic condition of considerable severity; or A combination of conditions and/or recent events which have resulted in an aggregate effect which is severe.

Reference Group Values:	The reference group values oppose child abuse and neglect; the individual accepts these values, perceives the abusive or neglectful behaviour present in this case to be in violation of these values, and is very bothered by this, or The reference group values promote child abuse and neglect; the individual opposes these values, perceives the abusive or neglectful behaviour present in this case to be congruent with these values, and is very bothered by this.	The reference group values oppose child abuse and neglect; the individual accepts these values, perceives the abusive or neglectful behaviour present in this case to be in violation of these values, and is somewhat bothered by this, or The reference group values promote child abuse and neglect; the individual opposes these values, perceives the abusive or neglectful behaviour present in this case to be congruent with these values, and is somewhat bothered by this.	The reference group values oppose child abuse and neglect; the individual accepts these values at a minimal level, perceives the abusive or neglectful behaviour present in this case to be in violation of these values, and is not particularly bothered by this, or The reference group values promote child abuse and neglect; the individual accepts these values at a minimal level, perceives the abusive or neglectful behaviour present in this case to be congruent with these values, and experiences some support because of this.	The reference group values oppose child abuse and neglect; the individual rejects these values, perceives the abusive or neglectful behaviour present in this case to be in violation of these values, and is not bothered by this, or The reference group values promote child abuse and neglect; the individual accepts these values, perceives the abusive or neglectful behaviour present in this case to be congruent with these values, and experiences considerable support because of this.
-------------------------	--	--	--	---

<b>Social Isolation:</b>	<b>Adult has meaningful and supportive contact with many friends and family.</b>	<b>Individual has some contact with other people and receives help occasionally. Support available and some ability to participate in community organizations and to make use of the services which are available.</b>	<b>Definite disconnection from the community. Few relationships of any sort and none that are satisfactory or that will provide consistent support.</b>	<b>No viable relationships with family, friends or and no significant participation in community.</b>
--------------------------	--	--	---	---

## PREDICTING THE SEVERITY OF CHILD MALTREATMENT

### Bivariate Significance Tests

The severity of child maltreatment incidents can vary independently of their frequency of occurrence. When assessing risk within child protection work, judgments concerning the probable severity of a future maltreatment event are at least as important as the probability of such an event recurring. If it is considered likely that maltreatment will occur, but that the severity of the incident will be very low, it will be understood differently than situations where recurrence is relatively unlikely, but the probable severity of the potential event may be extremely high. This chapter assesses the empirical evidence within these data that is relevant to the prediction of severity.

Largely in response to the problems created by missing data, this issue is approached by a two stage analysis. One question of interest is whether the variables in this study differentiate between cases which display differing levels of severity. In order to clarify these differences, the severity variable was transformed from a five category, ordinal scale into a dichotomous variable. This was achieved by placing the cases which were scored as "very low", and "low" into a single group, and those scored "high" and "very high", into a second group. The middle group was excluded from the analysis. Bivariate tests were then conducted in order to assess whether individual variables were able to differentiate between low and high severity cases.

Within the second analysis, those variables which showed an ability to differentiate between the severity groups in the first analysis were used in multivariate logistic regression equations to attempt to assess their ability, as a single model, to predict the severity of maltreatment incidents. For these analyses the severity of the current incident is treated as an ordinal variable, and analyses are conducted on the total data set, as well as the neglect and physical abuse subsets. There were insufficient data concerning the sexual abuse subset to be able to compute these statistics.

As is indicated in Table 1, there were some tests which could not produce useful results as a consequence of the low numbers in individual cells. The decision-rule which was applied is that if there are fewer than five cases in 20% or more of the cells in the data table, then the results are unreliable. In such a case the variable is excluded from this specific analysis, however, the variable may well be useful in conducting other bivariate tests.

The scores which are in bold type on Table 1 are those which indicate a statistically significant relationship between the predictor variable and the dichotomous variable which evaluates the severity of the current incident. As is evident, the majority of these relationships are statistically significant, which indicates that many of these variables can effectively differentiate between high and low severity cases. The higher the score on the independent variable, the higher the severity of the maltreatment incident that was perpetrated by these individuals.

Neither the age, nor the gender, of the child who is the victim of the maltreatment differ significantly between the high and low severity categories. In addition, the age of the perpetrator is not relevant to distinguishing between these groups.

The issue of impaired mental functioning on the part of the perpetrator is not relevant, and the adult's history of violence is of interest only in the total data set. These results are the consequence of the comparative infrequency of occurrences of these two issues in child welfare matters. As a consequence of low cell frequencies it is difficult to compute values for these variables, and it is possible that these factors are relevant only as marginal contributors to the severity of the maltreatment, in combination with other variables.

While the social isolation variable is significantly related to severity in all three groups, results for reference group values can be calculated only for the total data set. In total, these results indicate that these perpetrators are poorly integrated into their social organizations, and that to the extent that they are associated with other people, these ties tend to reinforce severe child maltreatment.

When the differences in results which can be attributed to computational problems are accounted for, the differences between the physical abuse group and the neglect group concern the variables which address how the adult thinks about both the child and the incident, and, in addition, the problem of stress. These issues are all clearly associated with high levels of severity for the physical abuse group, but while the variable concerning the perpetrator's perception of the incident only

marginally fails to reach significance for the neglect group, .0678, the other two variables are clearly unrelated to severity with respect to these data. It is important to remember that these variables receive a high percentage of positive scores within the neglect group. The issue within the present analysis is that these variables do not differentiate between high and low severity incidents within this analysis. It is not a question of their relevance to the overall pattern of the characteristics which are associated with child neglect.

The presence of any of the following characteristics would indicate a need for concern that a severe physical abuse or neglect incident may be imminent. As will be seen below, the severity of a prior incident is a critical marker and the remainder of the scales, which assess the characteristics of the adult, may be considered a decomposition of the prior severity score. In addition to the characteristics listed below, perpetrators of severe physical abuse show severe distortions of their attitudes towards children, and also experience very high levels of stress in their lives.

These variables may well appear in distinctive combinations, however, the ability to identify such patterns is limited with these data. The logistic regression analyses which are presented later in this chapter illustrate the results of such an approach when applied to this data set.

- The adult has perpetrated a prior maltreatment incident that is scored as medium or higher.

- The adult displays little positive bonding to the child, and may overtly reject the child.
- The beliefs that the adult holds concerning appropriate discipline for children support high degrees of physical punishment.
- The knowledge that this adult possesses concerning child care, and their ability to put such knowledge into practice, is clearly deficient.
- The adult has an identified substance abuse problem, which makes this person less able to care for a child, and/or more willing to inflict physical harm upon the child.
- The caregiver is socially isolated and has few viable relationships.



Table 1

**Table of Results of Significance Tests (Chi Square): Severity of the Current Incident (High & Low Severity Groups) by Child & Adult Variables.<sup>1</sup>**

Variable	Total Data Set	Neglect	Physical Abuse
Gender of Child	.2219	.4722	.2219
Age of Child	>.05	>.05	>.05
Gender of Adult	<b>.0026</b>	<b>.0270</b>	<b>.0165</b>
Age of Adult	>.05	>.05	>.05
Severity of a Prior Incident	<b>.0000</b>	<b>.0000</b>	<b>.0000</b>
Perception of Incident	<b>.0000</b>	.0678	<b>.0000</b>
Perception of Child	<b>.0000</b>	.3751	<b>.0000</b>
Attachment	<b>.0001</b>	<b>.0256</b>	<b>.0001</b>
Attitude re: Discipline	<b>.0000</b>	<b>.0150</b>	<b>.0001</b>
Parenting Knowledge & Skills	<b>.0000</b>	<b>.0016</b>	<b>.0000</b>
Substance Abuse	<b>.0000</b>	<b>.0128</b>	<b>.0000</b>
Psychopathology/Incapacity	.2060	.6184	(*)
History of Violence	<b>.0032</b>	(*)	(*)
Stress	<b>.0000</b>	.7338	<b>.0000</b>
Reference Group Values	<b>.0000</b>	(*)	(*)
Social Isolation	<b>.0000</b>	<b>.0390</b>	<b>.0000</b>

## Notes:

- These data are taken from the results included in this document as Appendices K, L, and M. The numbers in bold type are results that are statistically significant.
- (\*): No result because of the small number of cases in many of the cells.

In all of the tests which were conducted with the three data sets, concerning the association between the gender of the adult and the

<sup>1</sup> Please see pages 200-205 for scale descriptions.

severity of the incident, the results were the same. In each case the female perpetrators were over-represented at the highest levels of severity. Table 2 shows the results for this variable with respect to the total data set.

Table 2

Severity of the Current Incident (Dichotomous) by the Gender of the Adult.

		(H: High Severity; L: Low Severity) (1: Male; 2: Female)		
Count		1	2	
Col %				
Deviation				
H		18	177	195
		40.91	58.61	
		-6.80	6.80	
L		26	125	151
		59.09	41.39	
		6.80	-6.80	
		44	302	346
		12.72	87.28	
	Test	Chi-square	Prob>Chi-Sq	
	Likelihood Ratio	4.851	0.0276	
	Pearson	4.892	0.0270	

If a variable does not show a bivariate association with the severity of the current incident at a chi-square significance level which equals, or exceeds .05, this result is taken as evidence that this variable is not associated with the patterns of severity within these data. In all cases where the relationship between the variables satisfied the test of statistical significance a single pattern is evident: the higher the variable score, the higher the severity scores that are predicted. While there are deviations from the pattern within individual scale categories for some

variables, the chi-square statistic assesses the coherence of the complete table of values. The nature of this pattern is illustrated by an examination of the results for the association between the adult's perception of the incident, and the severity of the current incident for the total data set which are presented within Table 3. This table provides a prototype for all of the associations of predictor variables with the dichotomous severity variable which produced statistically significant results. Table 3 contains an abridged version of these results, and a full presentation of these statistics are available in Appendix K.

An analysis of Table 3 shows the presence of a pattern where the higher the scale category score, the higher the proportion of high severity cases that fall into the cell representing that scale value. The converse, or course, is true of the low severity cases. These associations are not necessarily linear with respect to all cells, but assess an overall tendency with respect to the distribution of the scores. For example, there is a clear general trend for the proportion of the scores in the high severity group to increase as the table is read from left to right. When examining the scores from the low severity group however, the scores from scale categories 2 and 4 differ from the pattern, as they represent a lower proportion of the scores than would be true if these variables were associated by a simple linear trend. Nonetheless, the general pattern is clear and these particular scores are identified as an anomalies. When the deviations from the patterns are sufficiently common, they are no longer anomalous, and the chi-square values will no longer display statistical significance.

Table 3

**Severity of the Current Incident (Dichotomous) By the Adult's Perception of the Incident**

(H: High Severity; L: Low Severity)

Count Row % Deviation	-1	1	2	3	4	5	
H	21 6.98 -19.03	17 5.65 -18.35	22 7.31 -1.39	47 15.61 -6.55	76 25.25 22.45	118 39.20 22.87	301
L	56 20.14 19.03	51 18.35 18.35	23 8.27 1.39	56 20.14 6.55	27 9.71 -22.45	65 23.38 -22.87	278
	77 13.30	68 11.74	45 7.77	103 17.79	103 17.79	183 31.61	579
Test	Chi-Square		Prob>Chi-Sq				
Likelihood Ratio	74.047		0.0000				
Pearson	71.577		0.0000				

**Logistic Regression Analyses**

In order to test the viability of multivariate predictions of severity the variables which had shown significant results in the bivariate analyses were entered as predictors in equations for each of the data sets. The results for the regression analysis for the total data set can give an impression of the importance of those variables which transcend the particular characteristics of the neglect and physical abuse maltreatment types. The differences of the results for the two subsets suggest some

important differences between the groups with respect to the predictors of severity.<sup>2</sup>

Because of missing data, the variables concerning reference group values and social isolation were not used as predictors in any of the regression analyses. For the same reason the variable assessing the perpetrator's history of violence was not used as a regressor for the neglect and physical abuse subsets. In addition, because of the very high correlation between the variables assessing the perpetrator's perception of the incident, and the perpetrator's perception of the child, Spearman's  $\rho = .7745$ ,<sup>3</sup> only the former was used in these examinations of the data. The reason that the variable concerning the perpetrator's perception of the incident was preferred was because it was at, or near, statistical significance in all three sets of bivariate analyses, whereas the perpetrator's perception of the child was clearly not significant for the bivariate analysis of the neglect cases (Table 1). The retention of both variables would add little to the explanation of the variance and would result in a smaller sample size because of the listwise deletion of cases which are missing data. The two scales evidently measure closely related aspects of the perpetrator's attitudes concerning the child, and it may be that one of these scales is redundant within the risk assessment instrument.

---

<sup>2</sup> Complete results for the regression analyses are presented in Appendix N, pp. 486-492.

<sup>3</sup> This statistic is taken from the nonparametric correlation matrix for the total data set in Appendix J, 424-434.

### Regression Analysis - Total Data Set

A logistic regression was performed to assess the effects of the predictors shown in Table 4, upon the severity of the current maltreatment within the total data set. Other than the gender of the adult, a nominal variable, all variables were defined as ordinal. The resulting analysis of 175 cases has an Rsquare of .2639, and the probability that this result does not differ from 0 is less than .0001. The lack of fit statistic indicates that any other combination of these variables would not produce a better approximation of the variance.

The severity of a prior incident (<.0000), and parenting knowledge and skills (.0442), are the only predictors that differ significantly from 0, within a 95% confidence limit. Two other variables, measuring the perpetrator's history of violence (.0525), and substance abuse (.0797), are also of interest. The remainder of the variables, while associated with increased severity in the bivariate tests, contribute comparatively little additional information to the explanation of the variance of the dependent variable, the five point severity scale.

These results suggest that information of high quality concerning the severity of a prior instance of maltreatment is critical to estimating the severity of future maltreatment events. Deficiencies concerning the caregiver's knowledge concerning adequate child care, as well as their possession of the skills necessary to put this knowledge into practice, are also of considerable importance. The willingness of a perpetrator to be violent to other adults is another matter of importance, and an

estimation of the extent to which substance abuse is a problem for an individual may also provide additional predictive ability. These results suggest that the availability of good information concerning these four facets of a perpetrator's profile constitutes a valuable subset of information which would be desired in order to make a sound judgment concerning the probable severity of future maltreatment which may be perpetrated by a particular individual.

Table 4

Logistic Regression Analysis: Prediction of the Severity of the Current Incident Within the Total Data Set

Source	Effect Test			
	Nparm	DF	Wald Chi-Square	Prob>Chi-Sq
Gender of Adult	1	1	0.018481	0.8919
Severity of a Prior Incident	5	5	51.393562	<b>0.0000</b>
Perception of the Incident	5	5	3.126652	0.6805
Attachment	5	5	6.387762	0.2703
Attitude re: Discipline	5	5	2.338598	0.8006
Parenting Knowledge & Skills	5	5	11.385555	<b>0.0442</b>
Substance Abuse	5	5	9.845749	0.0797
History of Violence	5	5	10.944870	0.0525
Stress	5	5	6.178642	0.2892

**Regression Analysis - Neglect Subset**

The effect test results for the neglect subset are presented in Tables 5. The neglect logistic regression analysis examines 80 cases, and has a

comparatively high Rsquare of .4743. The whole model test,  $<.0001$ , and the lack of fit test both indicate that this analysis is a good representation of the data.

The severity of a prior incident is the most important variable within this analysis as assessed by the significance level achieved by the Wald chi-square. The gender of the adult, and the quality of the attachment between the parent and the child are also statistically significant. The adequacy of the adult's parenting knowledge and skills is also of interest, although the significance value at .0736 exceeds the .05 level.

The significance of gender may be that, as child care is seen as predominantly the responsibility of women, large numbers of women are single parents and are raising children under difficult conditions. As was seen in the material concerning maltreatment typologies, the largest single subgroup within these data (27.6%) is single-parent women who are involved with child neglect.

In addition, when the bond between the adult and the child is not adequately formed, the potential for severe harm to the child is accentuated. It may be that positive attachment between the adult and the child provides a motive that causes the caregiver to act in the interests of the child and that, in its absence, threats to the child's well-being become possible which would be avoided were the quality of the attachment better. The younger the child the greater the threat to the child as a consequence of low attachment and consequent lapses of care.



Table 5

Logistic Regression Analysis: Prediction of the Severity of the Current Incident Within the Neglect Subset

Source	Effect Test - Neglect			
	Nparm	DF	Wald Chi-Square	Prob>Chi-Sq
Gender of Adult	1	1	7.695391	<b>0.0055</b>
Severity of a Prior Incident	5	5	24.607251	<b>0.0002</b>
Perception of the Incident	5	5	8.890717	0.1135
Attachment	5	5	14.211482	<b>0.0143</b>
Attitude re: Discipline	5	5	6.373177	0.2716
Parenting Knowledge & Skills	5	5	10.059532	0.0736
Substance Abuse	5	5	6.220849	0.2853

**Regression Analysis - Physical Abuse Subset**

The effect test results for the physical abuse subset are presented in Table 6. This regression analysis resulted in four variables showing a relationship to the severity of the current incident at a level that exceeds the 95% confidence limit. These variables are, in order of decreasing significance, the severity of a prior incident (.0021), the adult's perception of the incident (.0135), the adult's parenting knowledge and skills (.0138), and the adult's attitude re: discipline (.0438). The null hypothesis, that there is no relationship between the model and the variance of the dependent variable, is rejected since the probability of this happening by chance alone is less than .0001. The sample size is 107 cases, and the lack of fit statistic indicates that it is virtually certain that alternate models with these variables would explain less of the

variance. The Rsquare value of .3008 is satisfactory for a logistic regression analysis.

These results clearly differ from those for the neglect subset. Attachment is not an issue for perpetrators of physical abuse, however, faulty perceptions of the appropriateness of their behaviour concerning the maltreatment, and a legitimization of high levels of physical discipline are clear contributing factors to physical abuse. In addition, inaccurate or inappropriate information concerning child care is also an issue as well as the comparative absence of appropriate means to apply the knowledge that they do possess. These results are consistent with those which described the results of the bivariate analyses.

While the characteristics of the neglect cases suggest a lack of motivation for the adult to act on the child's behalf, the particular combination of variables for the physical abuse cases indicates that the perpetrator is acting based upon faulty knowledge and the possession of attitudes that objectify children. A common characteristic of persons holding inappropriate notions of discipline is a legitimization of attacks upon the child which are primarily expressions of the caregiver's rage. The punishment of the child is not primarily intended to assist the child to develop, but to reduce the adult's anger.

Table 6

Logistic Regression Analysis: Prediction of the Severity of the Current Incident Within the Physical Abuse Subset

Source	Effect Test - Physical Abuse			
	Nparm	DF	Wald Chi-Square	Prob>Chi-Sq
Gender of Adult	1	1	0.405752	0.5241
Severity of a Prior Incident	5	5	18.794131	<b>0.0021</b>
Perception of the Incident	5	5	14.356798	<b>0.0135</b>
Attachment	5	5	7.105748	0.2129
Attitude re: Discipline	5	5	11.413269	<b>0.0438</b>
Parenting Knowledge & Skills	5	5	14.298373	<b>0.0138</b>
Substance Abuse	4	4	1.049732	0.9022
Stress	5	5	2.412070	0.7897

As the severity of a prior incident was shown to be the most significant variable in all three regression analyses, these tests were rerun with this variable deleted in order to estimate its importance for the prediction of severity. Table 7 shows the critical differences between the regression analyses which include the variable concerning a prior instance of maltreatment which was perpetrated by an individual, and a second analysis which deletes only this variable. In all cases the Rsquare value decreased noticeably, while there were small increases in the sample size. Only in the case of the physical abuse data set has an adequate Rsquare been retained. These results demonstrate the critical importance of information concerning the severity of past instances of maltreatment, when attempting to predict the severity of a future maltreatment incident.

Table 7

**Comparison of Regression Results When the Variable "Severity of a Prior Incident" Has  
Been Deleted**

	Data Set	Rsquare	N
Prior Severity Variable Included	Total	.2639	175
Prior Severity Variable Excluded	Total	.1360	188
Prior Severity Variable Included	Neglect	.4743	80
Prior Severity Variable Excluded	Neglect	.1236	89
Prior Severity Variable Included	Physical Abuse	.3008	107
Prior Severity Variable Excluded	Physical Abuse	.2288	118

## SUMMARY AND CONCLUSION

### Introduction

This chapter provides a synthesis of the differing strands of the arguments which have been presented. The initial section summarizes the child welfare practice issues which are of current significance so that this research may be understood in the context of the painful and difficult decisions that must be made concerning children's lives.

The next section brought the results of the analyses of the maltreatment types, and the family types, together with an evaluation of the relevance of the various indicators to the problem of the prediction of the severity of child maltreatment events. These results were organized within a single framework which may be used to analyze a particular child welfare case.

The research findings were then considered in the context of the existing literature concerning child welfare risk assessment. This dissertation is an extension of prior research and practice activity. It emerges from a considerable body of work concerning risk assessment in child protection work which has developed during the last 10 years, predominantly in North America. The definitions of the variables, and the perspective for this research, are explicitly tailored to be meaningful to practicing child protection workers. Thus, the information which comprises the data which have been examined in this dissertation represent the characteristics of child welfare clients as perceived by active

child welfare staff, through the medium of the Manitoba Risk Estimation System (MRES).

These findings have implications for the structure and content of the MRES, and the question of alterations to the MRES is considered. In addition, a series of practice principles concerning risk assessment are suggested.

In closing, a number of suggestions for future research will be made that would resolve the weaknesses of the present study, and which show promise of moving us closer to the creation of more objective risk assessment procedures.

### **The Context of Child Protection Work**

The primary practice problem which focuses the debate concerning the application of risk assessment procedures in child protection work is the need to create an transparent, objective method of formulating decisions concerning the best interests of a child who has experienced maltreatment. In the absence of such a method, the decisions will vary greatly depending on the characteristics of the worker and the particular work environment in which the decision is made.

Equality before the law is a fundamental principle in democratic societies and the state should only intervene in the private lives of individuals and families in accordance with the specific authority granted by statute or established judicial precedent. The child protection system has gradually evolved during the twentieth century by extending

the jurisdiction of the state into that of the family in order to attempt to ensure that children are adequately protected and nurtured. In principle, child welfare staff can only act upon the specific authority which is granted by statute, but the inherent vagueness of these laws conveys considerable latitude of interpretation to child protection workers. While they are subject, ultimately, to the jurisdiction of the courts, the courts are involved in only a small number of cases and the vast majority of this work is carried out without the supervision of any external body. Commonly, the worker's opinion will have a substantial impact upon the family.

Child protection law has, increasingly, been premised upon the decision to focus on the future well-being of the child which is threatened, rather than to focus on the damage that has been done to the child in the past. While the primary purpose of these statutes is to ensure that children are safe and nurtured, the principle objects of child protection inquiry are not the children. The practitioner's attention is directed to the caregivers, their willingness and competence to adequately care for the child.

A judgment concerning the future well-being of the child entails an identification of possible threats to a child, and a comprehensive analysis of the capacities and attitudes of the caregivers. If the family is judged to be able to care for the child adequately, non-removal of the child is the solution of preference. A second possibility is that if the family's capacity to care for the child is impaired, it may be necessary to temporarily apprehend the child in order to secure the child's safety in

the short run, while assisting the family to restore its capacity for independent functioning. If the family is seen as being unable to establish itself at an adequate level of functioning the scope and intensity of the interventions will increase, with the most intrusive intervention being the termination of the parent's rights, coupled with the state's assumption of responsibility for the child.

There is an tacit assumption that these decisions are made by applying the law in an objective manner. The assessors of child welfare practice need to have every confidence the prediction of probable future harm to the child, and the subsequent decision to curtail the rights of the caregivers, is based upon the characteristics of the family, and not those of the worker. The law empowers the child welfare system to intrude into family life if there is a sound basis for concluding that such interference is necessary. A sound decision-making process would, at minimum, require that data used in decision-making would be gathered by the use of a standardized set of questions and analyzed by way of a predetermined and transparent methodology. Increasingly, the expectation has been that this decision-making process will have a basis in generally accepted research findings. Risk assessment systems have been created in recent years to reflect these changing expectations, and current research in this field is primarily intended to assess the viability of the various indicators which have been developed.

The very considerable human pain resulting from child maltreatment, and the substantial media attention which has been devoted to these questions in recent years, have created a demand for risk assessment



tools. The expectations with respect to the validity these tools have exceeded the existing knowledge base, and the reliance which has been placed upon them has often been unwarranted. This field is at a very early stage of its development, and any research outcomes should be considered tentative, rather than definitive.

The widely quoted article, "Risk Assessment The Emperor's New Clothes?", by Wald and Woolverton (1990), summarized the concerns that were emerging and stated that:

The movement toward risk assessment grows logically out of changes in the direction of child protection policies over the last 15 years. Before the 1970s, intervention by child welfare agencies and juvenile courts was justified as a way of helping children who were exposed to "inadequate care." No specific harm was required, and a likelihood of future harm was not a prerequisite for court intervention. Child protection agencies were therefore not generally concerned with carefully assessing risk. Moreover, since the laws defining juvenile court jurisdiction over abused and neglected children permitted intervention if the child was in an "unfit home," the parents were "unsuitable or neglectful," or other such vague and undefined terms, anyone interested in risk assessment could not know the behaviour that needed to be predicted.

More recently, many legislatures have made it clear that CPS intervention is justified only when a child has suffered (or is likely to suffer due to current parent behaviour) specific types of maltreatment.

The purpose of intervention is to prevent future maltreatment, not just to provide general services to the family. ... When laws provide more specific definitions of physical and emotional harm and sexual abuse, it becomes possible to ask, "How likely is it that a parent who has once harmed a child *in a specific way* will harm that child again in a specific way. (Wald & Woolverton, 1990, pp. 484-485.)

### Results of the Data Analysis

#### Maltreatment Typologies

The data set consists of descriptions of 955 cases of child maltreatment. The cases within these data represent serious maltreatment situations. The current incidents were scored as being of medium severity, which indicates that substantial harm had occurred, and the prior incidents were generally only slightly lower in severity than the current incident.

As there is a considerable amount of data missing concerning variable scores, bivariate tests are utilized for most of the statistical analyses. A series of variables were scored by child protection workers and trained raters, concerning the demographic characteristics of the perpetrating adult and the child victim, as well as the attitudinal and behavioral attributes of the adult. Three of the latter group of variables which describe the adult, substance abuse, history of violence, and psychopathology/incapacity, were not an issue for the majority of adults

in these data. However, when these factors were relevant for a particular individual, the scores tended to be quite high.

Two issues which were of great importance were stress, and the caregivers' inadequate knowledge and skills concerning child care. Perpetrators of child maltreatment live with life conditions which have a substantial destabilizing effect upon them. Poverty, and the continual tensions generated by surviving at the fringes of the labour market, are the source of pressures which result in some caregivers being unable to adapt, and to cope adequately with their parenting responsibilities. If an adult is a marginally adequate parent under decent life conditions, they will often become inadequate under conditions of sustained stress.

Inaccurate or inadequate knowledge concerning the needs of children can result in dangerous situations for these children. If a parent dispenses medication incorrectly, or if the parent is unaware of the nutritional requirements of children, the result can be severe harm to the child. In addition, should a parent not possess a range of different means of supervising and disciplining children, they may resort to physical abuse as they do not have other techniques available to them.

Parents who do not possess attitudes which treat children as intrinsically important, may well objectify these children. In such situations, if the child is expected to meet the needs of the parent the child's ability to grow and individuate is severely constrained, and the requirements of the child will be systematically subordinated to those of the adult. These attitudes are closely linked to an inadequate bond between the parent and the child. Such a failure with respect to

attachment is not solely attitudinal and indicates the presence of an impaired emotional connection.

The remainder of these variables had median scores that ranged from low to high. The threshold score, very low, indicates the presence of problem that will interfere in a significant way with this person's ability to care for a child appropriately. If these variables were irrelevant to assessing the perpetrators of child maltreatment, one would expect that their median scores would be zero. As this was not the case, it is clear that elevated scores with respect to these issues are associated with child maltreatment.

As there is no comparable data from caregivers who are not perpetrators of maltreatment, these results have not been shown to discriminate between perpetrators and non-perpetrators. In addition, these results do not exclude the possibility that there are other variables which are potentially important.

All three maltreatment types, neglect, physical abuse, and sexual abuse are characterized by high median scores on most variables. Those assessing the adult's substance abuse, history of violence, and psychopathology/incapacity had median scores of zero when all cases were considered. While there is a common basic pattern with respect to the majority of the variables, there are some differences of detail between the maltreatment types that are important. An adult of any age or gender may perpetrate any type of maltreatment, with a child of any age or gender as the victim. However, the differences between the maltreatment types that were observed in these data may represent their most common

points of differentiation, and thus assist in the recognition of alternate forms of maltreatment. While generalizations are of limited utility, and it is important to be mindful of the qualifications set out in the detailed analysis, the following characteristics summarize the observed differences between the maltreatment types:

- Neglect cases are associated with adults who are having serious difficulties coping with stress. Substance abuse is a critical issue for these people and their relationships with their children are typified by inadequate bonding. The threat to the children's well-being is often very severe.
- The perpetrators of sexual abuse show a high degree of objectification of the children, and possess seriously distorted attitudes concerning children. For example, perpetrators of sexual abuse often believe that children benefit from their sexual involvement with an adult. Psychiatric disorders do not appear to be an issue for a majority of these individuals.
- The physical abuse group is characterized by individuals who are prone to violent behavior in a variety of contexts, and who feel that that comparatively severe physical discipline of children is appropriate. The perpetrators' legitimation of their physical abuse may well find social support from within their communities.

The most obvious of the differences between the maltreatment groups is the more pronounced presence of substance abuse in the **neglect group**. It is apparent that high levels of substance abuse are much more common here than with the other two maltreatment groups. Younger children are seriously affected by the consequences of inadequate care. Consequently, very young children, and their correspondingly young parents, are most prominent within this maltreatment type and the frequency of occurrence for neglect cases decreases as the children and their parents age. This decrease most likely results from the increased capacity for self-care shown by children as they age, rather than improved parenting ability on the part of the adult.

Women who are single parents are the most common family type within the neglect group. Their high degree of representation within this group is probably a consequence of the reality within our culture that the majority of child care continues to fall to women. While there are increasing numbers of men who are single parents, there were not enough families headed by single men within these data to permit a useful analysis.

The adult perpetrators of neglect were often poorly bonded to their children and had limited social resources. They are evidently often poorly integrated into social networks, and such social contact as is available to them may reinforce inadequate patterns of child care.

A final distinguishing characteristic of the neglect group is that the adults generally displayed critical shortcomings with respect to their parenting knowledge and skills. Even if they were well motivated to act

on the behalf of their children, serious problems would continue to occur issue as a consequence of these deficits.

The most significant distinguishing characteristics of the adult perpetrators of **physical abuse** is that they legitimize a high degree of physical violence towards children, and the children who are victims are generally older than those from the neglect group. As children age they continue to be subject to physical abuse. It may be that, as children grow and individuate, they present a greater stimulus for the adult's aggression.

The excesses which result from the adult's need to control and punish the child are legitimized as appropriate discipline. It seems evident that when there is greater social support for high levels of physical discipline, that there is a greater probability of serious harm befalling the children. Physical abuse is perpetrated by both male and female adults, and is prominent in families with two biological parents, as well as families where one or more of the adults are not biological parents. Physical abuse, while still important, is less of an issue for the single-parent women.

The children who are the victims of **sexual abuse** are older than the children in the other two groups because of the high representation of adolescent girls as victims. The adult perpetrators show higher median scores than the other the other two maltreatment groups on the majority of the variables. They clearly have inappropriate conceptions of the needs of the children, tend to objectify the children, and display serious problems with respect to bonding.

While inadequate mental functioning is a problem for only a minority of individuals who perpetrate sexual abuse, they display greater difficulties with respect to this issue than do the adults in the other groups. Addictions problems are not apparent with this group, and, while they are often socially isolated, such social contact as is available to them may tend to reinforce the abusive behaviour.

Since the majority of the sexual offenders within this study are women, it is clearly an anomalous set of sexual abuse cases. It is clearly established that male offenders typify sexual abuse; consequently, the characteristics of the offenders within these data may bear little relation to other groups of sexual offenders. Subject to these limitations, it is nonetheless noteworthy that the families where non-biological parents were present were prominent as perpetrators of sexual abuse. While certainly not definitive, this observation suggests that an increase in the relationship distance between the adult and the child may be associated with an increased probability of sexual abuse occurring.

#### Predicting the Severity of Maltreatment

While the differing patterns of the variables describe the maltreatment groups at all levels of severity, these variables also differentiate between differing levels of severity of maltreatment. When the variables were tested with all 955 cases to determine their ability to differentiate between instances of high and low severity maltreatment, all but the variable assessing the perpetrator's mental functioning,



psychopathology/incapacity, were able to effectively differentiate between high and low severity instances of maltreatment.

The numbers of sexual abuse cases in the sample were insufficient to test independently, however, the results of bivariate tests for the neglect and physical abuse groups produced differing outcomes. The physical abuse group showed that all variables, including the assessment of the perpetrator's mental functioning, were relevant to the prediction of severe instances of physical abuse. Four variables did not effectively distinguish between low and high severity maltreatment for the neglect subset: the adult's perception of the incident, the adult's perception of the child, psychopathology/incapacity, and stress. It is particularly interesting that stress appears to score quite high at all levels of severity for this group, and does not appear to contribute significantly to more serious outcomes for these children. The dominant personal characteristics which predict the severity of maltreatment incidents are related to the characteristics associated with identifying the particular typology: impaired attachment for the neglect group; assaultive behaviour and beliefs that justify the excessive physical discipline of children for the physical abuse group.

When multivariate logistic regression models were created for the total data set, the neglect subset and the physical abuse subset, it was apparent that the most important variable for the prediction of the severity of a future instance of maltreatment, is the severity of a prior instance of maltreatment. In effect, the best guide to the degree of harm that someone may inflict upon a child is severity of the maltreatment that they have already perpetrated. It is conceivable that once the norm

has been breached the perpetrator is somewhat desensitized to the trauma. It then becomes easier for them to violate the norm at a higher level of severity.

In addition to the severity of the prior incident, the gender of the adult and inadequate attachment between the adult and the child were significant to the prediction of the severity of neglect incidents. It is unclear whether the association of single, female caregivers with higher levels of severity of neglect is an artifact of these data, or is general condition within Canada. While this analysis does not demonstrate the case, it is certainly conceivable that these women are left in such a disadvantaged position that a significant number of them are unable to care for their children adequately.

While the severity of a prior incident was the most important variable within the regression model of the physical abuse cases, it was possible to predict a significant amount of the variance ( $R^2 = .23$ ) without including the prior incident in the model. The variables concerning the perpetrator's perception of the incident, their attitude concerning discipline and their parenting knowledge and skills were the most important factors here. A reasonable explanation for the conjunction of these factors is that these variables have captured a systematic distortion in the views that are held by perpetrators of physical abuse. The amount of physical harm that these persons feel to be appropriate exceeds the levels determined by child welfare statutes, and their knowledge concerning children is faulty in some important respects. As they consider their beliefs to be true, they consider their actions to be

legitimate and, consequently, view the maltreatment event in ways that differ markedly from the views of child protection statutes.

The results of the factor analyses provide a means to integrate these results into a single coherent picture. The intercorrelation of the variables produced factor loadings that are amenable to a clear substantive interpretation. The variable that assesses the perpetrator's emotional ties to the child, attachment; and the variables which measure the perpetrators' attitudes concerning the child, as expressed by their perceptions of the incident and the child, are all tied very closely together. A fourth variable, the perpetrator's parenting knowledge and skills is also closely associated with this fact, although to a somewhat lesser degree than the prior three variables.

Since the perpetrator's perception of the incident is very highly correlated with their perception of the child, one of these variables would seem to be redundant. Thus, if the definition for the scale assessing the adult's perception of the child is expanded to include the relevant characteristics of the current incident, most importantly the objectification of the child as victim, these two variables could probably be collapsed into a single item. The remaining set of three scales assess the attitudes concerning the child, their emotional stance towards the child (attachment), and the adequacy of the knowledge that they possess concerning child care, as well as their ability to put this knowledge into practice.

Two other variables, those assessing the adult's attitude towards discipline, and the adult's history of violent behaviour towards other

adults, are also very closely associated. Although these variables may not be relevant to the majority of child maltreatment cases, they are associated with each other and indicate a general predisposition towards violent behaviour on the part of the adult. If an individual is prone to be physically aggressive in any context, they will also tend to legitimate high levels of violence towards children.

The variables measuring substance abuse, psychopathology and incapacity, and stress tend to vary independently of the other variables. As such, each comprises an independent element that may contribute to the occurrence and severity of child maltreatment.

The variables concerning the child care norms which are espoused by a perpetrator's reference group, and the adults' social isolation could not be used within the factor analyses because of missing data. However, this does not provide evidence that they are not relevant. An individual's estrangement from any community, whether a cause or an effect of maltreatment, remains of interest. In addition, the presence of social support for maltreatment would seem to be critical. If the abusive or neglectful behaviour is rewarded by individuals who are felt by the perpetrator to be important to them, the behaviour pattern will be reinforced.

The demographic information concerning the age and gender of both the child and the adult are also important as means of focusing one's attention as these characteristics are associated with different maltreatment types. Age and gender cannot, however, be used as

screening devices as they do not prohibit the occurrence of any type, or severity, of maltreatment.

### Relationship of this Study to Other Research

A primary theme within the child protection risk assessment literature has been the opposition between clinical and actuarial methods of decision-making, with actuarial systems being generally favored by researchers and clinical systems being chosen by practitioners. This research occupies an intermediate position between these two groups, by using statistical procedures to analyze variables which are predominantly measured at the nominal or ordinal levels, and are based upon judgments concerning scale scores which have been made by social workers.

As the methodology, and many of the variables which have been employed in this research, differ from those that have been used elsewhere it is difficult to compare these results with other studies in this field. However, while there are some differences which are apparent, there are also similarities which have emerged with respect to the consistent importance of some variables.

While many other studies have treated the vulnerability of the child as a predictor variable, (McDonald & Marks, 1991; Meddin, 1985.) this study has used vulnerability as an independent item. If a perpetrator has access to a child, and if the child is unable to adequately protect him/herself, and if there is no adequate protector present in the

household, a child is vulnerable to harm. Since the child is vulnerable, the subsequent questions concern the probability of recurrence and the issue of severity. What is the likelihood that maltreatment will reoccur, and if it reoccurs, what is the probable severity of the future incident of maltreatment? The differences are, then, not differences with respect to the importance of vulnerability but a question of selecting a different point in the analysis to deal with this issue.

There is a good deal of unanimity within the literature concerning the relevance of a number of variables which were seen to be of importance in this study, including the following:

- There is general agreement that young children are particularly vulnerable to neglect and that female children, particularly adolescents are the most common victims of sexual abuse. (McCurdy & Darrow, 1994; Fryer & Miyoshi, 1994).
- The association of female-headed single parent families with neglect is common in the literature. (Baird, 1988; Jones & McCurdy, 1990).
- It is generally accepted that substance abuse is a contributing factor; that a pattern of violent behavior is significant, particularly for physical abuse; and that psychopathology is a critical factor. (McDonald & Marks, 1991).
- Baird, et al (1988) and Johnson and L'Esperance (1984) found that factors that may be associated with stress, such as the number of children in the home, were of importance.

- Both Johnson and Baird have emphasized the relevance of social isolation.
- Baird also found that a number of factors were significant for physical abuse but not for neglect: the adult's criminal record, negative social relationships, the number of adults in the home, the presence of a non-perpetrating caretaker. The adult's criminal record may be most important for crimes of violence. The number of adults in the home may indicate an increased threat to the child resulting from the presence of potential perpetrators who do not have a positive emotional bond to the child.

While it is difficult to assess equivalencies between studies because of the differences with respect to the definitions of the concepts, as well as the research methodology utilized, it is evident that there is a good deal of common ground between the results of this study and other work in the field. The greatest point of difference between this study and those conducted by Baird, et al, and Johnson and L'Esperance, is a concern with respect to the viability of the recurrence of maltreatment as the standard for assessing the validity of discriminating characteristics. Nonetheless, there is considerable common ground with respect to which variables are seen to be important.

The results of this research do not contribute substantially to the prediction of recurrence. It is possible that the characteristics that are associated with elevated scores on the variables, and combinations of

variables, that have been analyzed here, are associated with a high recurrence rate. However, there has been no evidence brought to bear upon this question.

John Fluke, a senior researcher with the American Humane Association, has recently completed an analysis of a large number of cases which have had recurrences of maltreatment. A survival analysis indicates that each time there is a recurrence, the probability of there being a subsequent recurrence is increased.<sup>1</sup>

This suggests that a confirmed pattern of perpetration of maltreatment may well be the best guide, for the moment, to recurrence. If an individual has violated the existing child care norm and perpetrated maltreatment on one occasion, the trauma of the event and the subsequent intervention may be sufficient to prevent further occurrences. If this is not the case, and there is a second maltreatment incident, a pattern has been established and the safest decision would be to presume that this pattern will continue unless there is a change in some critical factor. This research is suggestive of what other factors could be scrutinized by child protection workers.

These factors may consist of one or more of the variables which have been analyzed here. It is conceivable that continuing high scores on these variables indicate that the maltreatment behaviour may continue. There are a great many possible score patterns, however, one example, in a neglect situation, would be associated with chronic substance abuse, where the adult is denying the reality, or the significance, of the event. If

---

<sup>1</sup> Personal communication, December, 1996. These results have not yet been published.



the adult continues to display problems with respect to substance abuse, and to deny that the consequences to the child are of importance, it is highly likely that there will be a recurrence of maltreatment.

A similar example, with respect to physical abuse, would be a situation where a child has been spanked as a disciplinary measure, and a broken bone was the result. If the perpetrator argues that the fracture was an accident, and that they needed to continue to use physical discipline, the probability of future discipline exceeding a permissible level of severity and becoming abusive is very high. If the adult receives support for these views from a spouse, from their family, or their community the probability of recurrence is further increased.

In sexual abuse situations, the perpetrator's legitimization of their behaviour is common. If the perpetrator blames the child, by suggesting that the child's seductive behaviour is a cause of the abuse, the likelihood of recurrence is very high. Should the adult's impulse control be impaired by substance abuse, or the presence of significant stressors, the probability of recurrence is further increased.

As it is not yet possible to articulate a comprehensive set of general rules concerning the indicators of recurrence, each individual case must be analyzed in its particular context and the scores on all of the variables must be taken into consideration.

### The Manitoba Risk Estimation System

The redundancy of the variables concerning the adult's perception of the child and of the incident means that one of these variables should be eliminated. Further support for this conclusion is found with anecdotal reports from child protection workers who have used this instrument. Many workers indicate that they do not perceive a distinct difference between these items. It may be that the adults' attitudes concerning the children are best expressed by their explanations of the maltreatment events. A tendency for the adults to legitimize their own behaviour and to objectify, or blame, the child are powerful indicators of distorted conceptions of the nature of the child.

The high association between the variables assessing the perpetrator's attitude concerning discipline and their history of violence determine that they should be removed from their current positions in the instrument and a new category created to assess the adult's tendency towards violence.

A reorganization of this tool to reflect the results of this research will improve its relevance to risk assessment procedures. However, while the results suggest that some variables, and combinations of variables, are of particular importance, the knowledge basis for risk assessment in child protection work is not yet adequate for the creation of an actuarial system. However, the MRES has a role to play in assisting workers in their analyses of child protection cases. The use of such an instrument can ensure that assessment concepts are applied in a rigorous way, that

the data collection procedures utilized for individual cases is thorough, and that a data set is created which describes a large number of child maltreatment cases using standardized concepts. Such a body of knowledge is a precondition to the creation of improved means of child protection risk assessment.

### Practice Principles Concerning Risk Assessment

The items that concern the adult's understanding of the child: their perception of the child, the quality of the attachment between the adult and the child, and the adult's parenting knowledge and skills comprise the core of a risk assessment procedure. As such these items are the starting point for all analyses of the characteristics of perpetrators of child maltreatment. The other variables enter the analysis subsequent to these considerations and combine with the basic issues in ways that provide additional information which may be relevant to recognizing increased risk to the child.

The results of this study suggest a series of basic principles for practitioners concerning the prediction of severity. Any child maltreatment incident should be considered as potentially very dangerous for the child if:

- The severity of the current incident, or a prior incident, is medium or higher.

- The victim is unable to protect themselves, such as a young child, or a child who is developmentally delayed.
- The perpetrator feels that the maltreatment behaviour is legitimate, particularly if this legitimisation is reinforced by a reference group.
- A confirmed instance of maltreatment, at any level of severity, is associated with scores of high, or very high, on one or more of the MRES variables.
- An instance of neglect is accompanied by serious difficulties with respect to attachment, and/or substance abuse.
- An instance of physical abuse is associated with a perpetrator who legitimates their own behaviour, and believes that children benefit from high levels of physical discipline. It is also significant if the perpetrator lacks appropriate knowledge concerning child care, or has a history of violent behaviour.
- Sexual abuse is manifest in any of its forms. All sexual abuse is serious and may be taken as de facto evidence of critical underlying problems. While there may well be exceptions to this rule, it is nonetheless a useful initial position.

The issues with respect to child protection risk assessment which are described in this dissertation comprise a minimum standard of child welfare practice. The collection and analysis of this information does not define excellence, but rather delimits the basic requirements necessary

for a social worker to understand a family where maltreatment has occurred.

In order to provide adequate service for their clients, a child protection agency needs to ensure that information concerning all variables is collected and analyzed at each decision point during the conduct of a case. Many of the issues with respect to risk assessment become more apparent when all of the material is present in a single location, and organized in a manner that can be analyzed clearly. Conversely, if the information is not collected and analyzed, there can be no rational basis for the intervention decision.

#### Future Research

The results of this research do not resolve any of the disputes concerning the prediction of child maltreatment. However, the outcomes of the research suggest that the design which was utilized may provide a useful basis for future work. The differences concerning the characteristics of the children and adults which were observed between the maltreatment types and family types, give promise that typologies may be developed which will associated with specific etiologies.

The fundamental variables are the maltreatment types, the family types, the age and gender of the perpetrators, and the age and gender of the children. A larger data set will permit more concise differentiations to be made concerning the interaction of these variables. For example, it may be that the characteristics associated with male perpetrators who

sexually abuse adolescent girls differ in important ways depending upon their relationship to the child. Thus different indicators may appear for biological fathers, step-fathers, and foster-fathers.

The characteristics of the children may prove to be important and to interact with the characteristics of the adults in ways that are relevant to the prediction of risk, in particular, behaviour on the part of a child which is a stimulus to adult aggression is critical. It also seems likely that children who require a high level of parental care may be particularly subject to maltreatment.

Much of the research in the field is not explicit concerning its connections to theory and, if our knowledge concerning risk assessment and child maltreatment is to improve, it is critical that this sub-specialty be related to the principles of social psychology. The general principles of human behaviour must be related to the particular realities of child maltreatment in a way that can produce testable hypotheses. Perpetrators of maltreatment are acting in ways that are meaningful to them, and it is critical that we gain access to these meaning systems. If we comprehend the reasons, or causes, for maltreatment; risk assessment will consist of recognizing the presence, and magnitude, of these factors. It is readily apparent that the question of culture is fundamental to such an approach to this topic.

A high quality of data is a precondition for research in this area to progress. A comprehensive set of measures must be used, with concepts which are standardized, and complete, and accurate, information must be regularly collected concerning active child protection cases. Only when

such data is available will it be possible to conduct thorough multivariate analyses which will have more definitive outcomes. If there are large amounts of missing data, this presents an almost insurmountable barrier to interpretation. If such data were present it would be possible, for example, to examine the characteristics of the adult partners in a family and to explore whether there are matching attributes for these persons that contribute to elevated risk conditions.

A corrective to the perspectives introduced by emphasizing the type of maltreatment that has occurred, and the particular characteristics of the relationships between the adult and the child, could result from the use of cluster analysis to examine case characteristics. This technique may produce results which identify common characteristics that can be explained by different fundamental factors than those which have been identified here.

It is evident that it is possible to conduct research which can greatly improve our understanding of these issues. The most significant impediments to such progress do not result from research considerations, but from practical issues, including a scarcity of research funding, the difficulties associated with ensuring that practitioners collect and retain high quality information, and the administrative complexities associated with initiating and coordinating the diverse organizations which must be involved in such a project. However, if we do not improve our understanding of these issues, and consequently improve the services to these families, it is because we have chosen to have our knowledge remain at its present level.

## BIBLIOGRAPHY

- Adorno, T. W.; Frenkel-Brunswick, E.; Levinson, D. J.; Nevitt Sanford, R.; (1950). The Authoritarian Personality. New York: Harper & Brothers.
- Alaszewski, A., Manthorpe, J., (1991), Literature Review: Measuring and Managing Risk in Social Welfare. British Journal of Social Work, Vol. 21, pp. 277-290.
- Allen, M. J., Yen, W. M., (1979). Introduction To Measurement Theory. Belmont, CA: Wadsworth, Inc.
- American Psychiatric Association, (1994). Diagnostic And Statistical Manual of Mental Disorders: Fourth Edition, Washington, DC: American Psychiatric Association.
- Ammerman, R. T., Hersen, M., (1990). Children At Risk: An Evaluation of Factors Contributing To Child Abuse And Neglect. New York: Plenum Press.
- Baird, C., Bakke, A., Holien, D., Zirk, T., Neuenfeldt, D., Aleman, T., (1988). Development of Risk Assessment Indices For Alaska Family Services, Madison: National Council On Crime And Delinquency.
- Baird, C., Bakke, A., Holien, D., Zirk, T., Neuenfeldt, D., Aleman, T., (1988). Development of A Classification System For Alaska Youth Services, Madison: National Council On Crime And Delinquency.
- Baird, C., Bakke, A., Holien, D., Zirk, T., Neuenfeldt, D., Aleman, T., (1988). Alaska Division of Family And Youth Services: Analysis Of The 1987 Time Study, Madison: National Council On Crime And Delinquency.



- Baird, C., Neuenfeldt, D., (1988). Assessing Potential for Abuse and Neglect. Focus, July, 1988, Madison: National Council On Crime And Delinquency.
- Balassone, M. L., (1991). A research methodology for the development of risk assessment tools in social work practice. Social Work Research & Abstracts, Vol. 27, No. 2, pp. 16-23.
- Ben-Shakhar, B., Bar-Hillel, M., (1993). Misconceptions in Martin and Terris's (1991) "Predicting Infrequent Behavior: Clarifying the Impact on False-Positive Rates". Journal of Applied Psychology, Vol. 78, No. 1, pp. 148-150.
- Boyd, R., (1972). Determinism, Laws, And Predictability In Principle. Philosophy of Science, Vol. 39, No. 4, pp. 431-450.
- Burger, T., (1976). Max Weber's Theory of Concept Formation. Durham: Duke University Press.
- Burkitt, I., (1991). Social Selves: Theories of the Social Formation of Personality. London: Sage Publications.
- Casey, T. J., (1967). The Compatibility of Free Choice with the Prediction of Human Behaviour. The Rocky Mountain Social Science Journal, Vol. 4, No. 2, pp. 151-159.
- Casti, J. L., (1990). Searching For Certainty: What Scientists Can Know About The Future. New York: William Morrow and Company, Inc.
- Charon, J. M., (1989). Symbolic Interactionism: An Introduction, An Interpretation, An Integration (3rd. Edition). Englewood Cliffs: Prentice Hall.

- Cicchelli, L., (1991). Risk Assessment: Expectations, Benefits and Realities. In Tatara, T. (ed.), (1991). Fourth National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association, pp. 7-17.
- Cicchetti, D., Carlson, V. (1991). Child Maltreatment: Theory and research on the causes and consequences of child abuse and neglect. New York: Cambridge University Press.
- Clark, R. W., (1980). Freud: The Man And The Cause. New York, Random House.
- Courneya, K. S., (1994). Predicting Repeated Behavior from Intention: The Issue of Scale Correspondence. Journal of Applied Social Psychology, Vol. 24, No. 7, pp. 580-594.
- Daniel, W., (1990). Applied Nonparametric Statistics (Second Edition). Boston: PWS-KENT Publishing Company.
- Dawes, R. M., (1979). The Robust Beauty of Improper Linear Models in Decision-Making. American Psychologist, Vol. 34, No. 7, pp. 571-582.
- Dawes, R. M., Faust, D., & Meehl, P. E., (1989). Clinical Versus Actuarial Judgment. Science, Vol. 243, pp. 1668-1673.
- Dawes, R. M., Faust, D., & Meehl, P. E., (1993). Statistical Prediction Versus Clinical Prediction: Improving What Works. In Keren, G., Lewis, C., A Handbook for Data Analysis in the Behavioral Sciences, Hillsdale, N. J.: Lawrence Erlbaum Associates, Publishers, pp. 351-368.

- Dawes, R. M., (1995). Prediction of the future versus an understanding of the past: A basic Asymmetry. American Journal of Psychology, Vol. 106, No. 1, pp. 1-24.
- Denzin, N. K., Lincoln, Y. S., (1994). Handbook of Qualitative Research, London: Sage Publications.
- DePanfilis, D., Scannapieco, M., (1994). Assessing the Safety of Children at Risk of Maltreatment: Decision-Making Models. Child Welfare, Vol. LXIII, No. 3., pp. 229-245.
- Darlington, R. B., (1990). Regression and Linear Models. New York: McGraw-Hill Publishing Company.
- Doueck, H. J., Levine, M. & Bronson, D. E., (1993). Risk Assessment in Child Protective Services. Journal of Interpersonal Violence, Vol. 8, No. 4, pp. 446-467.
- Doueck, H. J., English, D. J., DePanfilis, D., Moote, G. T., (1993). Decision-Making in Child Protective Services: A Comparison of Selected Risk-Assessment Systems. Child Welfare, Vol. LXXII, No. 5, pp. 441-452.
- Durkheim, E. (1951). Suicide, New York: The Free Press.
- English, D. J., Pecora, P. J., (1994) Risk Assessment as a Practice Method in Child Protective Services. Child Welfare, Vol. LXXIII, No. 5, pp. 451-473.
- Erikson, E., (1963). Childhood and Society. New York: W. W. Norton & Company, Inc.
- Factor, D. C., Wolfe, D. A., (1990). Parental Psychopathology and High-Risk Children. In Ammerman, R. T., Hersen, M., (1990). Children At

- Risk: An Evaluation of Factors Contributing To Child Abuse And Neglect. New York: Plenum Press, pp. 171-198.
- Falmange, R. J., Gonsalves, J., (1995). Deductive Inference. Annual Review of Psychology, Vol. 46, pp. 525-559.
- Fanshel, D., Finch, S. J., Grundy, J. F., (1994). Testing The Measurement Properties Of Risk Assessment Instruments In Child Protective Services. Child Abuse & Neglect, Vol. 18, No. 12, pp. 1073-1084.
- Feist, J., (1994). Theories Of Personality (Third Edition). Toronto: Harcourt Brace College Publishers.
- Finklehor, D. (1984). Child Sexual Abuse: New Theory & Research. New York: The Free Press.
- Freudenburg, W. R., Perceived Risk, Real Risk: Social Science and the Art of Probabilistic Risk Assessment. Science, Vol. 242, pp. 44-49.
- Fryer, G. E., Miyoshi, T. J., (1994). A Survival Analysis Of The Revictimization Of Children: The Case Of Colorado. Child Abuse & Neglect, Vol. 18, No. 12, pp. 1063-1071.
- Geller, J., Johnston, C., (1995). Predictors of Mothers' Responses to Child Noncompliance: Attributions and Attitudes. Journal of Clinical Child Psychology, Vol. 24, No. 3, pp. 272-278.
- Goldberg, L. R., (1970). Man Versus Model Of Man: A Rationale, Plus Some Evidence, For A Method For Improving On Clinical Inferences. Psychological Bulletin, Vol. 73, No. 6, pp. 422-432.
- Goldberg, L. R., (1991). Human Mind versus Regression Equation: Five Contrasts. In Cicchetti, D., Grove, W. M. (eds.) Thinking Clearly

- about Psychology, Volume 1: Matters of Public Interest, Minneapolis: University of Minnesota Press, pp. 173-184.
- Gorsuch, R. L., (1983). Factor Analysis. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Greenland, C. (1987). Preventing CAN Deaths: An international study of deaths due to child abuse and neglect. London: Tavistock Publications.
- Guba, E. G., Lincoln, Y. S., (1994). Competing Paradigms in Qualitative Research. In Denzin, N. K., Lincoln, Y. S., (1994). Handbook of Qualitative Research, London: Sage Publications, pp. 105-117.
- Hanson, R. K., Gauthier, R., (1992). Long-Term Follow-Up Of Child Molesters: Risk Predictors And Treatment Outcomes, Ottawa: Ministry of the Solicitor General of Canada.
- Hartman, C. R., Burgess, A. W., in Cicchetti, D., Carlson, V. (1991). Child Maltreatment: Theory and research on the causes and consequences of child abuse and neglect. New York: Cambridge University Press.
- Holland, J. H., Holyoak, K. J., Nisbett, R. E., Thagard, P. R., (1987). Induction. Cambridge, Mass.: The MIT Press.
- Hornby, H., (1989). Risk Assessment in Child Protective Services: Issues in Field Implementation, Portland, ME: National Child Welfare Resource Center for Management and Administration.
- Hotelling, H., (1940). The Selection Of Variates For Use In Prediction With Some Comments On The General Problem Of Nuisance

Parameters. The Annals of Mathematical Statistics, Vol. XI, pp. 271-283.

Hutchison, E. D., (1989). Child protective screening decisions: An analysis of predictive factors. Social Work Research & Abstracts, Vol. 25, No. 3, pp. 9-15.

Johnson, W. & L'Esperance, J., (1984). Predicting the recurrence of child abuse. Social Work Research & Abstracts, pp. 21-26.

Johnson, W., (1992). Purposes and Assumptions in the Development of Risk Assessment Systems. In Tatara, T. (ed.), (1992). Fifth National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association.

Johnson, W., (1994). Maltreatment Recurrence as a Criterion for Validating Risk Assessment Instruments. In Tatara, T. (ed.), Seventh National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association, pp. 175-182.

Jones, D. P. H., McCurdy, K., (1990). The Links Between Types Of Maltreatment And Demographic Characteristics Of Children. Child Abuse & Neglect, Vol. 16, pp. 201-215.

Jones, D. P. H., (1994). Editorial: Assessing and Taking Risks In Child Protection Work. Child Abuse & Neglect, Vol. 18, No. 12., pp. 1037-1038.

Judd, C. M., McClelland, G. H., Culhane, S. E., (1995). Data Analysis: Continuing Issues in the Everyday Analysis of Psychological Data. Annual Review of Psychology, Vol. 46, pp. 433-465.

- Kaplan, A., (1964). The Conduct of Inquiry: Methodology for Behavioral Science, Scranton: Chandler Publishing Company.
- Kaufman, J., Zigler, E., (1987). Do Abused Children Become Abusive Parents? American Journal of Orthopsychiatry, Vol. 57, No. 2, pp. 186-191.
- Kotch, J. B., Chalmers, D. J., Fanslow, J. L., Marshall, S., Langley, J. D., (1993). Morbidity And Death Due To Child Abuse In New Zealand. Child Abuse & Neglect, Vol. 17, pp. 233-247.
- Lave, L. B., (1987). Health and Safety Risk Analyses: Information for Better Decisions. Science, Vol. 236, pp. 291-295.
- Lee, R. R., Martin, J. C., (1991). Psychotherapy After Kohut. London: The Analytic Press.
- Lévi-Strauss, C., (1966). The Savage Mind. Chicago: The University of Chicago Press.
- Manciaux, M., Deschamps, G., (1977). Prediction Of Child Abuse, Vol. 1, pp. 59-61.
- Marks, J., McDonald, T., Bessey, W., Palmer, M., (1989). Risk Assessment in Child Protective Services: Risk Factors Assessed by Instrument-based Models: A Review of the Literature, Portland, ME: National Child Welfare Resource Center for Management and Administration.
- Marks, J., McDonald, T., (1989). Risk Assessment in Child Protective Services: Predicting Recurrence of Child Maltreatment, Portland, ME: National Child Welfare Resource Center for Management and Administration.

- McCurdy, K., Daro, D., (1994). Child Maltreatment: A National Survey of Reports and Fatalities. Journal Of Interpersonal Violence, Vol. 9, No. 1, pp. 75-94.
- McCurdy, K., (1995). Risk assessment in child abuse prevention programs. Social Work Research, Vol. 19, no. 2, pp. 77-87.
- McDonald, T., Marks, J., (1991) A Review of Risk Factors Assessed in Child Protective Services. Social Service Review, March, 1991, pp. 112-132.
- McDonald, T., (1992) Predicting Recurrence of Maltreatment For Child Sexual Abuse Cases. In Tatara, T. (ed.), (1992). Fifth National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association, pp. 71-89.
- Meddin, B. J., (1985). The Assessment Of Risk In Child Abuse And Neglect Case Investigations. Child Abuse & Neglect, Vol. 9, pp. 57-62.
- Meehl, P. E., (1954). Clinical versus Statistical Prediction, Minneapolis: University of Minnesota Press.
- Meehl, P. E., (1956). Wanted-A Good Cookbook. The American Psychologist, Vol. II, No. 6, pp. 263-272.
- Meiselman, K. (1978). Incest: A Psychological Study of Causes and Effects with Treatment Recommendations. (San Francisco: Jossey-Bass Publishers.
- Mellor, D. H., (1981). The Possibility of Prediction. Proceedings of the British Academy, Vol. LXV, pp. 207-223.
- Merton, R. K., (1957). Social Theory and Social Structure, London: The Free Press of Glencoe.



- Milner, J. S., Wimberley, R. C., (1979). An Inventory For The Identification Of Child Abusers. Journal of Clinical Psychology, Vol. 35, No. 1, pp. 95-100.
- Milner, J. S., Wimberley, R. C., (1980). Prediction And Explanation Of Child Abuse. Journal of Clinical Psychology, Vol. 36, No. 4, pp. 875-884.
- Milner, J. S., Ayoub, C., (1980). Evaluation Of "At Risk" Parents Using The Child Abuse Potential Inventory. Journal of Clinical Psychology, Vol. 36, No. 4, pp. 945-948.
- Milner, J. S., (1982). Development of A Lie Scale For The Child Abuse Potential Inventory. Psychological Reports, Vol. 50, pp. 871-874.
- Milner, J. S., Gold, R. G., Jacewitz, M. M., Ayoub, C., (1983). Assessment Of A Program's Effectiveness In Selecting Individuals "At Risk" For Problems In Parenting. Journal of Clinical Psychology, Vol. 39, No. 3, pp. 334-339.
- Milner, J. S., Robertson, K. R., (1983). Construct Validity Of The Child Abuse Potential Inventory. Journal of Clinical Psychology, Vol. 39, No. 3, pp. 426-429.
- Milner, J. S., Gold, R. G., Jacewitz, M. M., Ayoub, C., (1984). Predictive Validity of the Child Abuse Potential Inventory. Journal of Consulting and Clinical Psychology, Vol. 52, No. 5, pp. 879-884.
- Milner, J. S., Gold, R. G., Robitaille, J., Jones, E., Robertson, K. R., (1985). Child Abuse Potential And Authoritarianism. Journal of Clinical Psychology, Vol. 41, No. 6, pp. 839-844.

- Milner, J. S., Robertson, K. R., (1985). Convergent and Discriminant Validity of the Child Abuse Potential Inventory. Journal of Personality Assessment, Vol. 49, No. 1, pp. 86-88.
- Milner, J. S., Robertson, W. K. T., (1985). Detection of Conscious Deception Using the Child Abuse Potential Inventory Lie Scale. Journal of Personality Assessment, Vol. 49, No. 5, pp. 541-544.
- Milner, J. S., Robertson, K. R., (1985). Development Of A Random Response Scale For The Child Abuse Potential Inventory. Journal of Clinical Psychology, Vol. 41, No. 5, pp. 639-642.
- Milner, J. S., Ayoub, C., (1985). Failure To Thrive: Parental Indicators, Types And Outcomes. Child Abuse & Neglect, Vol. 9, No. 4, pp. 491-499.
- Milner, J. S., (1986). Assessing Child Maltreatment: The Role of Testing. Journal of Sociology and Social Welfare, Vol. 13, No. 1, pp. 64-76.
- Milner, J. S., (1986). The Child Abuse Potential Inventory: Manual, Webster, NC, Psytec Inc.
- Milner, J. S., Charlesworth, J. R., Gold, R. G., Gold, S. R., Friesen, M. R. (1988). Convergent Validity Of The Child Abuse Potential Inventory. Journal of Clinical Psychology, Vol. 44, No. 2, pp. 281-285.
- Milner, J. S., Robertson, K. R. T., (1989). Inconsistent Response Patterns And The Prediction Of Child Maltreatment. Child Abuse & Neglect, Vol. 13, pp. 59-64.
- Milner, J. S., Robertson, K. R., Rogers, D. L. (1990). Childhood History of Abuse and Adult Child Abuse Potential. Journal of Family Violence, Vol. 5, No. 1, pp. 15-34.

- Milner, J. S., (1991). Introduction: Current Perspectives On Physical Child Abuse. Criminal Justice And Behavior, Vol. 18, No. 1, pp. 4-7.
- Milner, J. S., (1991). Physical Child Abuse Perpetrator Screening And Evaluation. Criminal Justice And Behavior, Vol. 18, No. 1, pp. 47-63.
- Milner, J. S., (1992). Sexual Child Abuse: Theory, Assessment, and Treatment. Criminal Justice And Behavior, Vol. 19, No. 1, pp. 4-7.
- Milner, J. S., Caliso, J. A. (1992). Childhood History Of Abuse And Child Abuse Screening. Child Abuse & Neglect, Vol. 16, pp. 647-659.
- Milner, J. S., Crouch, J. L. (1993). Effects Of Child Neglect On Children. Criminal Justice And Behavior, Vol. 20, No. 1, pp. 49-65.
- Milner, J. S., (1994). Assessing Physical Child Abuse Risk: The Child Abuse Potential Inventory. Clinical Psychology Review, Vol. 14, No. 6, pp. 547-581.
- Muir, R. C., Monaghan, S. M., Gilmore, R. J., Clarkson, J. E., Crooks, T. J., Egan, T. G., (1989). Predicting Child Abuse And Neglect In New Zealand. Australian and New Zealand Journal of Psychiatry, Vol. 23, pp. 255-260.
- Murdach, A. D., (1994). Avoiding Errors in Clinical Prediction. Social Work, Vol 39, No. 4, pp. 381-386.
- Murphy-Berman, V. (1994). A Conceptual Framework For Thinking About Risk Assessment And Case Management In Child Protective Service. Child Abuse & Neglect, Vol. 18, No. 2, pp. 193-201.
- National Research Council (U.S.), Panel on Research on Child Abuse and Neglect, (1993). Understanding Child Abuse and Neglect. Washington, D.C.: National Research Council (U.S.).

- Netemeyer, R. G., Burton, S., Johnston, M., (1991). A Comparison of Two Models for the Prediction of Volitional and Goal-Directed Behaviors: A Confirmatory Analysis Approach. Social Psychology Quarterly, Vol. 54, No. 2, pp. 87-100.
- Paley, J. (ed.), (1990). Child Protection Adviser's Resource Pack. London: National Society for the Prevention of Cruelty to Children.
- Palmer, M., (1989). Risk Assessment in Child Protective Services: Risk Assessment Models: A Comparative Analysis, Portland, ME: National Child Welfare Resource Center for Management and Administration.
- Parke, R. D., Theoretical Models of Child Abuse. In Starr, R. H. (ed.) (1982), Child Abuse Prediction, Cambridge: Ballinger Publishing Company, pp. 31-66.
- Pecora, P. J., (1987). Developing and Implementing Risk Assessment Systems in Child Protective Services. Protecting Children Winter 1986-1987, pp. 7-15.
- Pecora, P. J., Carlson, I., Reese, S., Bartholomew, G., (1987). Developing and Implementing Risk Assessment Systems in Child Protective Services. In Protecting Children, Vol. 3, No. 4, pp. 8-10.
- Pecora, P. J., (1989). Evaluating Risk Assessment Systems - Methodological Issues and Selected Research Findings. In Schene, P., Bond, K., (eds.) (1989). Research Issues In Risk Assessment For Child Protection, Denver: American Humane Association, pp. 47-59.
- Pecora, P. J., (1991). Investigating Allegations of Child Maltreatment: The Strengths and Limitations of Current Risk Assessment Systems. Child and Youth Services, Vol. 15, No. 2, pp. 73-92.

- Phillips, D. C., (1987). Philosophy, Science And Social Inquiry. New York: Pergamon Press.
- Phillips, D. C., (1992). The Social Scientist's Bestiary: A Guide to Fabled Threats to, and Defenses of, Naturalistic Social Science, New York: Pergamon Press.
- Pogge, D. L., (1992). Risk Factors in Child Abuse and Neglect. Journal of Social Distress and the Homeless, Vol. 1, Nos. 3/4, pp. 237-248.
- Pratt, V., (1978). The Philosophy of the Social Sciences, London: Methuen.
- Reid, G., Sigurdson, E., Hill, E., Swift, K., Onysko, R., (1987). External Review Into Matters Relating To The Operation Of Northwest Child And Family Services In Winnipeg, Winnipeg: Government of Manitoba.
- Reid, G., Sigurdson, E., (1990). The Manitoba Risk Estimation System, Version 3.5. Winnipeg: Government of Manitoba.
- Reid, G., Sigurdson, E., Christianson-Wood, J., & Wright, A., (1995). Basic Issues Concerning the Assessment of Risk in Child Welfare Work. Ottawa: Health Canada.
- Reynolds, L. T., (1993). Interactionism: Exposition And Critique (Third Edition). Dix Hills: General Hall, Inc.
- Robert, M., (1966). The Psychoanalytic Revolution: Sigmund Freud's Life and Achievement. New York: Harcourt, Brace & World, Inc.
- Root-Bernstein, R., (1993). Future Imperfect. Discover, November, 1993, pp. 42-47.

- Russell, M., Gruber, M., (1987). Risk Assessment in Environmental Policy-Making. Science, Vol. 236, pp. 286-290.
- SAS Institute, (1994). JMP® Statistics and Graphics Guide, Cary, NC: SAS Institute Inc.
- Schene, P., (1987). Why the Sudden Interest in Risk Assessment? Protecting Children, Vol. 3, No. 4, p 2.
- Schene, P., Bond, K., (eds.) (1989). Research Issues In Risk Assessment For Child Protection, Denver: American Humane Association.
- Schwandt, T. A., (1994), In Denzin, N. K., Lincoln, Y. S., (1994). Handbook of Qualitative Research, London: Sage Publications. pp. 130-133.
- Shannon, L. W., (1985). Risk Assessment vs Real Prediction: The Prediction Problem and Public Trust. Journal of Quantitative Criminology, Vol. 1, No. 2, pp. 159-189.
- Sheets, D., Kern, H., Baumann, D., (1994). Texas WISDOM: A Three-Year Research Project to Build Effective CPS Decision-Making Instruments. In Tatara, T. (ed.), Seventh National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association, pp. 103-111.
- Sigurdson, E., Reid, G., Onysko, R., Rodgers, J., Prefontaine, J., (1987). External Review Into Matters Relating To The System Of Dealing With Child Abuse In Winnipeg. Winnipeg: The Government of Manitoba.
- Sigurdson, E., & Reid, G., (1990). The Manitoba Child Abuse And Neglect Scales. Winnipeg: Government of Manitoba.

- Sigurdson, E., & Reid, G., (1991). The Manitoba Child Abuse/Neglect Scale. In Tatara, T. (ed.), (1991). Fourth National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association, pp. 277-289.
- Slovic, P., (1987). Perception of Risk. Science, Vol. 236, pp. 280-285.
- Smelser, N. J. (ed.), (1989). Handbook of Sociology, Newbury Park: Sage Publications.
- Sprent, P. (1988). Taking Risks: The Science of Uncertainty. London: Penguin Books.
- Starr, R. H. (ed.) (1982), Child Abuse Prediction, Cambridge: Ballinger Publishing Company.
- Starr, R. H. A research-Based Approach To The Prediction Of Child Abuse. In Starr, R. H. (ed.) (1982), Child Abuse Prediction, Cambridge: Ballinger Publishing Company, pp. 105-134.
- Steadman, H. J., Morrissey, J. P., (1981). The Statistical Prediction of Violent Behavior: Measuring the Costs of a Public Protectionist Versus a Civil Libertarian Model. Law and Human Behavior, Vol. 5, No. 4, pp. 263-274.
- Swift, K., (1995). Manufacturing 'Bad Mothers': A Critical Perspective on Child Neglect. Toronto: University of Toronto Press.
- Tabachnick, B. G., Fidell, L. S., (1989). Using Multivariate Statistics: Second Edition. New York: Harper Collins Publishers.
- Tatara, T. (1987). An Overview of Current Practices in CPS Risk Assessment and Family Systems Assessment in Public Child Welfare. In Tatara, T. (ed.), (1987). National Roundtable on CPS Risk

- Assessment And Family Systems Assessment: Summary Of Highlights.  
Washington: American Public Welfare Association, pp. 415-459.
- Tatara, T. (ed.), (1987). National Roundtable on CPS Risk Assessment And Family Systems Assessment: Summary Of Highlights.  
Washington: American Public Welfare Association.
- Tatara, T. (ed.), (1988). Validation Research In CPS Risk Assessment: Three Recent Studies, Washington, DC: American Public Welfare Association.
- Tatara, T. (ed.), (1988). Risk Assessment In Child Protection: A Review of the Literature, Washington, DC: American Public Welfare Association.
- Tatara, T. (ed.), (1988). Second National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association.
- Tatara, T. (ed.), (1990). Third National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association.
- Tatara, T. (ed.), (1991). Fourth National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association.
- Tatara, T. (ed.), (1992). Fifth National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association.
- Tatara, T. (ed.), (1993). Sixth National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association.



- Tatara, T. (ed.), (1994). Seventh National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association.
- Tatara, T. (ed.), (1995). Eighth National Roundtable On CPS Risk Assessment: Summary Of Highlights, Washington, DC: American Public Welfare Association.
- Turner, J. H., (1991). The Structure Of Sociological Theory, Belmont: Wadsworth Publishing Company.
- Tzeng, O. C. S., Jackson, J. W., Karlson, H. C., (1991). Theories Of Child Abuse And Neglect: Differential Perspectives, Summaries, and Evaluations. New York: Praeger Publishers.
- Vondra, J. I., (1990). Social and Ecological Factors. In Ammerman, R. T., Hersen, M., (1990). Children At Risk: An Evaluation of Factors Contributing To Child Abuse And Neglect. New York: Plenum Press, pp. 149-170.
- Wald, M. S. & Woolverton, M. (1990). Risk Assessment: The Emperor's New Clothes? Child Welfare Vol. LXIX, No. 6, p. 484.
- Wallace, W. L., (1988). Towards a Disciplinary Matrix in Sociology. In Smelser, N. J. (ed.), Handbook of Sociology, Newbury Park: Sage Publications, p. 25.
- Waterhouse, L., Carnie, J., (1992). Assessing Child Protection Risk. British Journal of Social Work, Vol. 22, pp. 47-60.
- Wells, S. J., (1994). Child Protective Services: Research for the Future. Child Welfare, Vol. LXXIII, No. 5, pp. 431-447.

Wilson, R., & Crouch, E. A. C. (1987). Risk Assessment and Comparisons: An Introduction. Science, Vol. 236, pp. 267-270.

Zuravin, S. J., Orme, J. G., Hegar, R. L., (1994). Predicting severity of child abuse injury with ordinal probit regression. Social Work Research, Vol. 8, No. 3, pp. 131-137.

**APPENDIX A**

**THE MANITOBA RISK ESTIMATION SYSTEM**

*Sigurdson, Reid & Associates Ltd.*  
*72 Niagara St.*  
*Winnipeg, Manitoba*  
*R3N 0T9*

(204) 489-1941

**CHILD ABUSE AND NEGLECT  
THE MANITOBA RISK ESTIMATION SYSTEM ©**

**REFERENCE MANUAL**

**ERIC SIGURDSON**

**GRANT REID**

**Version 3.5**

**CAUTION**

**THIS DECISION-MAKING SYSTEM HAS NOT BEEN EMPIRICALLY TESTED**

**AND SHOULD BE USED ONLY AS A SUPPLEMENT TO**

**THE VALIDATED SYSTEMS WHICH ARE CURRENTLY IN USE.**

**FORM**  
**CHILD ABUSE AND NEGLECT**  
**MANITOBA RISK ESTIMATION SYSTEM ©**  
**(Version 3.5)**

DATE: \_\_\_\_\_ 19 \_\_\_\_\_ FILE NUMBER: \_\_\_\_\_

<u>NAME(S) OF CHILD(REN):</u>	<u>GENDER</u>	<u>AGE</u>
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

<u>NAME(S) OF ADULT(S):</u>	<u>GENDER</u>	<u>AGE</u>
A. _____	_____	_____
<u>Relationship:</u> _____		
B. _____	_____	_____
<u>Relationship:</u> _____		

**OTHER RELEVANT PARTICIPANTS:**

i. _____	_____	_____
<u>Relationship:</u> _____		
ii. _____	_____	_____
<u>Relationship:</u> _____		

**CASE TYPE**

PHYSICAL ABUSE \_\_\_\_\_ SEXUAL ABUSE \_\_\_\_\_ NEGLECT \_\_\_\_\_

EMOTIONAL ABUSE \_\_\_\_\_

**FAMILY TYPE** \_\_\_\_\_

**A. VULNERABILITY**

- (1). Access By Perpetrator: VL M VH ?
- (2). Child Able To Protect Self: VL M VH ?
- (3). Adequate Protector Present: VL M VH ?

**A. The Vulnerability rating is:**

**VERY LOW**

**MEDIUM**

**VERY HIGH**

**I. ATTRIBUTES OF THE CURRENT INCIDENT**

- (4). Actual/Potential Severity of Injury: NA VL L M H VH ?
- (5). >1 Abuse/Neglect Type: NA M VH ?
- I. Contribution to Risk: NA VL L M H VH ?

**Adult A**

**Adult B**

**Name:** \_\_\_\_\_

**II. ABUSE/NEGLECT PATTERN**

- (4). Severity (Current Incident): NA VL L M H VH ? NA VL L MHVH ?
- (6). Severity (Prior Incidents): NA VL L M H VH ? NA VL L MHVH ?
- (7). Recency (Prior Incidents): NA VL L M H VH ? NA VL L MHVH ?
- (8). Frequency (Lifetime): NA VL L M H VH ? NA VL L MHVH ?
- (9). Severity (Trend): NA D C I ? NA D C I ?
- (10). Frequency (Trend): NA D C I ? NA D C I ?
- II. Contribution To Risk: NA VL L M H VH ? NA VL L MHVH ?

**III. UNDERSTANDING OF THE CHILD**

- (11). Perception of the Incident: NA P VL L M H VH ? NA P VL L MHVH ?  
 (12). Perception of the Child: P VL L M H VH ? P VL L MHVH ?  
 (13). Attachment: P VL L M H VH ? P VL L MHVH ?  
 (14). Attitude Re: Discipline: P VL L M H VH ? P VL L MHVH ?  
 (15). Parenting Knowledge & Skills: PVL L M H VH ? P VL L MHVH ?

**III. Contribution To Risk:** NA P VL L M H VH ? NA P VL L MHVH ?

**IV. PERSONAL CHARACTERISTICS**

- (16). Age: NA M VH ? NA M VH ?  
 (17). Substance Abuse: NA VL L M H VH ? NA VL L M H VH ?  
 (18). Psychopathology/Incapac'y: NA VL L M H VH ? NA VL L M H VH ?  
 (19). History of Violence: NA VL L M H VH ? NA VL L M H VH ?  
 (20). Stress: NA VL L M H VH ? NA VL L M H VH ?

**IV. Contribution To Risk:** NA VL L M H VH ? NA VL L MHVH ?

**V. FAMILY INTERACTION**

- (21). Conflict/Support: NA P VL L M H VH ?  
 (22). Reinforcement: NA P VL L M H VH ?  
 (23). Siblings: NA P VL L M H VH ?

**V. Contribution to Risk:** NA P VL L M H VH ?

**VI. RELATIONSHIP TO THE COMMUNITY**

- (24). Reference Group Values: NA P VL L M H VH ? NA P VL L MHVH ?  
 (25). Social Isolation: P VL L M H VH ? P VL L MHVH ?

**VI. Contribution To Risk:** NA P VL L M H VH ? NA P VL L MHVH ?

**SUMMARY**

**(A). VULNERABILITY ESTIMATE**

**VERY LOW                                      MEDIUM                                      VERY HIGH**

**(B). REOCCURRENCE ESTIMATE**

(I). ATTRIBUTES OF THE CURRENT INCIDENT:		N.A.	VL	L	M	HVH	?	
(II). ABUSE/NEGLECT PATTERN	(A):	N.A.	VL	L	M	HVH	?	
	(B):	N.A.	VL	L	M	HVH	?	
(III). UNDERSTANDING OF THE CHILD	(A):	N.A.	P	VL	L	M	HVH	?
	(B):	N.A.	P	VL	L	M	HVH	?
(IV). PERSONAL CHARACTERISTICS	(A):	N.A.	VL	L	M	HVH	?	
	(B):	N.A.	VL	L	M	HVH	?	
(V). FAMILY INTERACTION:		N.A.	P	VL	L	M	HVH	?
(VI). RELATIONSHIP TO THE COMMUNITY	(A):	N.A.	P	VL	L	M	HVH	?
	(B):	N.A.	P	VL	L	M	HVH	?

(B). The risk of the future occurrence of an incident of abuse or neglect is:

**VERY LOW      LOW      MEDIUM      HIGH      VERY HIGH      ?**

**(C). SEVERITY ESTIMATE**

(4). CURRENT INCIDENT (SEVERITY):	N.A.	VL	L	M	HVH	?
(9). TREND (SEVERITY) (A):	N.A.	Decreasing		Constant	Increasing	?
(9). TREND (SEVERITY) (B):	N.A.	Decreasing		Constant	Increasing	?
(B). RISK OF REOCCURRENCE RATING:		VL	L	M	HVH	?

(C). The probable severity of a future occurrence of an incident of abuse or neglect is:

**VERY LOW      LOW      MEDIUM      HIGH      VERY HIGH      ?**

**CONCLUSION & EXPLANATION:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Worker: \_\_\_\_\_ Date: \_\_\_\_\_ 19\_\_

Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_ 19\_\_



## INTRODUCTION

The development of social work practice during the last decade has included an increased concentration on research directed to the problems associated with risk estimation in the context of child protection work. This work has been encouraged and supported by the *American Public Welfare Association* and the *American Humane Association*. The annual conferences which they have sponsored have fulfilled a critical role in the evolution of our understanding of these problems.

In recent years in the United States there have been a multiplicity of tools created to assist child protection staff in formulating decisions concerning the risk levels of their cases. However, there has been comparatively little research activity regarding this topic in Canada. Our own work in this area has been supported by the Government of Manitoba, the Government of Saskatchewan, the Winnipeg Foundation, the Children's Aid Society of Ottawa-Carleton and the University of Manitoba and has resulted in the creation of this decision-making system.

Our approach to these problems has been to blend theory with the experience of senior practitioners in the field. While the theoretical work has been informed by practical knowledge there is a need to empirically test this system as soon as is feasible. In order to do so practitioners must be trained in the use of the system. In addition, the critical response of experienced practitioners to this material is a form of evaluation and we expect that the risk estimation system will improve markedly through the process of eliciting opinions during the training sessions.

The following material is intended to provide the knowledge that is essential to the application of this system. It is not an exhaustive exploration of the material, but rather the absolute minimum amount of information that is required for reference purposes by a practitioner who has been trained in the use of the system. This manual includes sections concerning both practical and theoretical content. We hope that the workers will be encouraged to create their own criticisms and analyses and not be content with merely applying the existing system to their cases. The accumulation of knowledge is a gradual process and we are hopeful that this work can be an effective means of collaboration between practitioners, managers and academics.

### HOW TO USE THE RISK ESTIMATION SYSTEM

The purposes of this system are:

- (a) To estimate the vulnerability of a child.
- (b) To estimate the likelihood that abuse or neglect will reoccur. And
- (c) To estimate the probable severity of a potential incident.

These purposes are accomplished by systematically collecting data, by organizing this data through the use of a series of scales, and by creating aggregate scores for differing elements of the case. The results of these analyses are then brought together on a summary page in order to facilitate analyses of vulnerability, risk and potential severity.

Each scale represents a major concept with respect to understanding the child and their family and it is critical that the user consider each scale separately from the others. There is a tendency to attempt to understand all aspects of a case simultaneously and, as most case material is very complex, the result is an inevitable lack of clarity. If one pursues a single question at a time and then compares the result of this analysis with the results of other scales with which it is grouped, the resulting understanding will be much improved. In addition, it is possible for different persons to understand the same case in the same manner. If we proceed from the premise that vulnerability, risk of reoccurrence and potential severity levels are actual with respect to any particular family; then, a valid and reliable risk estimate system will produce the same answer when it is used by different, appropriately trained persons.

There are a number of principles that should be kept in mind throughout the process of considering a case:

- - Risk estimation is most accurate after there has been substantiation of abuse or neglect. Thus, the primary issue is the reabuse or continued neglect of a child.
  - Individual items should be scored based upon what we know with reasonable certainty. The desired certainty will vary in differing stages of the investigation.
- It is preferable that an item be scored as unknown rather than scored inaccurately.
- Information may be collected directly or through a collateral source such as the police, medical data or teachers. If you are using a collateral source it assumes that you are certain that their report is accurate.
- - The purpose of this work is to estimate the three components of risk, not to make a moral judgment.

• This tool should not supersede the judgment of the staff who are using it. It is intended to provide assistance in understanding a case and to facilitate the supervisory process. The results of this analysis will not unilaterally determine any decisions with respect to a particular case.

When using the system each concept is considered individually and a rating is assigned which represents the potential contribution of this factor to the risk level for the overall situation. After all scales have been completed one may then create aggregate scores for separate sections. The overall rating for the case is then determined based upon the predominant patterns which are apparent.

If information is inapplicable to the case in question it should be marked 'N.A.' ('not applicable'). If the information is unknown this should be indicated by marking '?'. It is conceivable that too little information is available to make a reliable decision, if this is so the fact-finding should be completed before the decision is taken. In addition, as new information becomes available the overall pattern that is shown by the system may change and consequently alter the risk estimation.

What follows is a recommended series of steps in the use of this system:

1. Read this manual and become familiar with the 3 major concepts: vulnerability, probability of reoccurrence, and potential severity.
2. Participate in a workshop with a worker skilled in the application of the system.
3. Practice applying this method to actual cases.
4. Refer to the full text for the explanation of the scale items. (The original report that this system is based upon is available).
5. Enter basic identifying data.
6. To score a case, determine if there is any missing information. If so, mark these as '?'.  
7. If an item is not relevant to the particular case that you are scoring mark this as 'N.A.'.
8. Score individual items as described in the material concerning that scale. The symbols are:

Protective: 'P'

Very Low: 'VL'

Low: 'L'

Medium: 'M'

High: 'H'

Very High: 'VH'

9. Mark the composite score for each topic, based upon the scores of individual items. (e.g. The topic 'Abuse/Neglect Pattern' has 6 component scales.) The overall rating is determined by your interpretation of this material. There are some patterns that are obvious such as all of the items being in one zone, such as 'medium' or 'very high'.

The contribution to risk scale has the following potential values:

PROTECTIVE ?	VERY LOW	LOW	MEDIUM	HIGH	VERY HIGH
DECREASING	CONSTANT		INCREASING		

10. Transfer the score on each individual item to the summary sheet.
11. Mark the overall scores for vulnerability, reoccurrence and probable severity, based upon your analysis of this material.
12. Sign and date the form after reviewing it with your supervisor.

This system is intended to be used primarily in situations where abuse or neglect has been substantiated. However, it can be used with voluntary clients and in other situations that do not conform to the original presumptions by marking items such as 'Actual/Potential Severity of (Current) Injury' as 'NA'. One would also expect that this method of analysis would also provide useful information as a part of your ongoing work with cases. For instance case planning may direct services towards the reduction of identified factors which contribute to a 'high risk' rating. If an intervention is successful, one would expect that it would result in a lowering of risk.

### THE PROBLEM OF PREDICTION

The prime function of a method of prediction is to improve the degree of certainty associated with a particular decision. It is also essential that the user be able to communicate the essence of this decision and the rational basis which underlies a particular course of action. Prediction decisions can be understood as falling into one of three categories:

1. The outcome is a consequence of an understood natural law. This is the case when the application of heat to water results in the water boiling.
2. The outcome is a consequence of the laws associated with randomness. The theory of probability and its applications to games theory are common illustrations of this notion.
3. The outcome is a consequence of forces which are inadequately identified or understood and may include one or more of the following: combinations of the above categories; a

complex set of variables, some of which may be unknown; a problematic relationship between objective indicators and the entities that they purport to measure. Prediction within child protection work is typical of this category of problem.

Risk occurs when the outcome of a particular course of action is uncertain. As a consequence of risk being present there is a need to identify the probable consequences of differing decisions and the choice of an appropriate course of action is, in part, dependent on one's perception of the certainty of particular outcomes. For example, if someone is certain that an airliner will crash they won't go on board, however, we are generally willing to fly in the knowledge that there is some degree of danger.

### THE PREDICTION OF CHILD ABUSE AND NEGLECT

Risk estimation entails the formulation of an opinion concerning a future state (the neglect or abuse of a child) based upon the facts which are accessible with respect to a current, substantiated instance of child abuse or neglect. Child protection work requires that risk estimation be done and that action be taken with respect to the protection of the child, whether or not the available methods of predicting child abuse and neglect are satisfactory.

Child protection workers are confronted with obstacles which arise from an extremely difficult theoretical problem and their work is further complicated by the substantial practical difficulties which are particular to this type of work. Thus there is great difficulty in evaluating data which can be used as indicators of predictors. This fundamental predicament is exacerbated by inadequate numbers of staff and a relative paucity of other resources so that, characteristically, there is little time to pursue alternate sources of data. It follows that any tool must be compact, based upon accessible data, logically consistent with other features of the workplace and perceived as useful by the workers.

The theoretical and practical problems associated with risk estimation provide formidable barriers to the creation of a viable system. The situation is further complicated by a pervasive paradox which insists that prediction is impossible while continuing to demand that workers make accurate predictions in the interests of protecting children. The Canadian news media are replete with stories which emphasize the horrors that have been inflicted upon children as a consequence of returning them to their homes inappropriately or as a consequence of taking children into care when they should have remained with their parents. Stories of this sort are generally premised upon the assumption that any reasonable person would have known the correct decision to make in these circumstances. These *ex*

*post facto* judgments are facile and ignore the genuine absence of practice knowledge in this area.

Decision-making within child welfare practice can be conveniently divided into five general categories: substantiation, risk estimation, clinical assessment, intervention, and case management. Risk estimation is carried out after it has been substantiated that abuse or neglect has occurred, or on the request of a voluntary client for assistance. Data which emerges from the process of substantiation is relevant to risk estimation and the data used for risk estimation will also be relevant to clinical assessment and case management decisions. The stronger the explicit connections between these procedures the greater the efficiency of the overall system.

In its most simple form, a risk estimation system must provide the following:

1. A method for determining the vulnerability of a child.
2. A continuum of probabilities concerning future instances of abuse or neglect which are based upon precise factors.
3. A means of identifying particular problem types and placing them within the continuum of probabilities.
4. A means of estimating the probable severity of any future instance of abuse or neglect.

A final observation is that there is a substantial methodological problem involved here in that, as the alleged perpetrator's rights with respect to their children are at stake as well as the potential of criminal prosecution, there is every reason to expect that people who abuse or neglect their children will systematically lie and conceal their behavior so as to improve their position. It follows that any practical prediction device must be premised on data which can be objectively understood without undue reliance on the uncorroborated reports of possible perpetrators.

The essential points which underlay this decision-making system are:

1. Once a person has been a perpetrator of an incident of abuse or neglect there is an increased probability that this behavior will reoccur when compared to the probability of this behavior occurring prior to the individual becoming a perpetrator.
2. The greater the severity, frequency, or recency of abuse or neglect the greater the risk of reoccurrence.
3. The risk of reoccurrence is increased by the degree to which the functioning of the perpetrator and their partner is impaired by substance abuse or personal dysfunction.

4. If a partner is active or complicit with reference to abuse or neglect the possibility of reoccurrence is enhanced. Conversely, a partner who actively opposes the abuse can lower the risk.
5. People who are violent in any context are more likely to behave in a violent manner with their children than someone who never uses violence as a means of coping with difficulties.
6. If parents perceive children as objects, or merely as extensions of themselves, there will be a higher probability of the reoccurrence of abuse or neglect than if the children are understood to be intrinsically valuable.
7. The high degree of vulnerability of the child and a high probability of reoccurrence interact so as to increase the probability of further abuse or neglect.
8. The greater the level of dysfunction within the family, the greater the probability of further abuse or neglect.
9. The higher the level of stress experienced by the family, the greater the probability of further abuse or neglect.
10. The greater the isolation from the community, the greater the probability of further abuse or neglect.
11. The greater the support from the perpetrator's community for abusive or neglectful behavior, the greater the probability of further abuse or neglect.
12. The younger the child the greater the risk of life-threatening consequences of the abuse or neglect.

We have developed this system to be used within a framework of administrative procedures that ensure the safety of the client. This is a tool that is intended to provide a structure for conceptualizing the problems that the family are experiencing. It is not a substitute for effective casework.

## EXPLANATION OF THE SCALES

### VULNERABILITY

One of the principle factors which determines risk is the extent to which the child is vulnerable to further harm. The idea of vulnerability has three distinct components: a) the ability of the child to act to protect itself, b) the degree of access to the child that is available to the perpetrator, c) and the willingness and capacity of an adult to intervene in the situation and act to protect the child.

a) A young child is acutely vulnerable to both abuse and neglect. If the caregivers do not act to meet the child's needs continually, the child can be injured in a very short period of time. By way of example, the infant is especially susceptible to illness affecting fluid balance. The consequences of vomiting or diarrhea appear much more rapidly with an infant than with a teenager. Prompt recognition and treatment of these conditions is essential to a child's well-being to avoid the dangers of shock and coma that dehydration causes. Fluid loss and the resulting danger of dehydration may occur quite rapidly in infants.<sup>1</sup> The problems of insufficient intake of food and consequent malnutrition are well known as the 'failure to thrive syndrome'. This process is more gradual than dehydration but it can result in profound injury to growing children. Almost all reported instances of fatal maltreatment by starvation have been in infants, reflecting their inability to acquire food for themselves. Commonly dehydration and malnutrition occur together, compounding the risk for the child.

If the caregivers do not provide regular meals to a teenager, they have the ability to care for themselves and little or no physical damage should occur. There is thus a continuum of physical vulnerability to neglect which varies from a high level of vulnerability for an infant to a considerably lower level of vulnerability for a teenager.

The question of the child's susceptibility to abuse is closely related to that of their susceptibility to neglect. An infant's vulnerability is absolute while a somewhat older child, of nine or ten years of age, may be able to act so as to protect him or herself by running away and a teenager may be able to respond to the physical threat by physical means. There is, under normal conditions, a direct relationship between the age of a child and their ability to protect themselves.

Risk can also be increased for an older child if the child's functioning is impaired by a physical, intellectual or emotional disability. If the child's disability is so severe that they require continual care from an adult in order for them to survive, their vulnerability is similar to that of an infant. Intellectual disabilities, such as mental retardation, and emotional problems can have similar consequences to physical disabilities for the child. It is vital to understand that the child's physical capacity for self-protection must be accompanied by a willingness to act to protect themselves.

b) If the perpetrator has access to the child in an abuse situation there is greater risk to the child than if they are denied the ability to be near the child. For example, one possible response in a situation where abuse has occurred is to remove the perpetrator from the home and leave the child in the home with the other caregiver. This is generally preferable

---

<sup>1</sup> Vaughn, V. C.; McKay, R. J.; Nelson, W. E.; (eds); *Textbook of Pediatrics*, Toronto: W. B. Saunders Co., 1975, p. 250.



to removing the child and placing them in a foster home as the child will perceive being removed from the home as punitive. If they have done nothing wrong, why are they the one to be sent away? However, it is essential to ensure that the perpetrator cannot re-enter the home after the authorities have left. The risk will be changed proportionately when comparing situations where a perpetrator is in police custody; where a perpetrator is removed from the home to another residence; or where a perpetrator continues to reside in the same residence as the child.

c) In some situations, where one partner is highly submissive to the other, it is probable that the submissive person will not be able to act to protect the child. Indeed, in some cases an adult will blame the child for the problem. It is quite common in instances of sexual abuse involving teenage girls for the mother to understand the primary cause as being the daughter's seductive behavior. In families such as these one would not expect that the presence of the mother would lower the probability of future abuse. The presence of a non-offending adult in the home does not necessarily result in a low vulnerability rating. This person **must** be both willing and able to intervene to protect the child.

There may also be another adult present, such as a grandparent, who is able to protect the child. In the same manner as with a parent, another adult's effect upon the child's vulnerability should be assessed with respect to three criteria:

1. Is the protector more or less continually in the child's presence when the child is not supervised by another adult, such as when they are in school or at a day care centre?
2. Is the protector physically, emotionally and intellectually competent to act in the child's interests?
3. Is the protector willing to act in the child's interests?

ATTRIBUTES OF THE CURRENT INCIDENTACTUAL/POTENTIAL SEVERITY OF THE INJURY

The prototypical, potentially fatal forms of child abuse define the extreme of the continuum. The following list includes examples of physical abuse, neglect, and sexual abuse.

I. Physical Trauma

- |                            |   |
|----------------------------|---|
| A. Blunt trauma (beating): | B. Firearm injuries.  |
| 1. Multiple episodes.      |   |
| 2. Single Episode          |   |
| C. Stabbing and cutting.   | D. Burning.   |
| E. Asphyxia.               | F. Miscellaneous (electricity, explosives, fall from height). |

II. Chemical

- |               |                                      |
|---------------|--------------------------------------|
| G. Poisoning. | H. Force feeding noxious substances. |
|---------------|--------------------------------------|

III. Neglect

- |   |  |
|---|--|
| I. Starvation (malnutrition).                   | J. Exposure to dangerous environment.          |
| K. Failure to provide medical care when needed. | L. Exacerbation of natural disease by neglect. |

IV. M. Munchausen Syndrome by Proxy <sup>2</sup>

(Purposeful poisoning of a child with medication).

Careful examination and consideration of the mechanism of injury will give information as to the object that caused the injury, the approximate age of the injury, and the force needed to cause the damage. No part of the body is spared from potential injury. As death is most commonly due to head injuries any bruising or fracture about the head and neck is very serious.

As intra-abdominal injuries rank second as the cause of death in battered children it is important to be particularly aware of this kind of injury. Most of these are caused by a kick or punch that ruptures the organ against the vertebral column.

---

<sup>2</sup> Zumwalt, R.; Hirsch, C.; "Pathology of Fatal Child Abuse and Neglect" in *The Battered Child: 4th Edition*, Chicago: University of Chicago Press, 1987, p. 248.

The presence of external agents as part of the mechanism of injury considerably adds to the seriousness of the event. Kinds of external agents include: sticks, belts, firearms, knives, fire, hot water, cloth for asphyxia, electricity, poisons, and adult medication.

The indicators of sexual abuse differ from those of physical abuse. Domeena Renshaw groups the presentation of sexual abuse cases in the following three categories. These distinctions reflect the differing types of evidence present and indicates that caution must be exercised in interpreting the presentation stories.

**Crisis Cases:** Usually seen in a family physician's or pediatrician's office, or in hospital emergency rooms. "Hard Signs" of anal, penile, vaginal/oral or body bruises, lacerations, venereal infections or pregnancy are sought and documented; pornographic materials depicting the child; confessions by the child exploiter.

**Incidental Cases:** May surface during the course of an apparently unrelated psychiatric evaluation.

**Special Search Cases:** Frequently come forward after a media campaign or school sex abuse education campaigns. Special care will be required with these to sort out histories of the volunteers for truth. Attention seeking reports occur, as well as those of a suggestible child or parent. Also, some are mistaken, and others are calculated, malicious false charges that exploit the powerful child sexual abuse laws.<sup>3</sup>

The general principles that have been described regarding abuse apply equally to the matter of neglect. Abuse is an act of commission, something that is actively done to the child; neglect is an act of omission, something that is forgotten or omitted by the caregiver. In both instances a child's well being is potentially in jeopardy.

There are some general characteristics of neglecting parents. Helfer describes seven ways in which neglectful parents may present to themselves to Social Service or Health Workers. These are:

1. Overt mental retardation.
2. Psychiatric illness.
3. Physical illness.
4. Ecological problems (poverty).
5. Development problems (parents neglected when they were children).

---

<sup>3</sup> Renshaw, D.; "Evaluating Suspected Cases of Child Sexual Abuse," *Psychiatric Annals*; Vol. 17, No. 4, 1987, p. 263.

## 6. Substance abuse.

7. Fanatical beliefs.<sup>4</sup>

There is a potential for serious consequences if the child is left alone with neglectful parents. In spite of these separate but interrelated problems, neglecting parents often very sincerely want to be successful parents.

Neglect is not less serious than abuse. When a child is severely neglected he or she may sustain temporary or permanent injury of a physical or emotional nature. Generally the younger the child the more vulnerable the child. The relatively common occurrence of children dying in house fires when they have been left unattended attests to the potential seriousness of neglect.

A parent's withholding of medical care may have long lasting effects in the younger child. By way of example, a young child's untreated ear infection may result in permanent hearing loss in the same way striking a child's head may cause hearing damage. These examples of the impact of neglect point out how abuse and neglect may have similar net effects.

The manifestations of child neglect are variable. Commonly one finds delayed development and delayed growth in addition to malnutrition. Neglected children have frequent acute illnesses and many have chronic illnesses. Attendance at clinics for these problems is often irregular.

Young children who are neglected may show failure over time to grow to normal standards for height, weight, and developmental milestones. As older children they may fall far behind in expected accomplishments at school. They may exhibit behavioral problems and continue to fall behind as their parents fail to respond to concerns of teachers, public health nurses, physicians, and social workers.

In summary, neglect is an act of omission that impairs a child's chances to develop normally and reach his or her potential and, in the extreme case, may result in life threatening situations.

#### MORE THAN ONE ABUSE/NEGLECT TYPE

The 'types' are physical abuse, emotional abuse, sexual abuse and neglect.

The inclusion of this question is premised on the presumption that one would expect that a family which is involved with multiple forms of abuse and neglect would experience

---

<sup>4</sup> Helfer, R.; "The Litany of the Smoldering Neglect of Children," Helfer, R.; Kempe, R.; *The Battered Child*, Chicago: The University of Chicago Press, 1987, p. 302.

greater difficulties in attempting to resolve their problems than a family where a single form of abuse is present with a single child being victimized. While it is possible to imagine exceptions, such as the situation where there is systematic torture of a single child, this question remains a useful indicator of the seriousness of the pathology which is present.

### ABUSE/NEGLECT PATTERN

#### PRIOR INCIDENTS: SEVERITY - FREQUENCY - RECENCY

An individual's past behavior is one of the most significant factors to be considered when attempting to predict their future behavior. If a person has acted in a particular manner before it seems reasonable on the face of the matter to conclude that they will be more likely to perform this behavior in the future than someone who has never performed this act. This opinion is so much a part of the common consciousness that we take it for granted when we describe someone to another person. If we are asked "what someone is like" we will describe a series of their opinions and our understanding of their habitual behavior patterns. With respect to both common language and psychological theory we presume that there is a certain 'inertia' to personality patterns that will tend to maintain the patterns unless significant events intervene.

It follows from this presumption that, if someone has established a pattern of abusive or neglectful behavior they will tend to continue in this pattern unless a powerful force acts so as to alter their behavior. The involvement of an individual with a single act of abuse or neglect may, in itself, be sufficiently traumatic as to alter the behavior. In this instance the individual perceives the consequences of their behavior, and the pain of this experience may be all that is required for them to alter their behavior with regard to their children.

If, however, the experience of the child's pain and the additional disruption caused by the intervention of child protection workers does not result in a distinct change in behavior within this family one may conclude that a persistent pattern of behavior has been formed. The stress experienced by the family as a consequence of the intervention may itself increase the probability that future abuse or neglect will occur.

While there are innumerable ways to understand these issues there is considerable conceptual clarity to be derived from assessing prior patterns based upon four fundamental questions: How severe was the abuse or neglect? How often has abuse or neglect occurred? How much time has passed since the last occurrence of abuse or neglect? Is there any discernible trend evident? The summation of one's understanding of these questions can

make a considerable contribution to the prediction of the probability of the behavior persisting.

The severity of the past instances of abuse or neglect should be assessed by the same criteria as the current instance. If there are more than a single occurrence of abuse or neglect in the past, the score appropriate to the most severe instance should be applied to this scale item. This procedure is based upon the idea that if someone has been involved with a severe instance of abuse or neglect in the past, and they have not been able to extinguish the behavior entirely, there is a real and current possibility that their behavior will revert to the higher level of actual damage in the case of abuse and actual or potential damage in the case of neglect.

The second criterion, that of frequency, consists in the observation that the more something occurs the more likely it is to continue occurring. The core of this conclusion is that the greater the degree of consistency of the family's behaviour the higher the probability that the behavior will be perpetuated. In some cases one might observe regular cycles of abuse or neglect reoccurring every six months over a period of several years. In this instance it would seem reasonable that, failing a major change in the family, this pattern will recur in the future. It would also seem reasonable to expect that an increase in frequency will tend to be associated with higher risk for future abuse or neglect and that a decrease in frequency may indicate a decrease in risk. In brief, the more often abusive or neglectful behavior has occurred the more likely it is to occur in the future.

The measurements of the severity and frequency of prior incidents use the individual's lifetime as the relevant time period. However, further information can be gathered by comparing the pattern of recent events to the pattern of events more distant in time. For example, if a family is experiencing a gradual process of deterioration this may be expressed by an increase over time in the severity of incidents of abuse or neglect and/or incidents may become more frequent as time progresses. It seems reasonable that the trend concerning severity may differ from that concerning frequency and, consequently, they must be examined separately.

There are three prototypical patterns which may occur:

1. The severity or frequency of incidents of abuse or neglect may increase over time.
2. The severity or frequency of incidents of abuse or neglect may remain constant (stable) over time.
3. The severity or frequency of incidents of abuse or neglect may decrease over time.

The last issue to be considered here is the recency of the occurrence. If the last incident happened two weeks ago this situation is probably at greater risk than if the last incident occurred ten years ago. The points in time used in this scale of 6 months, 2 years and five years are not meant to represent a detailed scientific procedure but rather to provide a crude measure of the decreased significance of an element of behavior as it recedes in time. Current instances of abuse or neglect are considered to be of considerable importance and their significance decreases through time to the point when, after five years, they are scored as not making any contribution to the assessed risk as defined by this particular sub-scale.

## UNDERSTANDING OF THE CHILD

### PERCEPTION OF THE INCIDENT

When considering the matter of an episode of child abuse it is of considerable value to find out what perception the perpetrator has of the incident. The perpetrator's description of the incident will provide considerable understanding of the degree of risk that is present and by offering their perception of the incident the offender is providing an understanding of him or herself.

There are a number of practical expressions of the perpetrator's misperception of the event. This is often noticed by a child protection worker when comparing the parent's explanations with the workers own observations. Parents who have seriously hurt their children sometimes show characteristic behaviour in their description of the event. These parent's may:

- Show no open remorse or guilt about the child's injury.
- Tend to be more concerned about what will happen to themselves than the child.
- Show little or no concern about the injury itself, the treatment, prognosis, or after-care.

Role confusion is common, with the mother delegating her responsibilities to the daughter. The father may assume the nurturing role but he provides this in a sexual context. The incestuous sexual relationship might be the only source of intimacy and affectionate contact for the child.

Boundaries are not respected in the incestuous family. There is little regard for one's personal space, privacy, and belongings. There is often a lack of modesty concerning toileting and also poor limit setting. Denial is a prominent defense mechanism used by all

the family members. The father may rationalize the incest by regarding it as sexual education for his daughter. The mother is unable to recognize the molestation because this would jeopardize the relationship with her husband. The child fails to perceive the true nature of her behaviour through a numbing denial and constriction of affect. Expressing her outrage would threaten the shaky equilibrium of the family.

A misperception that is commonly held by sexual abusers is that the child is a suitable object for their libidinous drives. They may also hold that the child desires this relationship or that this relationship supports and sustains the family. It is common for the adults to insist that they have a right to treat the child in the manner that they have been treated and, ultimately, that it is for the good of the child.

There is value in placing the higher risk on the instance where the parent fails to recognize their own contributions to the problem. What seems to be critical to this process is the degree of denial of responsibility for the incident(s) when it is clear that some responsibility should be taken.

As a cautionary note, it is important to remember that there are instances where a parent might properly fail to recognize their contribution to the problem. An example of this would be a child with repeated, unexplained fractures, who was later found to have osteogenesis imperfecta, a congenital bone fragility.

#### PERCEPTION OF THE CHILD

Perception is a complex event involving at least the four steps: reception, registration, processing, and feedback. Perception can be impaired by a number of factors and the consequence is a misperception, whereby what is usually normal, or expected in a family or society is altered. This process of misperception of a child by a child abuse perpetrator can be due to prior life experiences of the perpetrator, values of the social group the perpetrator belongs to, the emotional or intellectual state of the adult, and the contextual or situational stresses that affect the perpetrator.

In a cogently written overview of sexual abuse of children, Summit and Kryso direct the reader's attention to the different kinds of this type of abuse. They examine a progression of categories that represent an ascendancy of apparent individual and social harmfulness. At one end of the spectrum are behaviors that most would identify as variations of normal behavior. At the other extreme are the more bizarre and apparently



malicious aspects that most would agree are clearly criminal and demanding of aggressive intervention.<sup>5</sup>

The categories which were created by Summit and Kryso are useful as concepts to organize one's thinking about how the child is viewed. They are briefly described in the following material:

1. **Incidental Sexual Contact:**

This involves parents' attempts to cope indirectly with erotic interests or dependency needs toward their children. The response is controlled and self limiting, often without much understanding of the erotic or dependent basis for the behavior.

2. **Ideological Sexual Contact:**

Certain parents may encourage specifically sexual activity in the belief that sexual expression is beneficial for the child.

3. **Psychotic Intrusion:**

The adult has a psychotic level of confusion and personal sexual impulse which may be projected to children.

4. **Rustic Environment:**

Isolated or migrant families may seem to accept or naturalize the practice of extrasibling and intergenerational incest.

5. **True Endogamous Incest:**

Endogamous (within marriage) incest develops as an outgrowth of role disturbances within the family. The father is responsible for the choice to eroticize the relationship with the daughter.

6. **Misogynous Incest:**

A variation of endogamous dynamics in which fear and hatred of women are predominant. Wife beating, rape, and physical abuse of children may be seen.

---

<sup>5</sup> Summit, R.; Kryso, J.; "Sexual Abuse of Children: A Clinical Spectrum," *American Journal of Orthopsychiatry*, 48(2), April, 1978, pp. 237-251.

7. Imperious Incest:

These men set themselves up as emperors in their household domain. They are a caricature of the male chauvinist, demanding servitude.

8. Pedophilic Incest:

These people have erotic fascination with children. These adults seek children who are more innocent and less threatening.

9. Child Rape:

The child rapist, confusing masculinity with power can feel sexually adequate only by frightening and overpowering his victim.

10. Perverse (Pornographic) Incest:

These cases are bizarre, frankly erotic, manipulative, and destructive. Rituals are used to fulfill fantasies that are limitless. The child is exploited as an accessory of the adult.

Summit and Kryso argue that there is a spectrum of danger for the child as he or she is perceived by the adult. It is not always possible to know how the child is viewed by the adult in the crisis situation but that information is important and should be determined once the crisis has abated, in the process of assessing the risk.

... Recent studies have approached the issue of child perception through improved methodology. Abusers reported more annoyance and lack of sympathy to a crying infant and more negative expectations and more external and stiff attributions of their child when apparently misbehaved ... The available findings regarding parental perceptions and expectations suggest that an abuser's perceptual and cognitive style with a child may be a learned pattern that serves to perpetuate conflict and disharmony.<sup>6</sup>

A useful comment on the matter of the perpetrator's perception of the child is that provided by Reid *et al.*, in 1989. They studied the behavior of children of 21 child abusive and 21 non-abusive matched comparison families compared using lone observations performed by professional independent observers and parental report measures. The data is consistent with earlier reports that parents in child abusive families tend to overestimate the

---

<sup>6</sup> Wolfe, D. A.; "Child-Abusive Parents: An Empirical Review and Analysis," *Psychological Bulletin*, Vol. 97 (3), May, 1988, pp. 462-482.

level of conduct-disordered and aversive behavior emitted by their children compared to independent observations in laboratory settings and with findings that abusive parents are more aroused by videotaped scenes of stressful child behavior.<sup>7</sup>

### ATTACHMENT

Attachment refers to the emotional tone between the developing child and the caregiver. Attachment to a specific stable figure is crucial to healthy development. Attachment occurs when there is a warm, intimate, and continuous relationship with a care giver in which both find satisfaction and enjoyment. Multiple attachments may occur. Attachment is a gradually developing process which occurs with continuing contact between the adult and the child. It results in the child wanting to be with a preferred person who is perceived as stronger, wiser, and soothing. Attachment has a reciprocal quality in that the infant and parent attach to one another.

There is considerable protective quality when the child and caregiver have a strong degree of attachment. The parent values the child for him or herself, while the child grows in confidence and self esteem from a protective relationship with a trusting and protective adult. When attachment is weak the child is left unprotected by the adult, either emotionally or physically. The child is susceptible to fear and anxiety. When completely lacking, the child is openly devalued and rejected, and may be severely neglected or abused.

### ATTITUDE REGARDING DISCIPLINE

Discipline is defined as the application of verbal or physical means to change a person's behavior.

Physical punishment that bruises, cuts, breaks bone, or scars is regarded as abusive and is consequently illegal when done to a child. Spanking would appear to be in a grey zone between permitted discipline and illegal treatment. As expressed by Dobson:

I do not believe that spanking is an efficient and valuable tool in child discipline. I do not agree that if only more parents spanked their children, our children would be better

---

<sup>7</sup> Reid, J. B.; Kavanagh, K.; Baldwin, D.; "Abusive Parents' Perceptions of Child Problem Behaviors: An Example of Parental Bias," *Journal of Abnormal Child Psychology*, Vol. 15, No. 3, 1987, pp 457-466.

behaved. But neither do I believe that it is a terrible sin against the cosmos for a parent to spank a child occasionally.<sup>8</sup>

It is widely accepted that by permitting spanking one raises the threshold for further violence. This increases the likelihood of more severe injury occurring.

Discipline can be a mirror of how we were parented. Unless we alter these practices we will tend to replicate our parents' patterns in our own behavior. Ideally discipline leads to the voluntary acceptance by the child of the need to inhibit and change some aspects of behavior. In this view parents are obliged to exert some degree of control over the child in order to ensure that the child is protected and, as the child internalizes these patterns, the parental control is reduced to allow for self-control by the child.

It is important to take the age of the child into account, and how the parent understands what is reasonable to expect from a child at his or her particular age. The teaching of discipline is quite different for a 2 year old than it is for an 8 year old, or a 16 year old. Discipline is a continuous process. Parents, through their feelings and actions, teach their children desirable behavior, undesirable behavior, or a combination of both every day. Abusive parents often do not hold this concept of discipline as a developmental process. They are more likely to see discipline as punishment for "wrong deeds" and they may also have age inappropriate expectations of how a child should behave. An inherent belief that physical force will be the only way of correcting behavior is also commonly present.

### PARENTING KNOWLEDGE AND SKILLS

It is self evident that parents who do not have sufficient knowledge of how to be a parent will be susceptible to injuring their children. For example, certain parents may encourage specific sexual activity in the belief that increased sexual expression is beneficial. Also, some isolated families may seem to accept as natural the practice of intrasibling and intergenerational incest.

In some cases of neglect, the parents may be making a sincere effort to care for the child adequately but they are ignorant of what behaviour on their part is appropriate. If the parent is unable or unwilling to learn what is entailed in proper child care the potential for injury or death of the child is high.

---

<sup>8</sup> Dodson, F.; *How to Discipline with Love*, Montreal: McClland and Stewart Ltd., 1978, p. 48.

The following appears to express the key principle involved in assessing the question of the adequacy of parental knowledge and skills concerning their children: The less a parent knows of the normal development and needs of a child, physically, emotionally, socially, behaviorally or sexually, the higher the risk of abuse or neglect. A frequently observed example of this is the matter of parents whose expectations of the child are far beyond the child's chronological years. The child is expected to satisfy many of the unmet emotional needs of the parents. When no gratification is received the parents may respond with frustration and anger. It is observed with reference to sexual abuse that offenders often lack knowledge of the need for age appropriate privacy and security in sexual development.

## PERSONAL CHARACTERISTICS

### AGE

There is virtual unanimity among the practitioners which we have interviewed that very young parents should be the subjects of particular attention with respect to child protection. The general opinion is that young parents may lack the maturity and judgment to be able to properly care for a child as they may not yet have learned how to care for themselves and, in addition, their ability to tolerate stress may well be lower than that of an older person. It follows that there would be an inverse correlation between personal maturity and the risk of child abuse or neglect, and that maturity in turn is positively correlated with age in the earlier years of life. There seems to be agreement that the period immediately after birth, which is characterized by the trauma of birth and the initial adjustment to parenting, is particularly problematic.

While the preponderance of young parents are caring and capable, we are looking at those situations where problems have already occurred. Immaturity, a preoccupation with one's own developmental problems, and a lack of experience with life would make parenting a particularly difficult matter and would reduce the person's ability to cope with the problems of raising a child. In consequence of this observation, where all other factors are equal, it seems probable that an eighteen year old parent would be somewhat more likely to abuse or neglect their child than a forty year old parent.

There is no score of zero which is permitted on this item. If both protectors are twenty-one years of age or more the score should be "not applicable". As there is no known linear relationship between age and risk, scoring cannot be meaningfully allocated in a proportional manner. If one were to score this scale item as zero for persons twenty-one

years of age and older, it would result in reducing their risk level simply on the basis of age. As a technical solution to this problem no score is assigned as this would indicate a reduction of risk with an increase of age beyond the age of twenty-one. Thus, youth is seen to increase risk, but age does not decrease risk.

### SUBSTANCE ABUSE

The stereotype of the alcohol addicted parents who are unable to care for their children is prominent in the public consciousness. We consider addiction to be important for the prediction of the reoccurrence of child abuse and neglect and it may occur as both a primary and a secondary cause. A useful view on the characteristics associated with sexual abuse came from the Sexual Abuse Treatment Program in Baltimore which found that alcohol abuse was the most common factor present among their clients. Seventy-one per cent, or thirty-four, of the forty-eight families included in this segment of their study were subject to alcohol abuse. In addition, thirty-one per cent (15) were involved with drug abuse.<sup>9</sup>

Substance abuse becomes a primary cause of child neglect when the functioning of one or both of the parents is sufficiently impaired that they are unable to adequately care for their children. There is a widely differing set of problems that occur in this context which range from occasional instances when parents are unable to attend to their children as a consequence of alcohol abuse to the chronic drug-seeking behavior of the heavily addicted person where virtually all concerns are subordinated to their need to acquire the appropriate substance.

It is common for parents in these situations to feel regret, to promise themselves that they will alter their behavior, and to demonstrate considerable affection for their children. However, it is clear that they will rarely be able to sustain the behavior that they desire as long as their addiction is active. A demonstrated period of freedom from substance abuse is the only acceptable evidence that they are able to achieve the change that they desire. We have selected a period of six months free of active substance abuse as an initial measure of progress on the part of the parent. A person who has sustained two years free of substance abuse could be considered to have reached the beginning of normalization of their lives. While these time periods are not, nor can they be, supported by clear research they conform to the common-sense opinions of those working in the field of substance abuse.

---

<sup>9</sup> Server, J. C.; Janzen, C.; "Contraindications to Reconstitution of Sexually Abusive Families," *Child Welfare*, Vol. LXI, No. 5, May, 1982, pp. 279-288.

If there is clear evidence that parents have used money, which was needed for food, shelter, clothing or any other item that is essential, on alcohol or other drug this should be considered seriously as evidence of their possible inability to care for the child. It would show that behavior had occurred that subordinated the welfare of the child to their need to secure the substance. A pattern of this sort would indicate that the parent's ability to act in the interests of the child was seriously impaired and the preeminence of the drug over the welfare of the child may be a chronic condition for this family.

The essential notion for this question is whether, when a serious problem has occurred with reference to child care, the parents are compelled to continue to seek out the drug to the detriment of the interests of their children. It is not an issue whether or not the parents are 'nice people' or whether they feel remorse. Indeed the remorse may initiate the need to secure the sedative effect of the drug as a means of lowering the amount of pain that the parent is feeling. The question is whether the behavior has occurred, whether it has been chronic and, if this is the case, it is likely that the pattern will persist indefinitely. When a person has become addicted and is actively using the drug, the compulsion of the addiction is extremely powerful and will habitually override the sincere wish of the addicted parent to care for their child. The continued use of the drug after a traumatic event, such as the intervention of child protection authorities in the family, is testimony to the strength of the force that drives the addiction.

Substance abuse operates as a secondary cause by lowering inhibition levels. This increases the probability that a particular abusive behavior will occur. By way of example, in a hypothetical situation involving the potential of sexual abuse consider the case where a father has a predisposition, for whatever reason, to sexually abuse his daughter. If he is able to resist the wish to act, he may be able to alter his feelings and remove the risk from the situation. Although there will be problems created for the daughter in this situation, the danger to her will be significantly less than if the incest were active. If, however, he is a chronic substance abuser it is considerably more likely that he will act upon the primary motivation as the substance abuse will lessen his inhibition. The essence of this argument is that, given a pre-existing motive towards child sexual abuse, the presence of substance abuse on the part of the potential abuser will increase the probability of active abuse by lessening the effectiveness of any inhibitions present within this individual. In a similar fashion, substance abuse contributes to increasing the probability that physical abuse will occur. If a parent is angry, or if they habitually use physical means of discipline, the presence of substance abuse will have the effect of lowering inhibitions that normally prevent the physical abuse from being damaging to the child. In the consequent incident there is a greater risk that the child will be injured than if substance abuse was not involved.

PSYCHOPATHOLOGY/INCAPACITY

Some of the most difficult decisions to be made by child protection workers involve the assessment of the capacity of a parent to care for a child when there is concern about the parent's mental health. This decision is difficult because there is limited information readily available on the linkage between the two phenomena.

Studies of family interaction have also indicated that abusers are proportionately more aversive and less prosocial than non abusers. As child abuse can be viewed as an interactive process involving both parental competence (the conscious and unconscious self) and situational demands, how the parent views himself or herself is clearly very important.

The matter of self-view in the context of child sexual abuse has been the subject of considerable interest but it has been difficult to study this group. This is because the majority of offenders (men) are never apprehended. If the offender is charged, he is unlikely to admit the molestation. Therefore, a good deal of information about these offenders is derived from their victims and other family members. The information which follows is relevant to the impaired perceptions of self, common among sexually abusing fathers or step fathers. Green described these characteristics in a recent publication.

The sexually abusing father typically maintains his dominant position in the family through violence or threats. These men have controlling and intimidating characteristics and they frequently resort to physical abuse to maintain their power over the family. Paranoid personality traits are often associated with their wishes for domination and control.

Some offenders are socially isolated. The incestuous father is unable to establish gratifying social relationships outside the family. The incestuous relationship provides these men with a certain degree of sexual and emotional fulfillment which is otherwise unavailable, and may ensure the intactness of the family. These adults usually manifest a personality disorder.

Generally the matter of psychopathology is considered to be very important but not easily accounted for when considering the matter of risk. An example would be that of a parent suffering from a major mental illness, such as depression or schizophrenia. A key question pertains to whether the parent is psychotic, namely unable to assess, react, and relate to reality as it is generally understood. If there is no evidence of psychosis then it is not possible to say with assurance that the child is at risk of being re-abused or neglected. This general principle of whether or not the caregiver is psychotic has an important caveat.



Sex offenders of children will more often than not show no obvious psychopathology or incapacity.

It has been commonly thought that a specific deficit, incapacity, or psychopathology describes abusers. This is true only to the extent that there are common themes in abusers lives. Brandt reflects on this issue in writing:

We do not mean to imply by this that the child abuse syndrome is a mental illness in the usual sense of that term, nor can it be easily subsumed under any of the commonly accepted psychiatric nosological entities. Some care takers who abuse children may show characteristic symptoms of schizophrenia or depression or any of the various kinds of neuroses and character disorders. These occur with approximately the same frequency as they do in the general population, and the abuse is not necessarily a part of such psychic states.<sup>10</sup>

Impulsivity is an important consideration as a predictor of risk. Parents who have a history of impulsive behavior are more likely to abuse their children than parents who experience other problems. This inability to control one's behavior, particularly under stressful conditions greatly increases the likelihood that a parent's reaction to a child will be excessive.

In consideration of these observations it would follow that highly disturbed or psychotic caregivers are at high risk of reabusing children. It is much more difficult to specify the risk of reabuse to children with non-psychotic adults. Certain personality problems are more commonly associated with these issues, including impulsivity, hostility, being withdrawn, depression and paranoid qualities. None of these personality characteristics are, in themselves, sufficient to cause an adult to abuse the child.

The matter of the incapacity of the offender or spouse refers to limitations of care and protection of children that are due to the mental incapacity or retardation of the parent. This has been considered by Helfer in discussing how overt retardation pertains to parenting. He writes that:

Those who are overtly retarded may not remember to feed their babies, recall how much or when a child was fed ... some do not have the intellectual capacity to deal with the

---

<sup>10</sup> Stelle, B.; "Psychodynamic Factors in Child Abuse" in Heifer, R.; Kempe, R.; *The Battered Child: (4th Edition)*, Chicago: University of Chicago Press, 1987, pp. 81-114.

day-to-day demands of parenting ... These retarded parents and their babies have to fend for themselves. Few communities have considered the consequence of this outcome. <sup>11</sup>

The consensus on this topic would seem to be that the capacity for care, protection and provision for the needs of the child would provide a measure of how the mental retardation affects the safety of the child.

In summary, the offending parent or partner may have personal characteristics that vastly increase the degree of risk of abuse or neglect. Parents who abuse children are much more likely to have an impaired or impoverished sense of self. Their unmet needs and ongoing conflicts may be reenacted in the care they give their children. Physical harm or sexual injuries are much more likely to occur with these characterological problems. It is widely observed that psychotic or highly disturbed parents are more likely to harm their children. Lastly, parents who are mentally retarded are at greater risk of neglecting factors that are essential to good child care. It is important to note that sometimes a parent may be unfortunate enough to have limitations due to coexisting impairment of self-view, psychopathology, and mental retardation. These parents are at great risk of being unable to care for and protect their children to a standard that we would hope that all children would receive.

### HISTORY OF VIOLENCE

Many programs to prevent child abuse are built on the understanding that violence is a fundamental behavior that leads to abuse. For the purposes of this report violence is defined as:

“willful physical harm inflicted by a person or group on itself or on another person or group. Violence represents the extreme role of the aggression spectrum of behavior, characterized by an explosive, sudden quality and the use of force to injure or destroy an object, a person, or an organization”. <sup>12</sup>

Violence is detrimental to the growth of children and also the adults who perpetrate it. The violent relationship limits the ability of the adults to meet the needs of their children and

---

<sup>11</sup> Helfer, R.; “The Litany Of the Smoldering Neglect of Children” in Helfer, R.; Kempe, R.; *The Battered Child (4th. Edition)*, Chicago: University of Chicago Press, 1987, p. 302.

<sup>12</sup> Campbell, R.; *Psychiatric Dictionary*, New York: Oxford University Press, 1981, p. 682.

the effect of violence is to impair children's mastery of the developmental tasks necessary for later establishing their own well functioning families.

In the context of a violent family the abuse of children is more frequent and more lethal.

One study shows that physical child abuse is 2.4 to 14 times more likely to be found in those who show behaviors such as walking out on a spouse or partner, hitting or throwing things at a spouse or partner, child neglect, adult fights and weapon fights than in those who do not show these behaviors. The point is made that child abusing parents are involved in other violent or aggressive assaultive behaviour more frequently than the general population.<sup>13</sup>

In one study that looked at sexually assaultive juveniles and compared them with non sexually assaultive males, Lewis, et al found that sexually assaultive children had been behaving in a variety of violent antisocial ways since early childhood. Violence in general, rather than specifically sexual aggression characterized their childhood. All the assaulters had histories of threatening family, friends, and teachers throughout childhood and were continuously in fights with peers and adults. In short, their behaviors throughout childhood and adolescence closely resembled the histories of violent non sexually assaultive boys. There were no outstanding differences between the two groups when comparing psychiatric, neurological, psychological, and educational factors. Parental physical abuse (both parents considered separately) was equally prevalent in sexual assaulters and violent juveniles, and both groups of juveniles had similar rates of witnessing extreme violence.

In summary there is agreement that risk increases as force, assault, and violence are evident in the history of the perpetrator and are accepted by the partner as part of the relationship. Evidence of violence which has been performed by the partner will naturally raise the probability of violence reoccurring within the family. Violence may be used to control behavior and express emotions, and some parents tend to normalize or legitimize their use of it. This use of force or violence is an important dynamic in physical abuse and also applies to instances of sexual abuse. This is premised upon the presumption that a person who has demonstrated a capacity for violence may also be prepared to extend this violence to sexual assault upon a child.

---

<sup>13</sup> Bland, R.; Orn, H.; "Family Violence and Psychiatric Disorder," *Canadian Journal of Psychiatry*, Vol. 31, March 1986, pp. 129-137.

STRESS

CHILD ABUSE is one measure of a diminished ability to cope with stress. Abusing families have been found not only to be under high stress but to have characteristics that make it more likely for them to respond to pressure with violence rather than more adaptive behavior. <sup>14</sup>

Stress is treated as a significant variable in the understanding of child abuse by virtually all authors concerned with this phenomenon. The article quoted from above identified three distinct conceptions of stress that have been utilized in this context. Psychodynamic theory understands stress to be a precipitating event acting upon a personality which is predisposed to abusive behavior by its particular psychological characteristics. Psychosocial theory arrives at an effectively equivalent conclusion by treating stress as an external event which has a precipitating effect on a person's life, that life being understood as a consequence of both social and psychological factors. Psychosomatic medicine views stress as any situation that requires adaptive behavior on the part of an individual and it is not seen to be significant whether the subjective response to the stimulus is pleasure or pain. <sup>15</sup>

In a recent work concerning the measurement of stress, Turner and Avison posited a highly useful distinction between discrete stressful events and chronic stressful conditions. They also made the critical observation that most persons do not respond to stress by experiencing inordinate amounts of distress. <sup>16</sup> With particular reference to child abuse, Justice *et al.* wrote that:

On the basis of an extensive review of the research from 1972 to 1982, Friedrich and Wheller conclude that stress is probably not a necessary or sufficient cause for abuse - many families experience high levels of stress and do not abuse. <sup>17</sup>

Their interpretation of the literature is consistent with that presented by Turner and Avison and emphasizes that stress must be understood with reference to all aspects of a

---

<sup>14</sup> Justice, B.; Calvert, A.; Justice, R.; "Factors Mediating Child Abuse As A Response To Stress," *Child Abuse & Neglect*, 9, 1985, p. 359.

<sup>15</sup> *Ibid.*, p. 360.

<sup>16</sup> Turner, R. J.; Avison, W. R.; *Sources of Attenuation in the Stress - Distress Relationship: An Evaluation of Modest Innovations In The Application of Event Checklists*, Ottawa: Government of Canada, National Health Research and Development Program, 1989, pp. 1-2.

<sup>17</sup> Justice, *et al.*; *op. cit.*, p. 360.

person's life and in the context of their particular personality, perceptions and intentions. Stress is an organizing concept for a set of factors influencing a person's life which act as disruptive forces upon this person's behavior and, in particular, upon their attitudes and actions concerning their children. The stressors are understood to be external to the person and to be mediated by the particular personality and consciousness of this person.

In addition it seems reasonable to proceed from the working hypothesis that these forces are cumulative. The greater the number of stressors and the greater their individual impacts, the greater the total stress placed upon the individual. It is particularly relevant for our purposes and consistent with common opinion that there is evidence that people are considerably more likely to display dangerous behavior if they are subject to high stress. The preponderance of opinion seems to indicate that we should consider the following as most significant when attempting to assess the likelihood of further child abuse or continuing neglect:

1. Child abuse and/or neglect can occur without a high level of stress being present.
2. Child abuse and/or neglect will not inevitably occur when there are high levels of stress present.
3. The degree of stress that someone experiences is proportional to the magnitude of the stressful event or condition; and is, to a high degree, idiosyncratic.
4. A chronic stressful condition can generate very high levels of stress in the person who experiences this condition.
5. A multiplicity of stressors have an additive effect.

Thus any measure that attempts to relate stress to child abuse and neglect will need to consider how stressful the event or condition was for the particular person in question; whether it continues to exert an influence upon them and, if so, how long it has been active. It will need to account for the major factors that are active in the subjects' lives; and also be interpreted in a context that relates the stressors to other important parts of their personalities and lives. A reciprocal system results when a consequence of stress, such as child abuse, becomes a stressor and in turn increases the amount of difficulty experienced by the person and the family system. While this is a somewhat mechanistic view of the process it can produce a useful perspective on the problems and provides a means of estimating stress which is adequate for our purposes.

Some common individual stressors are as follows: inadequate income; pregnancy; recent birth; criminal charges present, and/or incarceration immanent; death in family; recent immigration; and eviction. The unifying principle underlying these questions is that stress

is the subjectively experienced disruption which results from major changes in the conditions of the lives of individuals or families. Such change is generally, although not inevitably, perceived as negative. If homeostasis, however precarious, existed within the prior family system the disruption will require a compensatory series of adjustments by the participants so as to create a new balance. If they fail to establish this balance one would expect that there would be an increase in child abuse and neglect, as well as dysfunctional responses in other areas. If the condition of the family was chaotic prior to the current disruption the responses would be correspondingly magnified.

It is critical to note when interpreting this material that the particular response of families to a particular stressor will not be uniform but will be mediated by their coping abilities and their unique histories. Different families respond in different manners to equivalent amounts of stress. Thus we do not have the comparatively simple solution of attributing a particular value to a particular stressor. We must also account for the interpretation and value that is placed upon the stressor by the family. By way of example, different families at equivalent levels of income may perceive a birth in greatly differing manners. One family may view the child as a solution to the problems that they have been experiencing and another may see the child as adding to the difficulties to a point where the burden is insurmountable. The perceptions brought by the family are as real and significant as the objective measurement of the stressor.

## FAMILY INTERACTION

### CONFLICT/SUPPORT

Most studies on conflict focus on the divisive nature of spousal conflict and how this antagonism leads to distant unsupportive adults, one of whom may become the abusing parent. Davis and Graybill studied physically abusive families and found that these families were less supportive of one another, less free to express their wants and desires, and less likely to have a common positive basis for family interaction than were non-abusive families. They found that individuals in abusive families were more independent, more likely to express anger and aggression, more rigid in their rule-making and in structuring family activities, and more likely to be arranged in a hierarchical manner than non-abusive families.

A study of parents with children in care, found that parenting breakdown was due to the current overlap of multiple personal and material adversities.

The spousal relationship affects the ability of parents to protect the child. Abusive families are characterized by a more hierarchical relationship where decisions are not shared, where force or conflict maintains the relationship, and where there is an open expression of antagonism. The current view on the characteristics of spousal conflict and lack of mutual support as it pertains to family functioning are that a favorable spousal relationship includes those that are stable, supportive, and capable of dealing with inevitable crises and conflicts. Problematic relationships that lack much prospect for the successful resolution of crises and conflicts, thereby leaving little common basis for positive family interaction.

#### REINFORCEMENT

In his speculation about the origins and intergenerational transmission of abuse Ney makes the important point that by not intervening, by tactically applauding, by enticing a certain event, and by watching the event with covert pleasure, observers may prompt or encourage violence. The critical role of the observer is often overlooked. The observer could be a rescuer but often isn't. In the analysis and treatment of family abuse problems it is the very passivity and denial of the observer that makes things difficult. One aspect of this view of family violence is that it provides an understanding of some of the common issues in physical abuse and sexual abuse. For abuse to occur there is usually another adult such as the spouse or common law partner who behave in such a manner as to provide a permissive atmosphere for violence and inappropriate sexuality.

The characteristics of passivity, dependency, and masochism have often been cited in the description of the wives of incestuous fathers. These women are often married to tyrannical and domineering men who behave sadistically toward them. Their powerlessness and dependency prevent these women from challenging the pathological behavior of their spouses. They are willing to look the other way in order to save their marriage.<sup>18</sup>

The essential concern here is whether the adult partners support each other, explicitly or implicitly, in the abuse or neglectful behaviour. If they do reinforce each other's negative behaviour, to what extent is this an integral part of their relationship.

---

<sup>18</sup> Green, A.; "Overview of the Literature on Child Sexual Abuse" in Schetky, D., Green, A.; *Child Sexual Abuse - A Handbook for Health Care and Legal Professionals*, New York: Brunner/Mazel Publishers, 1988, pp. 30-51.

It is important to note that if abuse has occurred, and the offending adult remains in the house, that the reinforcement level may be very high as the spouse has already failed to protect the child.

### SIBLINGS

While it is noteworthy that a larger family size may be a factor in predicting child abuse, it is widely recognized that all siblings may not be abused, as one child can be singled out for physical or sexual abuse. This child may be the object of maltreatment for reasons that, in good measure, are expressions of the perceived uniqueness and problematic nature of the child. Examples of the special child is one who may have been an 'unwanted pregnancy', a child with a chronic illness or disability, or a child who is 'difficult'.

It is reasonable to assume that familiar difficulties will manifest themselves in a variety of manners and that 'acting out' behaviour on the part of siblings may be an indication of problems within the family. Many of the existing child abuse and neglect scales implicitly treat this question, the displacement of the symptomatic behaviour away from its causes, as a fundamental principle. Consequently, issues such as delinquency and poor performance at school on the part of siblings may very likely be indicators of a problematic family situation. A clear indicator of higher risk with respect to siblings is the finding of sibling incest or assault.

With respect to confirmed physical abuse, larger families are associated with 10-20% occurrence of simultaneous abuse of siblings. It is not clear how that is related to the specific number of children. It is evident that if siblings are exhibiting behaviour problems they may reflect the degree of dysfunction experienced by the family. This will be associated with an increased probability of abuse and neglect.

### RELATIONSHIP TO THE COMMUNITY

#### REFERENCE GROUP VALUES

The term 'reference group values' refers to the notion that some people who are predisposed to child abuse or neglect will find reinforcement for these attitudes within particular sub-cultures and within the dominant culture itself. The degree to which this support is perceived to be present by such individuals is an important indicator of the degree to which these persons are likely to persist in a pattern of abuse or neglect. If they



consider their behavior appropriate according to the standards of some relevant social group they will tend to feel that their actions are 'normal' and consequently justified.

R. K. Merton in his work, *Social Theory and Social Structure*, developed the idea of reference groups. These consist of identifiable groups that are used by people as points of reference for gauging their own attitudes, values and actions and as a source for these attitudes, values and actions. <sup>19</sup> Merton identified two prototypes for reference groups:

...the first is the "normative type" which sets and maintains standards for the individual and the second is the 'comparison' type which provides a frame of comparison relative to which the individual evaluates himself and others. The first is a source of values assimilated by designated individuals (who may or may not be members of the group),... The second is instead a context for evaluating the relative position of oneself and others, as in the cases cited by DuBois, Roper and Wilks of the social meaning of economic status as relative to the economic structure of the envioning community. The two types are only analytically distinct, since the same reference group can of course serve both functions. <sup>20</sup>

If individuals feel they are acting within the approved norms of their culture they will tend to perpetuate their behavior. For example, if the permitted maximum level of child discipline allows for only verbal censure, individuals will regularly exceed the permitted level and subject a child to some degree of physical punishment. If a culture permits some physical punishment, roughly the same number of individuals will regularly exceed the permitted level and inflict physical harm upon a child. Most people who feel that physical punishment of a child is appropriate will not abuse a child, however, the more severe the permitted level of punishment within a society, the higher the level of damage that will be inflicted upon the children within that society by people who exceed the standards. Conversely, the lower the level of violence that a reference group sanctions, the lower the probable rates of physical abuse of children.

### SOCIAL ISOLATION

Durkheim introduced the term anomie to describe those situations where the social processes had failed and individuals were left in a state of isolation. This was seen as

---

<sup>19</sup> Merton, R. K.; *Social Theory and Social Structure*, Toronto: Collier-Macmillan, 1964.

<sup>20</sup> *Ibid.*, pp. 283 - 284.

pathological as individuals who were not integrated into their social structure became problematic both for themselves and for their society.<sup>21</sup>

The pervasive sense of futility and purposelessness that characterizes anomie is evident in many child welfare clients. People's identities become unstable when they are forced back upon their own resources and separated from their fellow citizens, either physically or psychologically. In this situation destructive behavior such as child abuse and neglect will be more common than where people are better integrated into their societies. Only the strongest human beings are able to live stable lives without viable social contact.

It is evident that we would expect that many people who are socially isolated will exhibit behavior which is in violation of our child rearing norms. In some cases this will be manifested as child abuse and neglect. It follows that information concerning the amount and significance of the contact that they have available to them with formal social institutions, family and friends will be useful indicators of their predispositions towards continued abuse or neglect of their children.

In addition to its anomic effects, social isolation is also a cause of considerable practical difficulty, particularly with regard to parenting. Many serious problems with children occur which could have been avoided if the parent had access to an experienced parent for advice. Enforced continual contact between a young mother and her children, when she does not have access to anyone who can assume care of the children while she has some time to herself, can place a nearly unsupportable burden upon the mother. The destructive effects of the practical problems associated with social isolation should not be underestimated.

The categories of social support that are referred to have an intrinsic hierarchy as follows: family, friends, neighbors, community organizations and community services. The major issues are not concerned with the supportive person's particular relationship to the family but whether they genuinely care, whether they are accessible and whether they contribute to appropriate child care within the family.

---

<sup>21</sup> Durkheim, E.; *The Division of Labor In Society*, New York: Macmillan Publishing Co., 1933.

## BRIEF SCALE DESCRIPTIONS

<b><u>NOT APPLICABLE</u></b>	<b><u>PROTECTIVE</u></b>	<b><u>VERY LOW</u></b>	<b><u>MEDIUM</u></b>	<b><u>VERY HIGH</u></b>
<b>Severity of the Current Incident &amp; A Prior Incident</b>				
<b>Physical Abuse:</b> No confirmed instance of abuse or neglect.		Mild bruising of a child (no lasting marks), such as: Spanking a Child to the point where mild bruising occurs, or Pulling a child's hair to cause pain, but the hair is not pulled out of the head.	Significant injury, but does not threaten life, such as: Strapping a child and causing welts.	Intentionally breaking a limb, or Burning a child with a cigarette.
<b>Sexual Abuse:</b> No confirmed instance of abuse or neglect.		A child is encouraged to watch pornography with adults, or A step-father engages in aggressive sexual joking with a teenaged step-daughter.	A single instance of sexual touching.	Anal, oral or vaginal intercourse.
<b>Neglect:</b> No confirmed instance of abuse or neglect.		A twelve year old child is often inadequately fed.	Small children are briefly left unattended in a car on a warm day, or A 10 year old child is regularly absent from school and does not receive regular medical care.	Parent denies medical care to a child in a life-threatening situation, or Small children are left unattended, overnight, in their home.
<b>Adult's Perception of the Incident:</b> No current incident.	The adult recognizes the situation as harmful and seeks to prevent its reoccurrence.	There is a partial understanding of what has happened and why it has happened, or there is some acceptance of parental responsibilities in the incident.	There is a significant problem with the adult's perception of the child. There is only marginal acceptance of the parent's responsibilities.	Situational stresses are blamed for the abuse, or The adult is self-centered in describing the incident, or The parent denies that the substantiated event occurred.
<b>Adult's Perception of the Child:</b>	Child is understood to be valuable and perceived in an age appropriate manner.	Generally the child is seen as valuable but some age inappropriate expectations.	Inappropriate expectations of child, or child objectified to some degree.	Child blamed for problem, or child is expected to meet parent's needs.

<b>Attachment:</b>	There is a continuous, supportive relationship between adult and child which both find satisfying.	The emotional tone is positive but sometimes is overwhelmed as a consequence of other factors.	The emotional tone between parent and child is ambivalent.	Very poor relationship between parent and child. The parent may overtly reject the child.
<b>Attitude re: Discipline:</b>	Little reliance on physical means of discipline. Discipline is intended to help the child to grow.	Methods other than force are generally used to change behaviour but moderate use of force is felt to be justified as a means of discipline.	Physical force is regularly used. Parents believe that children must be controlled and will benefit from punishment.	Extreme physical force or rigid orders are used to control children. Use of force justified through such arguments as it was used on them when they were children. Force is used to express the adult's rage.
<b>Parenting Knowledge &amp; Skill:</b>	The parent understands the child's basic requirements for physical, emotional, and sexual development.	The adult has adequate understanding of immediate developmental needs.	The adult has some understanding of the child's needs but it is insufficient to regularly meet the basic needs of the child.	The adult's knowledge and/or skills with respect to the needs of children is clearly inadequate.
<b>Substance Abuse:</b>	No addictive behaviour.	Some substance abuse on the part of this person is evident in this situation; or, Severe substance abuse has been present in the past but has not been a part of their behaviour for at least the last two years.	Substance abuse on the part of this person is evident in this situation to the extent that it on occasion presents a significant impediment to their functioning; or Severe substance abuse has been present in the past but has not been a part of their behaviour for at least the last six months.	Severe, chronic substance abuse is a part of the normal functioning of this individual. Episodes of substance abuse within the last six months.

<b>Psychopathology/ Incapacity:</b>	Adult exhibits personality characteristics within the normal range.	The individual demonstrates on-going mild personality disturbances. There may be moderate limitations present due to emotional or intellectual problems.	The adult experiences evident psychiatric difficulties on an episodic basis, or they have limited capacity to act as a caregiver for a child and function as a caregiver only under ideal conditions.	The individual is psychotic or grossly out of touch with what is generally regarded as reality, or, Has been assessed as currently being very severely impaired by psychopathology, or Severe intellectual limitations may be present.
<b>History of Violence:</b>	No history of assaultive behaviour.	There is little history of assaultive behaviour. The subject rarely uses force or verbal threat of force to control family members.	There is occasional assaultive behaviour which is defended by the adult as acceptable under some circumstances.	The subject has learned to use violence to control other's behaviour. Clear evidence of habitual assaultive behaviour.
<b>Stress:</b>	No significant stress is evident.	Some degree of disruption is evident in the functioning of this individual in response to a single disruptive event which has occurred recently; or A chronic condition of some severity; or A combination of conditions and/or recent events which have a significant aggregate effect.	A single factor, or a set of factors, are seriously disrupting the individual's ability to function.	This person is experiencing considerable disruption and is unable to function. The source of stress can be a single, highly disruptive event which has occurred recently; or A chronic condition of considerable severity; or A combination of conditions and/or recent events which have resulted in an aggregate effect which is severe.

<p><b>Reference Group Values:</b></p> <p>No significant Reference Group.</p>	<p>The reference group values <i>oppose</i> child abuse and neglect; the individual <i>accepts</i> these values, <i>perceives</i> the abusive or neglectful behaviour present in this case to be in <i>violation</i> of these values, and is very <i>bothered</i> by this, or The reference group values <i>promote</i> child abuse and neglect; the individual <i>opposes</i> these values, <i>perceives</i> the abusive or neglectful behaviour present in this case to be <i>congruent</i> with these values, and is very <i>bothered</i> by this.</p>	<p>The reference group values <i>oppose</i> child abuse and neglect; the individual <i>accepts</i> these values, <i>perceives</i> the abusive or neglectful behaviour present in this case to be in <i>violation</i> of these values, and is somewhat <i>bothered</i> by this, or The reference group values <i>promote</i> child abuse and neglect; the individual <i>opposes</i> these values, <i>perceives</i> the abusive or neglectful behaviour present in this case to be <i>congruent</i> with these values, and is somewhat <i>bothered</i> by this.</p>	<p>The reference group values <i>oppose</i> child abuse and neglect; the individual <i>accepts</i> these values at a minimal level, <i>perceives</i> the abusive or neglectful behaviour present in this case to be in <i>violation</i> of these values, and is <i>not particularly bothered</i> by this, or The reference group values <i>promote</i> child abuse and neglect; the individual <i>accepts</i> these values at a minimal level, <i>perceives</i> the abusive or neglectful behaviour present in this case to be <i>congruent</i> with these values, and experiences some <i>support</i> because of this.</p>	<p>The reference group values <i>oppose</i> child abuse and neglect; the individual <i>rejects</i> these values, <i>perceives</i> the abusive or neglectful behaviour present in this case to be in <i>violation</i> of these values, and is <i>not bothered</i> by this, or The reference group values <i>promote</i> child abuse and neglect; the individual <i>accepts</i> these values, <i>perceives</i> the abusive or neglectful behaviour present in this case to be <i>congruent</i> with these values, and experiences considerable <i>support</i> because of this.</p>
<p><b>Social Isolation:</b></p>	<p>Adult has meaningful and supportive contact with many friends and family.</p>	<p>Individual has some contact with other people and receives help occasionally. Support available and some ability to participate in community organizations and to make use of the services which are available.</p>	<p>Definite disconnection from the community. Few relationships of any sort and none that are satisfactory or that will provide consistent support.</p>	<p>No viable relationships with family, friends or and no significant participation in community.</p>

**APPENDIX B**

**TABLES OF MISSING DATA**

**VARIABLES CATEGORIZED BY MALTREATMENT TYPE**

**VARIABLES CATEGORIZED BY SEVERITY OF THE CURRENT  
MALTREATMENT INCIDENT**

## MISSING DATA

The values for the Adult are computed for all family types.

VARIABLE	<u>NEGLECT</u>		<u>PHYSICAL ABUSE</u>	
	<u>N</u> <u>Missing</u>	<u>%</u> <u>Missing</u>	<u>N</u> <u>Missing</u>	<u>%</u> <u>Missing</u>
Neglect Data Set N = 426		Physical Abuse Data Set N = 420		
<u>General Information</u>				
Maltreatment Type	0	0%	0	0%
Location	0	0%	2	.5%
Gender of Child	11	2.6%	1	.2%
Age of Child	5	1.2%	4	1%
Family Type	0	0%	0	0%
Severity of Injury (Current)	0	0%	0	0%
>1 Maltreatment Type	8	1.9%	7	1.7%



ADULT

Age	168	39.4%	199	47.4%
Relationship to Child	2	.5%	4	1.0%
Gender	0	0%	4	1.0%
Severity of Injury (Current)	0	0%	0	0%
Severity of Injury (Prior)	85	20.0%	95	22.6%
Perception of Incident	48	11.3%	87	20.7%
Perception of Child	76	17.8%	85	20.2%
Attachment	153	36.6%	154	36.7%
Attitude Re: Discipline	281	66.0%	199	47.4%
Parenting Knowledge & Skills	74	17.4%	72	17.1%
Substance Abuse	107	24.1%	84	20.0%
Psychopathology- Incapacity	66	15.5%	48	11.4%
History of Violence	140	32.9%	85	20.2%
Stress	118	27.7%	93	22.1%
Reference Group Values	214	50.2%	218	51.9%
Social Isolation	129	30.3%	148	35.2%

VARIABLE	<u>SEXUAL ABUSE</u>		<u>TOTAL DATA SET</u>	
	N	%	N	%
	<u>Missing</u>	<u>Missing</u>	<u>Missing</u>	<u>Missing</u>

Sexual Abuse Data Set N = 109

Total Data Set N = 955

General Information

Maltreatment Type	0	0%	0	0%
Location	1	.9%	3	.3%
Gender of Child	4	3.7%	22	5.2%
Age of Child	1	.9%	10	1.0%
Family Type	0	0%	0	0%
Severity of Injury (Current)	0	0%	0	0%
>1 Maltreatment Type	2	1.9%	17	1.8%

ADULT

Age	68	62.4%	435	45.5%
Relationship to Child	1	.9%	7	.7%
Gender	0	0%	4	.4%
Severity of Injury (Current)	0	0%	0	0%

<b>Severity of Injury (Prior)</b>	<b>25</b>	<b>22.9%</b>	<b>205</b>	<b>21.5%</b>
<b>Perception of Incident</b>	<b>18</b>	<b>16.5%</b>	<b>153</b>	<b>16.0%</b>
<b>Perception of Child</b>	<b>32</b>	<b>29.4%</b>	<b>193</b>	<b>20.2%</b>
<b>Attachment</b>	<b>49</b>	<b>45.0%</b>	<b>356</b>	<b>37.3%</b>
<b>Attitude Re: Discipline</b>	<b>71</b>	<b>65.1%</b>	<b>551</b>	<b>57.7%</b>
<b>Parenting Knowledge &amp; Skills</b>	<b>25</b>	<b>22.9%</b>	<b>171</b>	<b>17.9%</b>
<b>Substance Abuse</b>	<b>26</b>	<b>23.9%</b>	<b>217</b>	<b>22.7%</b>
<b>Psychopathology- Incapacity</b>	<b>21</b>	<b>19.3%</b>	<b>135</b>	<b>14.1%</b>
<b>History of Violence</b>	<b>32</b>	<b>29.4%</b>	<b>257</b>	<b>26.9%</b>
<b>Stress</b>	<b>36</b>	<b>33.0%</b>	<b>247</b>	<b>25.9%</b>
<b>Reference Group Values</b>	<b>72</b>	<b>66.1%</b>	<b>504</b>	<b>52.8%</b>
<b>Social Isolation</b>	<b>37</b>	<b>33.9%</b>	<b>314</b>	<b>32.9%</b>

The following data are organized by their scores their case received on the variable "Actual/potential severity of the current incident".

VARIABLE	<u>SEVERITY LEVEL 5</u>		<u>SEVERITY LEVEL 4</u>	
	N Missing	% Missing	N Missing	% Missing
	N = 203		N = 177	
<u>General Information</u>				
Maltreatment Type	0	0%	0	0%
Location	1	.5%	0	0%
Gender of Child	9	4.4%	6	3.4%
Age of Child	1	.5%	2	1.1%
Family Type	0	0%	0	0%
Severity of Injury (Current)	0	0%	0	0%
>1 Maltreatment Type	2	1.0%	6	3.4%
<u>ADULT</u>				
Age	91	44.8%	91	51.4%
Relationship to Child	2	1.0%	0	0%

Gender	1	.5%	0	0%
Severity of Injury (Current)	0	0%	0	0%
Severity of Injury (Prior)	46	22.7%	44	24.9%
Perception of Incident	48	23.6%	31	17.5%
Perception of Child	47	23.2%	42	23.7%
Attachment	92	45.3%	80	45.2%
Attitude Re: Discipline	154	75.9%	129	72.9%
Parenting Knowledge & Skills	38	18.7%	30	16.9%
Substance Abuse	41	20.2%	43	24.3%
Psychopathology- Incapacity	29	14.3%	27	15.3%
History of Violence	55	27.1%	57	32.2%
Stress	64	31.5%	43	24.3%
Reference Group Values	107	52.7%	91	51.4%
Social Isolation	71	35.0%	55	31.1%

VARIABLE	<u>SEVERITY LEVEL 3</u>		<u>SEVERITY LEVEL 2</u>	
	<u>N</u> <u>Missing</u>	<u>%</u> <u>Missing</u>	<u>N</u> <u>Missing</u>	<u>%</u> <u>Missing</u>
	N = 250		N = 156	
<u>General Information</u>				
Maltreatment Type	0	0%	0	0%
Location	0	0%	0	0%
Gender of Child	3	1.2%	2	1.3%
Age of Child	5	2.0%	2	1.3%
Family Type	0	0%	0	0%
Severity of Injury (Current)	0	0%	0	0%
>1 Maltreatment Type	3	1.2%	4	2.6%
<u>ADULT</u>				
Age	146	58.4%	54	34.6%
Relationship to Child	3	1.2%	1	.6%
Gender	3	1.2%	0	0%
Severity of Injury (Current)	0	0%	0	0%

<b>Severity of Injury (Prior)</b>	<b>57</b>	<b>22.8%</b>	<b>23</b>	<b>14.7%</b>
<b>Perception of Incident</b>	<b>32</b>	<b>12.8%</b>	<b>21</b>	<b>13.5%</b>
<b>Perception of Child</b>	<b>57</b>	<b>22.8%</b>	<b>25</b>	<b>16.0%</b>
<b>Attachment</b>	<b>97</b>	<b>38.8%</b>	<b>43</b>	<b>29.5%</b>
<b>Attitude Re: Discipline</b>	<b>121</b>	<b>48.4%</b>	<b>72</b>	<b>46.2%</b>
<b>Parenting Knowledge &amp; Skills</b>	<b>39</b>	<b>15.6%</b>	<b>27</b>	<b>17.3%</b>
<b>Substance Abuse</b>	<b>66</b>	<b>26.4%</b>	<b>24</b>	<b>15.4%</b>
<b>Psychopathology- Incapacity</b>	<b>38</b>	<b>15.2%</b>	<b>13</b>	<b>8.3%</b>
<b>History of Violence</b>	<b>78</b>	<b>31.2%</b>	<b>23</b>	<b>14.7%</b>
<b>Stress</b>	<b>72</b>	<b>28.8%</b>	<b>27</b>	<b>17.3%</b>
<b>Reference Group Values</b>	<b>141</b>	<b>56.4%</b>	<b>65</b>	<b>41.7%</b>
<b>Social Isolation</b>	<b>80</b>	<b>32.0%</b>	<b>46</b>	<b>29.5%</b>

VARIABLE	<u>SEVERITY LEVEL 1</u>	
	<u>N</u>	<u>%</u>
	<u>Missing</u>	<u>Missing</u>
	N = 169	
<u>General Information</u>		
Maltreatment Type	0	0%
Location	2	1.2%
Gender of Child	2	1.2%
Age of Child	0	0%
Family Type	0	0%
Severity of Injury (Current)	0	0%
>1 Maltreatment Type	2	1.2%
<u>ADULT</u>		
Age	53	31.4%
Relationship to Child	1	.6%
Gender	0	0%
Severity of Injury (Current)	0	0%
Severity of Injury (Prior)	35	20.7%



<b>Perception of Incident</b>	<b>21</b>	<b>12.4%</b>
<b>Perception of Child</b>	<b>22</b>	<b>13.0%</b>
<b>Attachment</b>	<b>44</b>	<b>26.0%</b>
<b>Attitude Re: Discipline</b>	<b>75</b>	<b>44.4%</b>
<b>Parenting Knowledge &amp; Skills</b>	<b>37</b>	<b>21.9%</b>
<b>Substance Abuse</b>	<b>43</b>	<b>25.4%</b>
<b>Psychopathology- Incapacity</b>	<b>28</b>	<b>16.6%</b>
<b>History of Violence</b>	<b>44</b>	<b>26.0%</b>
<b>Stress</b>	<b>41</b>	<b>24.3%</b>
<b>Reference Group Values</b>	<b>100</b>	<b>59.2%</b>
<b>Social Isolation</b>	<b>62</b>	<b>36.7%</b>

**APPENDIX C**

**MALTREATMENT TYPE OR FAMILY TYPE  
BY  
RATER-SCORED OR STAFF-SCORED**

## INTERPRETATION OF THE TABLES

The numbers within each cell, in vertical order, within the cross-tabulation figures correspond with the following:

- Count:** The cell frequency.
- Total %:** % of the grand total.
- Row %:** The percent of each cell count to its row total.
- Col %:** The percent of each cell count to its column total.
- Expected:** The expected frequency of each cell.
- Deviation:** The count (observed frequency) minus the expected frequency.
- Cell Chi<sup>2</sup>:** Chi-square value computed for individual cells.

(SAS Institute, 1994, p. 99)

### Maltreatment Type by Staff-Scored or Rater-Scored

Maltreatment Type.		Rater or Staff-Scored		
		R	S	
Count				
Total %				
Row %				
Col %				
Expected				
Deviation				
Cell Chi^2				
N		291	135	426
		30.47	14.14	44.61
		68.31	31.69	
		45.68	42.45	
		284.15	141.85	
		6.85	-6.85	
		0.1652	0.3309	
P		264	156	420
		27.64	16.34	43.98
		62.86	37.14	
		41.44	49.06	
		280.15	139.85	
		-16.15	16.15	
		0.9306	1.8642	
S		82	27	109
		8.59	2.83	11.41
		75.23	24.77	
		12.87	8.49	
		72.71	36.30	
		9.30	-9.30	
		1.19	2.38	
		637	318	955
		66.70	33.30	
Tests				
Source	DF	-LogLikelihood		RSquare (U)
Model	2	3.50050		0.0038
Error	951	921.97877		
C Total	953	925.47927		
Total Count	955			
Test	Chi-Square	Prob>Chi-Sq		
Likelihood Ratio	7.001	0.0302		
Pearson	6.860	0.0324		

**Family Type by Staff-Scored or Rater-Scored**

Family Type.	Rater or Staff-Scored		Total %
	R	S	
Count			
Row %			
Col %			
Expected			
Deviation			
Cell Chi^2			
<b>1</b>	<b>263</b>	<b>118</b>	<b>381</b>
	<b>27.54</b>	<b>12.36</b>	<b>39.90</b>
	<b>69.03</b>	<b>30.97</b>	
	<b>41.29</b>	<b>37.11</b>	
	<b>254.13</b>	<b>126.87</b>	
	<b>8.87</b>	<b>-8.87</b>	
	<b>0.31</b>	<b>0.62</b>	
<b>2</b>	<b>239</b>	<b>138</b>	<b>377</b>
	<b>25.03</b>	<b>14.45</b>	<b>39.48</b>
	<b>63.40</b>	<b>36.60</b>	
	<b>37.52</b>	<b>43.40</b>	
	<b>251.47</b>	<b>125.54</b>	
	<b>-12.47</b>	<b>12.47</b>	
	<b>0.62</b>	<b>1.24</b>	
<b>3</b>	<b>135</b>	<b>62</b>	<b>197</b>
	<b>14.14</b>	<b>6.49</b>	<b>20.63</b>
	<b>68.53</b>	<b>31.47</b>	
	<b>21.19</b>	<b>19.50</b>	
	<b>131.40</b>	<b>65.60</b>	
	<b>3.60</b>	<b>-3.60</b>	
	<b>0.10</b>	<b>0.20</b>	
	<b>637</b>	<b>318</b>	<b>955</b>
	<b>66.70</b>	<b>33.30</b>	
<b>Source</b>	<b>DF</b>	<b>Tests</b>	<b>RSquare (U)</b>
<b>Model</b>	<b>2</b>	<b>-LogLikelihood</b>	<b>1.5331</b>
<b>Error</b>	<b>951</b>	<b>1009.9471</b>	<b>0.0015</b>
<b>C Total</b>	<b>953</b>	<b>1011.4802</b>	
<b>Total Count</b>	<b>955</b>		
<b>Test</b>	<b>Chi-Square</b>	<b>Prob&gt;Chi-Sq</b>	
<b>Likelihood Ratio</b>	<b>3.066</b>	<b>0.2159</b>	
<b>Pearson</b>	<b>3.081</b>	<b>0.2143</b>	

**APPENDIX D**

**SIGNIFICANCE TESTS**

**ADULT VARIABLES & CHILD VARIABLES**

**TOTAL DATA SET**

**COMPARISONS OF MALTREATMENT TYPES**

## INTERPRETATION OF THE TABLES

The age tables differ from the others as age is a continuous variable. The vertical dots indicate individual cases. "A *means diamond* is a schematic that illustrates a sample mean and 95% confidence interval...The line across each diamond represents the group mean. The height of each diamond represents the 95% confidence interval for each group." (SAS Institute, 1994, p. 70) A circle indicates a variable mean and its 95% confidence interval. If the circles do not overlap, the differences between the means are statistically significant at the .05 level. (SAS Institute, 1994, pp. 76-80)

The numbers within each cell, in vertical order, within the cross-tabulation figures correspond with the following:

Count:	The cell frequency.
Total %:	% of the grand total.
Row %:	The percent of each cell count to its row total.
Col %:	The percent of each cell count to its column total.
Expected:	The expected frequency of each cell.
Deviation:	The count (observed frequency) minus the expected frequency.
Cell Chi <sup>2</sup> :	Chi-square value computed for individual cells.

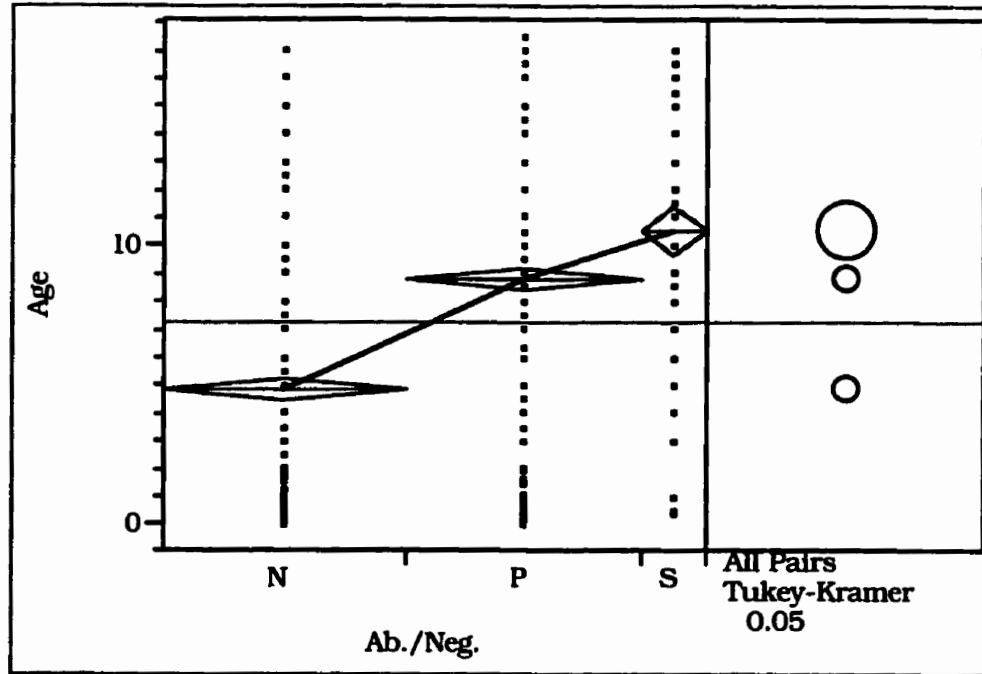
(SAS Institute, 1994, p. 99)

The term "Ab./Neg." indicates the Maltreatment Type.

The term "F.T.(2)." indicates the Family Type.

**TOTAL DATA SET  
AGE OF CHILD BY MALTREATMENT TYPE**

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)  
(Age: Years)



		Means Comparisons		
Dif=Mean[i]-Mean[j]		S	P	N
S		0.00000	1.71219	5.62638
P		-1.71219	0.00000	3.91419
N		-5.62638	-3.91419	0.00000

Alpha= 0.05

Comparisons for all pairs using Tukey-Kramer HSD

		S	P	N
Abs(Dif)-LSD				
S		-1.52689	0.50044	4.41612
P		0.50044	-0.77799	3.13852
N		4.41612	3.13852	-0.77336

Positive values show pairs of means that are significantly different.



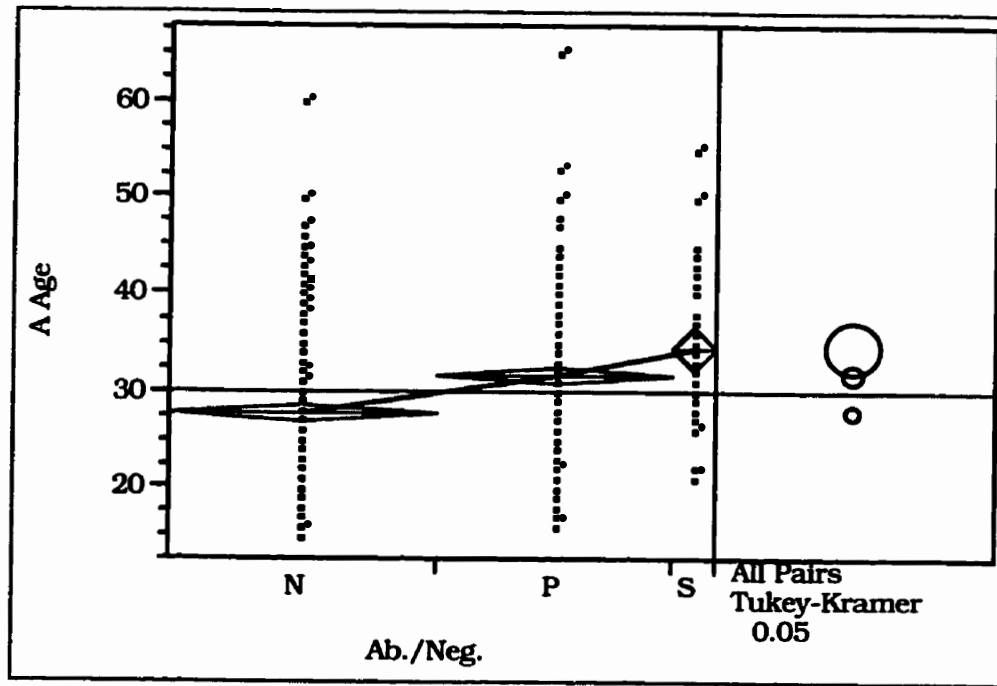
**TOTAL DATA SET**  
**MALTREATMENT TYPE BY GENDER OF THE CHILD**

(Male: 1; Female : 2)  
(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	GENDER OF CHILD		
	1	2	
Count			
Total %			
Row %			
Col %			
Expected			
Deviation			
Cell Chi^2			
<b>N</b>	<b>211</b>	<b>204</b>	<b>415</b>
	<b>22.62</b>	<b>21.86</b>	<b>44.48</b>
	<b>50.84</b>	<b>49.16</b>	
	<b>51.59</b>	<b>38.93</b>	
	<b>181.92</b>	<b>233.08</b>	
	<b>29.08</b>	<b>-29.08</b>	
	<b>4.65</b>	<b>3.63</b>	
<b>P</b>	<b>181</b>	<b>232</b>	<b>413</b>
	<b>19.40</b>	<b>24.87</b>	<b>44.27</b>
	<b>43.83</b>	<b>56.17</b>	
	<b>44.25</b>	<b>44.27</b>	
	<b>181.05</b>	<b>231.95</b>	
	<b>0.05</b>	<b>0.05</b>	
	<b>0.0000</b>	<b>0.0000</b>	
<b>S</b>	<b>17</b>	<b>88</b>	<b>105</b>
	<b>1.82</b>	<b>9.43</b>	<b>11.25</b>
	<b>16.19</b>	<b>83.81</b>	
	<b>4.16</b>	<b>16.79</b>	
	<b>46.03</b>	<b>58.97</b>	
	<b>-29.03</b>	<b>29.03</b>	
	<b>18.31</b>	<b>14.29</b>	
	<b>409</b>	<b>524</b>	<b>933</b>
	<b>43.84</b>	<b>56.16</b>	
<b>Source</b>	<b>DF</b>	<b>Tests</b>	<b>RSquare (U)</b>
<b>Model</b>	<b>2</b>	<b>-LogLikelihood</b>	<b>0.0248</b>
<b>Error</b>	<b>929</b>	<b>22.39548</b>	
<b>C Total</b>	<b>931</b>	<b>879.75130</b>	
<b>Total Count</b>	<b>933</b>	<b>902.14677</b>	
	<b>Test</b>	<b>ChiSquare</b>	<b>Prob&gt;ChiSq</b>
	<b>Likelihood Ratio</b>	<b>44.791</b>	<b>0.0000</b>
	<b>Pearson</b>	<b>40.872</b>	<b>0.0000</b>

TOTAL DATA SET  
AGE OF ADULT BY MALTREATMENT TYPE

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)  
(Age: Years)



Means Comparisons

Dif=Mean[i]-Mean[j]	S	P	N
S	0.00000	2.89979	6.79996
P	-2.89979	0.00000	3.90017
N	-6.79996	-3.90017	0.00000

Alpha= 0.05

Comparisons for all pairs using Tukey-Kramer HSD

Abs(Dif)-LSD	S	P	N
S	-3.95334	-0.14392	3.79060
P	-0.14392	-1.70279	2.25957
N	3.79060	2.25957	-1.57596

Positive values show pairs of means that are significantly different.

TOTAL DATA SET  
 MALTREATMENT TYPE BY GENDER OF ADULT

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)  
 (Male: 1; Female : 2)

MALTREATMENT TYPE	GENDER OF ADULT		
	1	2	
Count			
Total %			
Row %			
Col %			
Expected			
Deviation			
Cell Chi^2			
N	59	367	426
	6.20	38.59	44.79
	13.85	86.15	
	25.21	51.19	
	104.82	321.18	
	-45.82	45.82	
	20.03	6.54	
P	134	282	416
	14.09	29.65	43.74
	32.21	67.79	
	57.26	39.33	
	102.36	313.64	
	-1.64	-31.64	
	9.78	3.19	
S	41	68	109
	4.31	7.15	11.46
	37.61	62.39	
	17.52	9.48	
	26.82	82.18	
	14.18	-14.18	
	7.50	2.45	
	234	717	951
	24.61	75.39	
Tests			
Source	DF	-LogLikelihood	RSquare (U)
Model	2	25.66202	0.0278
Error	947	896.52071	
C Total	949	922.18272	
Total Count	951		
Test			
Likelihood Ratio	ChiSquare	Prob>ChiSq	
Pearson	51.324	0.0000	
	49.482	0.0000	

## TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	SEVERITY OF THE CURRENT INCIDENT					
	1	2	3	4	5	
Count						
Total %						
Row %						
Col %						
Expected						
Deviation						
Cell Chi^2						
<b>N</b>	71	80	80	112	83	426
	7.43	8.38	8.38	11.73	8.69	44.61
	16.67	18.78	18.78	26.29	19.48	
	42.51	51.95	31.62	62.22	41.29	
	74.49	68.70	112.86	80.29	89.66	
	-3.49	11.31	-32.86	31.71	-6.66	
	0.16	1.86	9.57	12.52	0.50	
<b>P</b>	90	65	129	49	87	420
	9.42	6.81	13.51	5.13	9.11	43.98
	21.43	15.48	30.71	11.67	20.71	
	53.89	42.21	50.99	27.22	43.28	
	73.45	67.73	111.27	79.16	88.40	
	16.56	-2.73	17.73	-30.16	-1.40	
	3.7316	0.11	2.83	11.49	0.0221	
<b>S</b>	6	9	44	19	31	109
	0.63	0.94	4.61	1.99	3.25	11.41
	5.50	8.26	40.37	17.43	28.44	
	3.59	5.84	17.39	10.56	15.42	
	19.06	17.58	28.88	20.55	22.94	
	-13.06	-8.58	15.12	-1.55	8.06	
	8.95	4.19	7.92	0.12	2.83	
	167	154	253	180	201	955
	17.49	16.13	26.49	18.85	21.05	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	8	35.34463	0.0382
Error	945	890.13464	
C Total	953	925.47927	
Total Count	955		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	70.689	0.0000
Pearson	66.790	0.0000

TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	SEVERITY OF A PRIOR INCIDENT						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
N	114	30	35	46	50	66	341
	15.20	4.00	4.67	6.13	6.67	8.80	45.47
	33.43	8.80	10.26	13.49	14.66	19.35	
	46.15	37.50	47.30	34.59	60.24	49.62	
	112.30	36.37	33.65	60.47	37.74	60.47	
	1.70	-6.37	1.36	-14.47	12.26	5.53	
	0.03	1.12	0.06	3.46	3.99	0.51	
P	106	45	34	70	23	47	325
	14.13	6.00	4.53	9.33	3.07	6.27	43.33
	32.62	13.85	10.46	21.54	7.08	14.46	
	42.91	56.25	45.95	52.63	27.71	35.34	
	107.03	34.67	32.07	57.63	35.97	57.63	
	-1.03	10.33	1.93	12.37	-12.97	-10.63	
	0.01	3.08	0.12	2.65	4.68	1.96	
S	27	5	5	17	10	20	84
	3.60	0.67	0.67	2.27	1.33	2.67	11.20
	32.14	5.95	5.95	20.24	11.90	23.81	
	10.93	6.25	6.76	12.78	12.05	15.04	
	27.66	8.96	8.29	14.90	9.30	14.90	
	-0.66	-3.96	-3.29	2.10	0.70	5.10	
	0.016	1.75	1.30	0.30	0.053	1.75	
	247	80	74	133	83	133	750
	32.93	10.67	9.87	17.73	11.07	17.73	

Source	Tests		
	DF	-LogLikelihood	RSquare (U)
Model	10	13.78396	0.0190
Error	738	710.66723	
C Total	748	724.45118	
Total Count	750		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	27.568	0.0021
Pearson	26.817	0.0028

## TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ADULT'S PERCEPTION OF THE INCIDENT						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
N	51	44	30	74	67	112	378
	6.36	5.49	3.74	9.23	8.35	13.97	47.13
	13.49	11.64	7.94	19.58	17.72	29.63	
	52.04	43.56	42.25	51.39	50.76	43.75	
	46.19	47.60	33.46	67.87	62.22	120.66	
	4.81	-3.60	-3.46	6.13	4.79	-8.66	
	0.50	0.27	0.36	0.55	0.37	0.62	
P	39	55	32	54	52	101	333
	4.86	6.86	3.99	6.73	6.48	12.59	41.52
	11.71	16.52	9.61	16.22	15.62	30.33	
	39.80	54.46	45.07	37.50	39.39	39.45	
	40.69	41.94	29.48	59.79	54.81	106.29	
	-1.69	13.06	2.52	-5.79	-2.81	-5.29	
	0.07	4.07	0.22	0.56	0.14	0.26	
S	8	2	9	16	13	43	91
	1.00	0.25	1.12	2.00	1.62	5.36	11.35
	8.79	2.20	9.89	17.58	14.29	47.25	
	8.16	1.98	12.68	11.11	9.85	16.80	
	11.12	11.46	8.06	16.34	14.98	29.05	
	-3.12	-9.46	0.94	-0.34	-1.98	13.95	
	0.88	7.81	0.11	0.01	0.26	6.70	
	98	101	71	144	132	256	802
	12.22	12.59	8.85	17.96	16.46	31.92	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	10	13.38623	0.0173
Error	790	761.68521	
C Total	800	775.07143	
Total Count	802		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	26.772	0.0028
Pearson	23.764	0.0083

## TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ADULT'S PERCEPTION OF THE CHILD						
	A12	1	2	3	4	5	
Ab./Neg.							
Count	-1						
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
N	57	34	25	59	94	81	350
	7.48	4.46	3.28	7.74	12.34	10.63	45.93
	16.29	9.71	7.14	16.86	26.86	23.14	
	52.29	37.36	37.31	46.46	52.81	42.63	
	50.07	41.80	30.77	58.33	81.76	87.27	
	6.93	-7.80	-5.77	0.67	12.24	-6.27	
	0.96	1.46	1.08	0.01	1.83	0.45	
P	47	55	32	52	65	84	335
	6.17	7.22	4.20	6.82	8.53	11.02	43.96
	14.03	16.42	9.55	15.52	19.40	25.07	
	43.12	60.44	47.76	40.94	36.52	44.21	
	47.92	40.01	29.46	55.83	78.26	83.53	
	-0.92	14.99	2.55	-3.83	-13.26	0.47	
	0.018	5.62	0.22	0.26	2.25	0.00	
S	5	2	10	16	19	25	77
	0.66	0.26	1.31	2.10	2.49	3.28	10.10
	6.49	2.60	12.99	20.78	24.68	32.47	
	4.59	2.20	14.93	12.60	10.67	13.16	
	11.01	9.20	6.77	12.83	17.99	19.20	
	-6.01	-7.20	3.23	3.17	1.01	5.80	
	3.28	5.63	1.54	0.78	0.06	1.75	
	109	91	67	127	178	190	762
	14.30	11.94	8.79	16.67	23.36	24.93	

Source	DF	Tests	
		-LogLikelihood	RSquare (U)
Model	10	14.95072	0.0206
Error	750	709.15721	
C Total	760	724.10793	
Total Count	762		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	29.901	0.0009
Pearson	27.203	0.0024

## TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ATTACHMENT BETWEEN THE ADULT AND THE CHILD						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
N	56	59	19	75	32	32	273
	9.35	9.85	3.17	12.52	5.34	5.34	45.58
	20.51	21.61	6.96	27.47	11.72	11.72	
	50.91	47.97	31.67	52.08	44.44	35.56	
	50.13	56.06	27.35	65.63	32.82	41.02	
	5.87	2.94	-8.35	9.37	-0.82	-9.02	
	0.69	0.15	2.55	1.34	0.02	1.98	
P	50	54	29	59	29	45	266
	8.35	9.02	4.84	9.85	4.84	7.51	44.41
	18.80	20.30	10.90	22.18	10.90	16.92	
	45.45	43.90	48.33	40.97	40.28	50.00	
	48.85	54.62	26.64	63.95	31.97	39.97	
	1.15	-0.62	2.36	-4.95	-2.97	5.03	
	0.03	0.01	0.21	0.38	0.28	0.63	
S	4	10	12	10	11	13	60
	0.67	1.67	2.00	1.67	1.84	2.17	10.02
	6.67	16.67	20.00	16.67	18.33	21.67	
	3.64	8.13	20.00	6.94	15.28	14.44	
	11.02	12.32	6.01	14.42	7.21	9.02	
	-7.02	-2.32	5.99	-4.42	3.79	3.99	
	4.47	0.44	5.97	1.36	1.99	1.76	
	110	123	60	144	72	90	599
	18.36	20.53	10.02	24.04	12.02	15.03	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	10	12.21544	0.0215
Error	587	556.28977	
C Total	597	568.50521	
Total Count	599		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	24.431	0.0065
Pearson	24.250	0.0070



## TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ADULT'S ATTITUDE CONCERNING DISCIPLINE						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
N	47	18	19	27	17	17	145
	11.63	4.46	4.70	6.68	4.21	4.21	35.89
	32.41	12.41	13.10	18.62	11.72	11.72	
	58.02	26.87	42.22	26.21	37.78	26.98	
	29.07	24.05	16.15	36.97	16.15	22.61	
	17.93	-6.05	2.85	-9.97	0.85	-5.61	
	11.06	1.52	0.50	2.69	0.0446	1.39	
P	29	43	23	67	27	32	221
	7.18	10.64	5.69	16.58	6.68	7.92	54.70
	13.12	19.46	10.41	30.32	12.22	14.48	
	35.80	64.18	51.11	65.05	60.00	50.79	
	44.31	36.65	24.62	56.34	24.62	34.46	
	-15.31	6.35	-1.62	10.66	2.38	-2.46	
	5.29	1.10	0.11	2.02	0.23	0.18	
S	5	6	3	9	1	14	38
	1.24	1.49	0.74	2.23	0.25	3.47	9.41
	13.16	15.79	7.89	23.68	2.63	36.84	
	6.17	8.96	6.67	8.74	2.22	22.22	
	7.62	6.30	4.23	9.69	4.23	5.93	
	-2.62	-0.30	-1.23	-0.69	-3.23	8.07	
	0.90	0.02	0.36	0.05	2.47	11.00	
	81	67	45	103	45	63	404
	20.05	16.58	11.14	25.50	11.14	15.59	

Source	DF	Tests	
		-LogLikelihood	RSquare (U)
Model	10	19.22933	0.0517
Error	392	352.49366	
C Total	402	371.72299	
Total Count	404		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	38.459	0.0000
Pearson	40.915	0.0000

## TOTAL DATA SET-ADULT

(Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ADULT'S PARENTING KNOWLEDGE AND SKILLS							
	-1	0	1	2	3	4	5	
Count								
Total %								
Row %								
Col %								
Expected								
Deviation								
Cell Chi^2								
<b>N</b>	53	1	27	20	50	83	118	352
	6.76	0.13	3.44	2.55	6.38	10.59	15.05	44.90
	15.06	0.28	7.67	5.68	14.20	23.58	33.52	
	46.90	100.00	34.18	41.67	35.97	56.08	46.09	
	50.74	0.45	35.47	21.55	62.41	66.45	114.94	
	2.27	0.55	-8.47	-1.55	-12.41	16.55	3.06	
	0.1011	0.68	2.02	0.11	2.47	4.12	0.08	
<b>P</b>	57	0	48	24	73	43	103	348
	7.27	0.00	6.12	3.06	9.31	5.48	13.14	44.39
	16.38	0.00	13.79	6.90	20.98	12.36	29.60	
	50.44	0.00	60.76	50.00	52.52	29.05	40.23	
	50.16	0.44	35.07	21.31	61.70	65.69	113.63	
	6.84	-0.44	12.93	2.69	11.30	-22.69	-10.63	
	0.93	0.44	4.77	0.34	2.07	7.84	1.00	
<b>S</b>	3	0	4	4	16	22	35	84
	0.38	0.00	0.51	0.51	2.04	2.81	4.46	10.71
	3.57	0.00	4.76	4.76	19.05	26.19	41.67	
	2.65	0.00	5.06	8.33	11.51	14.86	13.67	
	12.11	0.11	8.46	5.14	14.89	15.86	27.43	
	-9.11	-0.11	-4.46	-1.14	1.11	6.14	7.57	
	6.85	0.11	2.36	0.25	0.08	2.38	2.09	
	113	1	79	48	139	148	256	784
	14.41	0.13	10.08	6.12	17.73	18.88	32.65	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	12	22.57809	0.0300
Error	C Total	782	752.14342
Total Count	784		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	45.156	0.0000
Pearson	41.093	0.0000

## TOTAL DATA SET-ADULT

(Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ADULT'S SUBSTANCE ABUSE						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>N</b>	<b>127</b>	<b>8</b>	<b>5</b>	<b>29</b>	<b>30</b>	<b>120</b>	<b>319</b>
	17.21	1.08	0.68	3.93	4.07	16.26	43.22
	39.81	2.51	1.57	9.09	9.40	37.62	
	33.33	50.00	71.43	55.77	48.39	54.55	
	164.69	6.92	3.03	22.48	26.80	95.10	
	-37.69	1.08	1.97	6.52	3.20	24.91	
	8.6243	0.17	1.29	1.89	0.38	6.52	
<b>P</b>	<b>208</b>	<b>7</b>	<b>2</b>	<b>20</b>	<b>23</b>	<b>76</b>	<b>336</b>
	28.18	0.95	0.27	2.71	3.12	10.30	45.53
	61.90	2.08	0.60	5.95	6.85	22.62	
	54.59	43.75	28.57	38.46	37.10	34.55	
	173.46	7.29	3.19	23.68	28.23	100.16	
	34.54	-0.29	-1.19	-3.68	-5.23	-24.16	
	6.8762	0.01	0.44	0.57	0.97	5.83	
<b>S</b>	<b>46</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>9</b>	<b>24</b>	<b>83</b>
	6.23	0.14	0.00	0.41	1.22	3.25	11.25
	55.42	1.20	0.00	3.61	10.84	28.92	
	12.07	6.25	0.00	5.77	14.52	10.91	
	42.85	1.80	0.79	5.85	6.97	24.74	
	3.15	-0.80	-0.79	-2.85	2.03	-0.74	
	0.23	0.36	0.79	1.39	0.59	0.02	
	381	16	7	52	62	220	738
	51.63	2.17	0.95	7.05	8.40	29.81	

Source	DF	Tests	-LogLikelihood	RSquare (U)
Model	10		19.09202	0.0268
Error	726		694.20944	
C Total	736		713.30146	
Total Count	738			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	38.184	0.0000
Pearson	36.950	0.0001

## TOTAL DATA SET-ADULT

(Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ADULT'S HISTORY OF VIOLENCE TOWARDS ADULTS						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>N</b>	<b>286</b>	<b>24</b>	<b>11</b>	<b>16</b>	<b>10</b>	<b>13</b>	<b>360</b>
	34.88	2.93	1.34	1.95	1.22	1.59	43.90
	79.44	6.67	3.06	4.44	2.78	3.61	
	41.75	52.17	52.38	51.61	71.43	56.52	
	300.73	20.20	9.22	13.61	6.15	10.10	
	-14.73	3.81	1.78	2.39	3.85	2.90	
	0.72	0.72	0.34	0.42	2.42	0.83	
<b>P</b>	<b>323</b>	<b>18</b>	<b>9</b>	<b>12</b>	<b>3</b>	<b>7</b>	<b>372</b>
	39.39	2.20	1.10	1.46	0.37	0.85	45.37
	86.83	4.84	2.42	3.23	0.81	1.88	
	47.15	39.13	42.86	38.71	21.43	30.43	
	310.76	20.87	9.53	14.06	6.35	10.43	
	12.24	-2.87	-0.53	-2.06	-3.35	-3.43	
	0.48	0.39	0.03	0.30	1.77	1.13	
<b>S</b>	<b>76</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>88</b>
	9.27	0.49	0.12	0.37	0.12	0.37	10.73
	86.36	4.55	1.14	3.41	1.14	3.41	
	11.09	8.70	4.76	9.68	7.14	13.04	
	73.51	4.94	2.25	3.33	1.50	2.47	
	2.49	-0.94	-1.25	-0.33	-0.50	0.53	
	0.08	0.18	0.70	0.03	0.17	0.12	
	<b>685</b>	<b>46</b>	<b>21</b>	<b>31</b>	<b>14</b>	<b>23</b>	<b>820</b>
	83.54	5.61	2.56	3.78	1.71	2.80	
<b>Tests</b>							
Source		DF		-LogLikelihood		RSquare (U)	
Model		10		5.56430		0.0071	
Error		808		781.23366			
C Total		818		786.79795			
Total Count		820					
	Test	ChiSquare	Prob>ChiSq				
	Likelihood Ratio	11.129	0.3476				
	Pearson	10.834	0.3706				

## TOTAL DATA SET-ADULT

(Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ADULT'S PSYCHOPATHOLOGY/INCAPACITY						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>N</b>	187	11	3	23	18	44	286
	26.79	1.58	0.43	3.30	2.58	6.30	40.97
	65.38	3.85	1.05	8.04	6.29	15.38	
	42.21	35.48	33.33	43.40	45.00	36.07	
	181.52	12.70	3.69	21.72	16.39	49.99	
	5.48	-1.70	-0.69	1.28	1.61	-5.99	
	0.17	0.23	0.13	0.08	0.16	0.72	
<b>P</b>	209	18	5	26	18	59	335
	29.94	2.58	0.72	3.72	2.58	8.45	47.99
	62.39	5.37	1.49	7.76	5.37	17.61	
	47.18	58.06	55.56	49.06	45.00	48.36	
	212.62	14.88	4.32	25.44	19.20	58.55	
	-3.615	3.12	0.68	0.56	-1.198	0.45	
	0.062	0.66	0.11	0.01	0.08	0.00	
<b>S</b>	47	2	1	4	4	19	77
	6.73	0.29	0.14	0.57	0.57	2.72	11.03
	61.04	2.60	1.30	5.19	5.19	24.68	
	10.61	6.45	11.11	7.55	10.00	15.57	
	48.87	3.42	0.99	5.85	4.41	13.46	
	-1.87	-1.42	0.01	-1.85	-0.41	5.54	
	0.072	0.59	0.00	0.58	0.04	2.28	
	443	31	9	53	40	122	698
	63.47	4.44	1.29	7.59	5.73	17.48	

Source	Tests		
	DF	-LogLikelihood	RSquare (U)
Model	10	2.93426	0.0044
Error	686	667.90227	
C Total	696	670.83653	
Total Count	698		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	5.869	0.8262
Pearson	5.952	0.8192

## TOTAL DATA SET-ADULT

(Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ADULT'S LEVEL OF STRESS						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
N	38	24	17	49	73	107	308
	5.37	3.39	2.40	6.92	10.31	15.11	43.50
	12.34	7.79	5.52	15.91	23.70	34.74	
	40.00	37.50	41.46	43.36	44.79	46.12	
	41.33	27.84	17.84	49.16	70.91	100.93	
	-3.33	-3.84	-0.84	0.16	2.09	6.07	
	0.27	0.53	0.04	0.00	0.06	0.37	
P	46	38	22	55	74	92	327
	6.50	5.37	3.11	7.77	10.45	12.99	46.19
	14.07	11.62	6.73	16.82	22.63	28.13	
	48.42	59.38	53.66	48.67	45.40	39.66	
	43.88	29.56	18.94	52.19	75.28	107.15	
	2.12	8.44	3.06	2.81	-1.28	-15.15	
	0.10	2.41	0.50	0.15	0.02	2.14	
S	11	2	2	9	16	33	73
	1.55	0.28	0.28	1.27	2.26	4.66	10.31
	15.07	2.74	2.74	12.33	21.92	45.21	
	11.58	3.12	4.88	7.96	9.82	14.22	
	9.80	6.60	4.23	11.65	16.81	23.92	
	1.20	-4.60	-2.23	-2.65	-0.81	9.08	
	0.15	3.21	1.17	0.60	0.04	3.45	
	95	64	41	113	163	232	708
	13.42	9.04	5.79	15.96	23.02	32.77	

Source	DF	Tests		RSquare (U)
		-LogLikelihood		
Model	10	8.14636		0.0121
Error	696	666.67281		
C Total	706	674.81917		
Total Count	708			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	16.293	0.0916
Pearson	15.204	0.1248

## TOTAL DATA SET-ADULT

(Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE		ADULT'S RELEVANT REFERENCE GROUP VALUES						
	Count	-1	0	1	2	3	4	5
<b>Total %</b>								
<b>Row %</b>								
<b>Col %</b>								
<b>Expected</b>								
<b>Deviation</b>								
<b>Cell Chi^2</b>								
<b>N</b>	31	1	16	16	34	59	55	212
	6.87	0.22	3.55	3.55	7.54	13.08	12.20	47.01
	14.62	0.47	7.55	7.55	16.04	27.83	25.94	
	37.35	100.00	30.77	37.21	50.00	62.11	50.46	
	39.02	0.47	24.44	20.21	31.97	44.66	51.24	
	-8.02	0.53	-8.44	-4.21	2.04	14.35	3.76	
	1.65	0.60	2.92	0.88	0.13	4.61	0.28	
<b>P</b>	46	0	33	24	31	25	43	202
	10.20	0.00	7.32	5.32	6.87	5.54	9.53	44.79
	22.77	0.00	16.34	11.88	15.35	12.38	21.29	
	55.42	0.00	63.46	55.81	45.59	26.32	39.45	
	37.18	0.45	23.29	19.26	30.46	42.55	48.82	
	8.82	-0.45	9.71	4.74	0.54	-17.55	-5.82	
	2.10	0.45	4.05	1.17	0.01	7.24	0.69	
<b>S</b>	6	0	3	3	3	11	11	37
	1.33	0.00	0.67	0.67	0.67	2.44	2.44	8.20
	16.22	0.00	8.11	8.11	8.11	29.73	29.73	
	7.23	0.00	5.77	6.98	4.41	11.58	10.09	
	6.81	0.08	4.27	3.53	5.58	7.79	8.94	
	-0.81	-0.08	-1.27	-0.53	-2.58	3.21	2.06	
	0.10	0.08	0.38	0.08	1.19	1.32	0.47	
	83	1	52	43	68	95	109	451
	18.40	0.22	11.53	9.53	15.08	21.06	24.17	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	12	15.81479	0.0381
Error	437	398.98665	
C Total	449	414.80144	
Total Count	451		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	31.630	0.0016
Pearson	30.369	0.0025

TOTAL DATA SET-ADULT

(Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

MALTREATMENT TYPE	ADULT'S SOCIAL ISOLATION						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>N</b>	<b>25</b>	<b>38</b>	<b>25</b>	<b>41</b>	<b>91</b>	<b>77</b>	<b>297</b>
	3.90	5.93	3.90	6.40	14.20	12.01	46.33
	8.42	12.79	8.42	13.80	30.64	25.93	
	34.72	36.54	40.32	42.71	55.15	54.23	
	33.36	48.19	28.73	44.48	76.45	65.79	
	-8.360	-10.19	-3.73	-3.48	14.55	11.21	
	2.10	2.15	0.48	0.27	2.77	1.91	
<b>P</b>	<b>42</b>	<b>56</b>	<b>32</b>	<b>37</b>	<b>53</b>	<b>52</b>	<b>272</b>
	6.55	8.74	4.99	5.77	8.27	8.11	42.43
	15.44	20.59	11.76	13.60	19.49	19.12	
	58.33	53.85	51.61	38.54	32.12	36.62	
	30.55	44.13	26.31	40.74	70.02	60.26	
	11.45	11.87	5.69	-.74	-17.02	-8.26	
	4.29	3.19	1.23	0.34	4.14	1.13	
<b>S</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>18</b>	<b>21</b>	<b>13</b>	<b>72</b>
	0.78	1.56	0.78	2.81	3.28	2.03	11.23
	6.94	13.89	6.94	25.00	29.17	18.06	
	6.94	9.62	8.06	18.75	12.73	9.15	
	8.09	11.68	6.96	10.78	18.53	15.95	
	-3.09	-1.68	-1.96	7.22	2.47	-2.95	
	1.18	0.24	0.55	4.83	0.33	0.55	
	72	104	62	96	165	142	641
	11.23	16.22	9.67	14.98	25.74	22.15	

Source	DF	Tests	
		-LogLikelihood	RSquare (U)
Model	10	15.47596	0.0250
Error	629	603.58936	
C Total	639	619.06531	
Total Count	641		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	30.952	0.0006
Pearson	31.682	0.0005



**APPENDIX E**

**SIGNIFICANCE TESTS**

**ADULT VARIABLES & CHILD VARIABLES**

**TOTAL DATA SET**

**COMPARISONS OF FAMILY TYPES**

## INTERPRETATION OF THE TABLES

The age tables differ from the others as age is a continuous variable. The vertical dots indicate individual cases. "A *means diamond* is a schematic that illustrates a sample mean and 95% confidence interval...The line across each diamond represents the group mean. The height of each diamond represents the 95% confidence interval for each group." (SAS Institute, 1994, p. 70) A circle indicates a variable mean and its 95% confidence interval. If the circles do not overlap, the differences between the means are statistically significant at the .05 level. (SAS Institute, 1994, pp. 76-80)

The numbers within each cell, in vertical order, within the cross-tabulation figures correspond with the following:

Count:	The cell frequency.
Total %:	% of the grand total.
Row %:	The percent of each cell count to its row total.
Col %:	The percent of each cell count to its column total.
Expected:	The expected frequency of each cell.
Deviation:	The expected frequency minus the count (observed frequency).
Cell Chi <sup>2</sup> :	Chi-square value computed for individual cells.

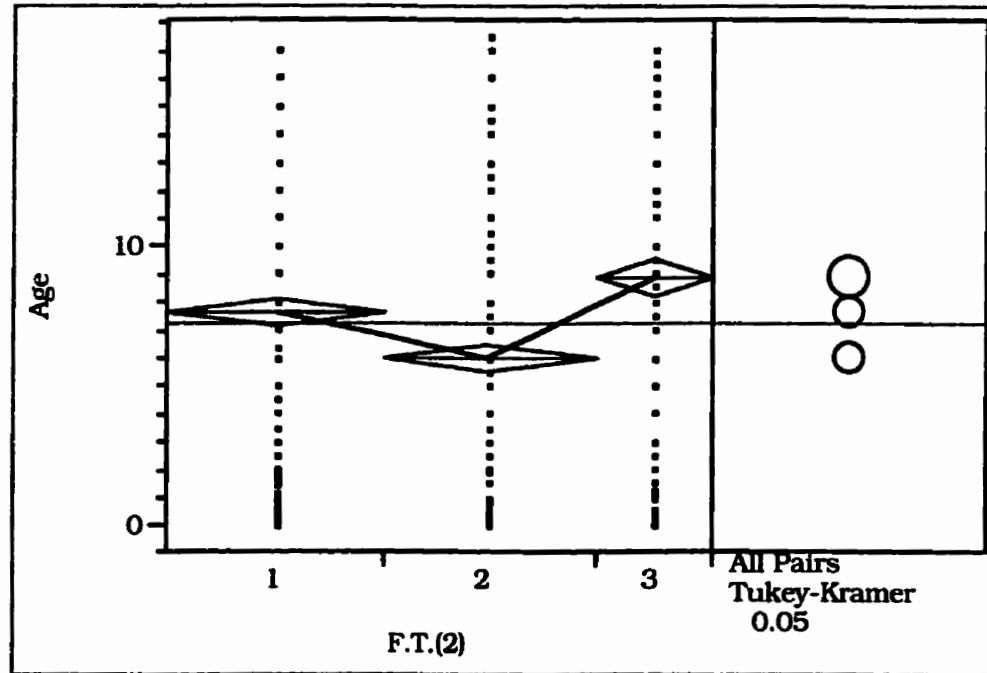
(SAS Institute, 1994, p. 99)

The term "Ab./Neg." indicates the Maltreatment Type.

The term "F.T.(2)." indicates the Family Type.

TOTAL DATA SET  
AGE OF CHILD BY FAMILY TYPE

(Family Type 1: 2 Biological Parents; Family Type 2: Single Parent Female-Headed Family;  
Family Type 3: Blended Family)  
(Age: Years)



Means Comparisons

Dif=Mean[i]-Mean[j]	3	1	2
3	0.00000	1.22319	2.89001
1	-1.22319	0.00000	1.66683
2	-2.89001	-1.66683	0.00000

Alpha= 0.05

Comparisons for all pairs using Tukey-Kramer HSD

Abs(Dif)-LSD	3	1	2
3	-1.22419	0.15738	1.82372
1	0.15738	-0.87934	0.78690
2	1.82372	0.78690	-0.88051

Positive values show pairs of means that are significantly different.

TOTAL DATA SET  
FAMILY TYPE BY GENDER OF THE CHILD

(Male: 1; Female : 2)

(Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family;  
Family Type 3: Blended Family)

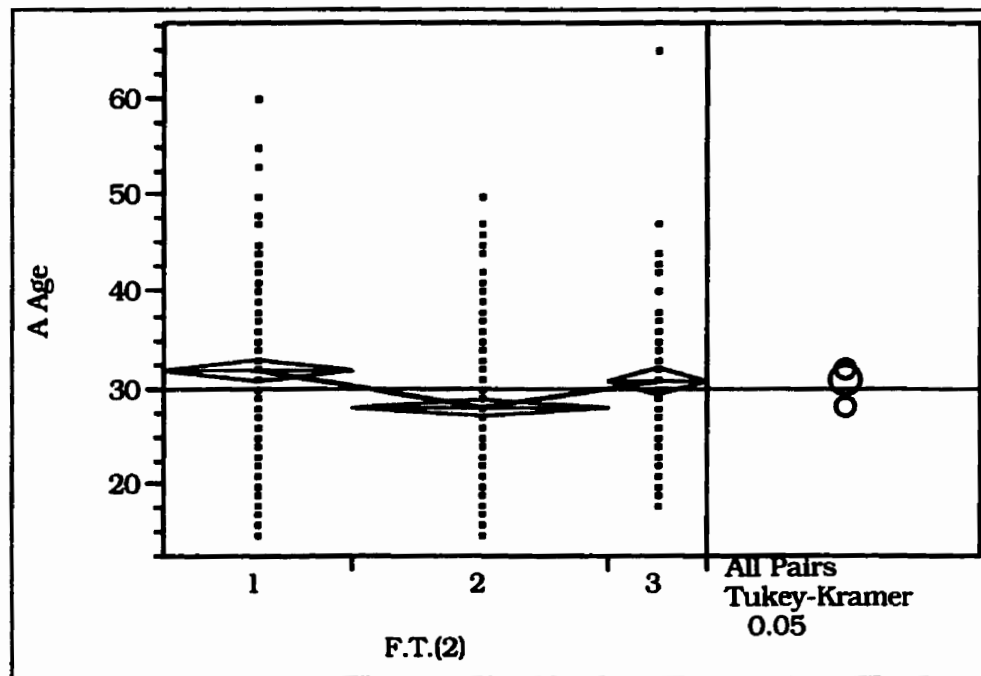
FAMILY TYPE	GENDER OF CHILD		
	1	2	
Count			
Total %			
Row %			
Col %			
Expected			
Deviation			
Cell Chi^2			
1	164	212	376
	17.58	22.72	40.30
	43.62	56.38	
	40.10	40.46	
	164.83	211.17	
	-0.83	0.83	
	0.00	0.00	
2	173	196	369
	18.54	21.01	39.55
	46.88	53.12	
	42.30	37.40	
	161.76	207.24	
	11.24	-11.24	
	0.78	0.61	
3	72	116	188
	7.72	12.43	20.15
	38.30	61.70	
	17.60	22.14	
	82.41	105.59	
	-10.41	10.41	
	1.32	1.03	
	409	524	933
	43.84	56.16	

Source	DF	Tests		RSquare (U)
		-LogLikelihood		
Model	2	1.88107		0.0019
Error	929	983.29042		
C Total	931	985.17148		
Total Count	933			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.762	0.1524
Pearson	3.741	0.1540

TOTAL DATA SET  
AGE OF ADULT BY FAMILY TYPE

(Family Type 1: 2 Biological Parents; Family Type 2: Single Parent Female-Headed Family;  
Family Type 3: Blended Family)  
(Age: Years)



Means Comparisons

Dif=Mean[i]-Mean[j]	1	3	2
1	0.00000	1.15374	3.78672
3	-1.15374	0.00000	2.63299
2	-3.78672	-2.63299	0.00000

Alpha= 0.05

Comparisons for all pairs using Tukey-Kramer HSD

Abs(Dif)-LSD	1	3	2
1	-1.91812	-1.18267	2.00133
3	-1.18267	-2.69043	0.40426
2	2.00133	0.40426	-1.64198

Positive values show pairs of means that are significantly different.

TOTAL DATA SET  
 FAMILY TYPE BY GENDER OF ADULT

(Male: 1; Female : 2)

(Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family;  
 Family Type 3: Blended Family)

FAMILY TYPE	GENDER OF ADULT		
	1	2	
Count			
Total %			
Row %			
Col %			
Expected			
Deviation			
Cell Chi^2			
1	169	209	378
	17.77	21.98	39.75
	44.71	55.29	
	72.22	29.15	
	93.01	284.99	
	75.99	-75.99	
	62.09	20.26	
2	0	377	377
	0.00	39.64	39.64
	0.00	100.00	
	0.00	52.58	
	92.76	284.24	
	-92.76	92.76	
	92.76	30.27	
3	65	131	196
	6.83	13.77	20.61
	33.16	66.84	
	27.78	18.27	
	48.23	147.77	
	16.77	-16.77	
	5.83	1.90	
	234	717	951
	24.61	75.39	

Source	DF	Tests		RSquare (U)
			-LogLikelihood	
Model	2		146.2076	0.1452
Error	947		860.9313	
C Total	949		1007.1390	
Total Count	951			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	292.415	0.0000
Pearson	213.123	0.0000

**TOTAL DATA SET  
FAMILY TYPE BY GENDER OF ADULT**

(Male: 1; Female : 2)

(Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family;  
Family Type 3: Blended Family)

FAMILY TYPE	GENDER OF ADULT		
	1	2	
Count			
Total %			
Row %			
Col %			
Expected			
Deviation			
Cell Chi^2			
1	169	209	378
	29.44	36.41	65.85
	44.71	55.29	
	72.22	61.47	
	154.10	223.90	
	14.90	-14.90	
	1.44	0.99	
3	65	131	196
	11.32	22.82	34.15
	33.16	66.84	
	27.78	38.53	
	79.90	116.10	
	-14.90	14.90	
	2.78	1.91	
	234	340	574
	40.77	59.23	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	1	3.60891	0.0098
Error	572	364.89989	
C Total	573	368.50879	
Total Count	574		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	7.218	0.0072
Pearson	7.125	0.0076

**TOTAL DATA SET-ADULT**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family;  
 Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	SEVERITY OF THE CURRENT INCIDENT					
	1	2	3	4	5	
Count						
Total %						
Row %						
Col %						
Expected						
Deviation						
Cell Chi^2						
1	83	21	193	19	65	381
	8.69	2.20	20.21	1.99	6.81	39.90
	21.78	5.51	50.66	4.99	17.06	
	49.70	13.64	76.28	10.56	32.34	
	66.63	61.44	100.94	71.81	80.19	
	16.38	-40.44	92.07	-52.81	-15.19	
	4.0246	26.62	83.97	38.84	2.88	
2	69	87	44	113	64	377
	7.23	9.11	4.61	11.83	6.70	39.48
	18.30	23.08	11.67	29.97	16.98	
	41.32	56.49	17.39	62.78	31.84	
	65.93	60.79	99.88	71.06	79.35	
	3.074	26.21	-55.88	41.94	-15.35	
	0.14	11.30	31.26	24.76	2.9686	
3	15	46	16	48	72	197
	1.57	4.82	1.68	5.03	7.54	20.63
	7.61	23.35	8.12	24.37	36.55	
	8.98	29.87	6.32	26.67	35.82	
	34.45	31.77	52.19	37.13	41.46	
	-19.45	14.23	-36.19	10.87	30.54	
	10.98	6.38	25.10	3.18	22.49	
	167	154	253	180	201	955
	17.49	16.13	26.49	18.85	21.05	
Source		DF	Tests			RSquare (U)
Model		8		-LogLikelihood		0.1547
Error		945		156.5103		
C Total		953		854.9699		
Total Count		955		1011.4802		
Test		ChiSquare	Prob>ChiSq			
Likelihood Ratio		313.021	0.0000			
Pearson		294.880	0.0000			



**TOTAL DATA SET-ADULT**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family;  
 Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	SEVERITY OF A PRIOR INCIDENT						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	92	43	13	80	20	42	290
	12.27	5.73	1.73	10.67	2.67	5.60	38.67
	31.72	14.83	4.48	27.59	6.90	14.48	
	37.25	53.75	17.57	60.15	24.10	31.58	
	95.51	30.93	28.61	51.43	32.09	51.43	
	-3.51	12.07	-15.61	28.57	-12.09	-9.43	
	0.13	4.71	8.52	15.88	4.56	1.73	
2	115	28	36	33	48	49	309
	15.33	3.73	4.80	4.40	6.40	6.53	41.20
	37.22	9.06	11.65	10.68	15.53	15.86	
	46.56	35.00	48.65	24.81	57.83	36.84	
	101.77	32.96	30.49	54.80	34.20	54.80	
	13.24	-4.96	5.51	-21.80	13.80	-5.80	
	1.72	0.75	1.00	8.67	5.57	0.61	
3	40	9	25	20	15	42	151
	5.33	1.20	3.33	2.67	2.00	5.60	20.13
	26.49	5.96	16.56	13.25	9.93	27.81	
	16.19	11.25	33.78	15.04	18.07	31.58	
	49.73	16.11	14.90	26.78	16.71	26.78	
	-9.73	-7.11	10.10	-6.78	-1.71	15.22	
	1.90	3.14	6.85	1.71	0.18	8.65	
	247	80	74	133	83	133	750
	32.93	10.67	9.87	17.73	11.07	17.73	

Source	DF	Tests		RSquare (U)
		-LogLikelihood		
Model	10	37.83543		0.0478
Error	738	753.74230		
C Total	748	791.57773		
Total Count	750			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	75.671	0.0000
Pearson	76.268	0.0000

## TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family;  
 Family Type 3: Blended Family)

FAMILY TYPE	ADULTS PERCEPTION OF THE INCIDENT						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	30	36	31	57	51	112	317
	3.74	4.49	3.87	7.11	6.36	13.97	39.53
	9.46	11.36	9.78	17.98	16.09	35.33	
	30.61	35.64	43.66	39.58	38.64	43.75	
	38.74	39.92	28.06	56.92	52.18	101.19	
	-8.74	-3.92	2.94	0.08	-1.18	10.81	
	1.97	0.39	0.31	0.00	0.03	1.16	
2	55	51	25	62	44	82	319
	6.86	6.36	3.12	7.73	5.49	10.22	39.78
	17.24	15.99	7.84	19.44	13.79	25.71	
	56.12	50.50	35.21	43.06	33.33	32.03	
	38.98	40.17	28.24	57.28	52.50	101.83	
	16.02	10.83	-3.24	4.72	-8.50	19.83	
	6.58	2.92	0.37	0.39	1.38	3.86	
3	13	14	15	25	37	62	166
	1.62	1.75	1.87	3.12	4.61	7.73	20.70
	7.83	8.43	9.04	15.06	22.29	37.35	
	13.27	13.86	21.13	17.36	28.03	24.22	
	20.28	20.91	14.70	29.81	27.32	52.99	
	-7.28	-6.91	0.30	-4.81	9.68	9.01	
	2.62	2.28	0.01	0.78	3.43	1.53	
	98	101	71	144	132	256	802
	12.22	12.59	8.85	17.96	16.46	31.92	

Tests			
Source	DF	-LogLikelihood	RSquare (U)
Model	10	14.90183	0.0175
Error	790	834.90147	
C Total	800	849.80331	
Total Count	802		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	29.804	0.0009
Pearson	29.984	0.0009

## TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family;  
 Family Type 3: Blended Family)

FAMILY TYPE	ADULT'S PERCEPTION OF THE CHILD						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	47	31	21	50	73	76	298
	6.17	4.07	2.76	6.56	9.58	9.97	39.11
	15.77	10.40	7.05	16.78	24.50	25.50	
	43.12	34.07	31.34	39.37	41.01	40.00	
	42.63	35.59	26.20	49.67	69.61	74.31	
	4.37	-4.59	-5.20	0.33	3.39	1.70	
	0.45	0.59	1.03	0.00	0.17	0.04	
2	55	46	33	55	64	60	313
	7.22	6.04	4.33	7.22	8.40	7.87	41.08
	17.57	14.70	10.54	17.57	20.45	19.17	
	50.46	50.55	49.25	43.31	35.96	31.58	
	44.77	37.38	27.52	52.17	73.12	78.05	
	10.23	8.62	5.48	2.83	-9.12	-18.05	
	2.34	1.99	1.09	0.15	1.14	4.17	
3	7	14	13	22	41	54	151
	0.92	1.84	1.71	2.89	5.38	7.09	19.82
	4.64	9.27	8.61	14.57	27.15	35.76	
	6.42	15.38	19.40	17.32	23.03	28.42	
	21.60	18.03	13.28	25.17	35.27	37.65	
	-14.60	-4.03	-0.28	-3.17	5.73	16.35	
	9.87	0.90	0.01	0.40	0.93	7.10	
	109	91	67	127	178	190	762
	14.30	11.94	8.79	16.67	23.36	24.93	

Source	DF	Tests		RSquare (U)
		-LogLikelihood		
Model	10	17.62429		0.0220
Error	750	785.06227		
C Total	760	802.68656		
Total Count	762			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	35.249	0.0001
Pearson	32.360	0.0003

TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family;  
 Family Type 3: Blended Family)

FAMILY TYPE	ATTACHMENT BETWEEN THE ADULT AND THE CHILD						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	38	42	22	57	36	39	234
	6.34	7.01	3.67	9.52	6.01	6.51	39.07
	16.24	17.95	9.40	24.36	15.38	16.67	
	34.55	34.15	36.67	39.58	50.00	43.33	
	42.97	48.05	23.44	56.25	28.13	35.16	
	-4.97	-6.05	-1.44	0.75	7.87	3.84	
	0.58	0.76	0.09	0.01	2.20	0.42	
2	62	63	21	52	22	28	248
	10.35	10.52	3.51	8.68	3.67	4.67	41.40
	25.00	25.40	8.47	20.97	8.87	11.29	
	56.36	51.22	35.00	36.11	30.56	31.11	
	45.54	50.93	24.84	59.62	29.81	37.26	
	16.46	12.08	-3.84	-7.62	-7.8-	9.26	
	5.95	2.86	0.59	0.97	2.05	2.30	
3	10	18	17	35	14	23	117
	1.67	3.01	2.84	5.84	2.34	3.84	19.53
	8.55	15.38	14.53	29.91	11.97	19.66	
	9.09	14.63	28.33	24.31	19.44	25.56	
	21.49	24.03	11.72	28.13	14.06	17.58	
	-11.49	-6.03	5.28	6.87	-0.06	5.42	
	6.14	1.51	2.38	1.68	0.00	1.67	
	110	123	60	144	72	90	599
	18.36	20.53	10.02	24.04	12.02	15.03	

Tests			
Source	DF	-LogLikelihood	RSquare (U)
Model	10	16.41823	0.0261
Error	587	613.29365	
C Total	597	629.71188	
Total Count	599		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	32.836	0.0003
Pearson	32.167	0.0004

## TOTAL DATA SET-ADULT

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family;  
 Family Type 3: Blended Family)

FAMILY TYPE	ADULT'S ATTITUDE CONCERNING DISCIPLINE						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	28	26	16	58	22	27	177
	6.93	6.44	3.96	14.36	5.45	6.68	43.81
	15.82	14.69	9.04	32.77	12.43	15.25	
	34.57	38.81	35.56	56.31	48.89	42.86	
	35.49	29.35	19.72	45.13	19.72	27.60	
	-7.49	-3.35	-3.72	12.87	2.29	-0.60	
	1.58	0.38	0.70	3.67	0.27	0.01	
2	46	30	21	27	12	18	154
	11.39	7.43	5.20	6.68	2.97	4.46	38.12
	29.87	19.48	13.64	17.53	7.79	11.69	
	56.79	44.78	46.67	26.21	26.67	28.57	
	30.88	25.54	17.15	39.26	17.15	24.02	
	15.12	4.46	3.85	-12.26	-5.15	-6.02	
	7.41	0.78	0.86	3.83	1.55	1.51	
3	7	11	8	18	11	18	73
	1.73	2.72	1.98	4.46	2.72	4.46	18.07
	9.59	15.07	10.96	24.66	15.07	24.66	
	8.64	16.42	17.78	17.48	24.44	28.57	
	14.64	12.11	8.13	18.61	8.13	11.38	
	-7.64	-1.11	-0.13	-0.61	2.87	6.62	
	3.98	0.10	0.00	0.02	1.01	3.85	
	81	67	45	103	45	63	404
	20.05	16.58	11.14	25.50	11.14	15.59	

Source	DF	Tests	
		-LogLikelihood	RSquare (U)
Model	10	15.69531	0.0374
Error	392	403.80356	
C Total	402	419.49887	
Total Count	404		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	31.391	0.0005
Pearson	31.513	0.0005

**TOTAL DATA SET-ADULT**

(Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(Family Type 1: 2 Biological Parents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)

**FAMILY TYPE ADULT'S PARENTING KNOWLEDGE AND SKILLS**

Count	-1	0	1	2	3	4	5	
1	41	1	31	18	58	61	100	310
Total %	5.23	0.13	3.95	2.30	7.40	7.78	12.76	39.54
Row %	13.23	0.32	10.00	5.81	18.71	19.68	32.26	
Col %	36.28	100.00	39.24	37.50	41.73	41.22	39.06	
Expected	44.68	0.40	31.24	18.98	54.96	58.52	101.23	
Deviation	-3.68	0.61	-0.24	-0.98	3.04	2.48	-1.23	
Cell Chi^2	0.30	0.92	0.00	0.05	0.17	0.11	0.02	
2	62	0	37	23	54	50	83	309
Total %	7.91	0.00	4.72	2.93	6.89	6.38	10.59	39.41
Row %	20.06	0.00	11.97	7.44	17.48	16.18	26.86	
Col %	54.87	0.00	46.84	47.92	38.85	33.78	32.42	
Expected	44.54	0.39	31.14	18.92	54.78	58.33	100.90	
Deviation	17.46	-0.39	5.86	4.08	-0.78	-8.33	-17.90	
Cell Chi^2	6.85	0.39	1.10	0.88	0.01	1.19	3.18	
3	10	0	11	7	27	37	73	165
Total %	1.28	0.00	1.40	0.89	3.44	4.72	9.31	21.05
Row %	6.06	0.00	6.67	4.24	16.36	22.42	44.24	
Col %	8.85	0.00	13.92	14.58	19.42	25.00	28.52	
Expected	23.78	0.21	16.63	10.10	29.25	31.15	53.88	
Deviation	-13.78	-0.21	-5.63	-3.10	-2.25	5.85	19.12	
Cell Chi^2	7.99	0.21	1.90	0.95	0.17	1.10	6.79	
	113	1	79	48	139	148	256	
Total %	784							
Row %	14.41	0.13	10.08	6.12	17.73	18.88	32.65	

Source	DF	Tests	-LogLikelihood	RSquare (U)
Model	12		17.94689	0.0216
Error	770		814.52891	
C Total	782		832.47580	
Total Count	784			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	35.894	0.0003
Pearson	34.284	0.0006

**TOTAL DATA SET-ADULT**  
 (Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)

FAMILY TYPE	ADULT'S SUBSTANCE ABUSE						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	167	5	2	17	29	68	288
	22.63	0.68	0.27	2.30	3.93	9.21	39.02
	57.99	1.74	0.69	5.90	10.07	23.61	
	43.83	31.25	28.57	32.69	46.77	30.91	
	148.68	6.24	2.73	20.29	24.20	85.85	
	18.32	-1.24	-0.73	-3.29	4.80	-17.85	
	2.2566	0.25	0.20	0.53	0.95	3.71	
2	157	10	3	30	18	87	305
	21.27	1.36	0.41	4.07	2.44	11.79	41.33
	51.48	3.28	0.98	9.84	5.90	28.52	
	41.21	62.50	42.86	57.69	29.03	39.55	
	157.46	6.61	2.89	21.49	25.62	90.92	
	-0.46	3.39	0.11	8.51	-7.62	-3.92	
	0.00	1.74	0.00	3.37	2.27	0.17	
3	57	1	2	5	15	65	145
	7.72	0.14	0.27	0.68	2.03	8.81	19.65
	39.31	0.69	1.38	3.45	10.34	44.83	
	14.96	6.25	28.57	9.62	24.19	29.55	
	74.86	3.14	1.38	10.22	12.18	43.23	
	-17.86	-2.14	0.623	-5.22	2.81	21.78	
	4.26	1.46	0.28	2.66	0.65	10.97	
	381	16	7	52	62	220	738
	51.63	2.17	0.95	7.05	8.40	29.81	

Source	DF	Tests	
		-LogLikelihood	RSquare (U)
Model	10	17.79543	0.0229
Error	726	758.66101	
C Total	736	776.45644	
Total Count	738		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	35.591	0.0001
Pearson	35.740	0.0001

**TOTAL DATA SET-ADULT**  
 (Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)

FAMILY TYPE	ADULTS HISTORY OF VIOLENCE TOWARDS ADULTS						
	0	1	2	3	4	5	
<b>Count</b>							
<b>Total %</b>							
<b>Row %</b>							
<b>Col %</b>							
<b>Expected</b>							
<b>Deviation</b>							
<b>Cell Chi^2</b>							
<b>1</b>	280	15	8	9	5	8	325
	34.15	1.83	0.98	1.10	0.61	0.98	39.63
	86.15	4.62	2.46	2.77	1.54	2.46	
	40.88	32.61	38.10	29.03	35.71	34.78	
	271.49	18.23	8.32	12.29	5.55	9.12	
	8.51	-3.23	-0.32	-3.29	-0.55	-1.12	
	0.27	0.57	0.01	0.88	0.05	0.14	
<b>2</b>	268	24	10	13	7	12	334
	32.68	2.93	1.22	1.59	0.85	1.46	40.73
	80.24	7.19	2.99	3.89	2.10	3.59	
	39.12	52.17	47.62	41.94	50.00	52.17	
	279.01	18.74	8.55	12.63	5.70	9.37	
	-11.01	5.26	1.45	0.37	1.30	2.63	
	0.44	1.48	0.25	0.0110	0.30	0.74	
<b>3</b>	137	7	3	9	2	3	161
	16.71	0.85	0.37	1.10	0.24	0.37	19.63
	85.09	4.35	1.86	5.59	1.24	1.86	
	20.00	15.22	14.29	29.03	14.29	13.04	
	134.49	9.03	4.12	6.09	2.75	4.52	
	2.51	-2.03	-1.12	2.91	-0.75	-1.52	
	0.05	0.46	0.31	1.40	0.20	0.51	
	685	46	21	31	14	23	820
	83.54	5.61	2.56	3.78	1.71	2.80	

Source	DF	Tests	
		-LogLikelihood	RSquare (U)
Model	10	3.97314	0.0046
Error	808	858.88604	
C Total	818	862.85918	
Total Count	820		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	7.946	0.6341
Pearson	8.042	0.6247



**TOTAL DATA SET-ADULT**  
 (Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)

FAMILY TYPE	ADULT'S PSYCHOPATHOLOGY/INCAPACITY						
	0	1	2	3	4	5	
<b>Count</b>							
<b>Total %</b>							
<b>Row %</b>							
<b>Col %</b>							
<b>Expected</b>							
<b>Deviation</b>							
<b>Cell Chi^2</b>							
<b>1</b>	180	14	1	16	16	51	278
	25.79	2.01	0.14	2.29	2.29	7.31	39.83
	64.75	5.04	0.36	5.76	5.76	18.35	
	40.63	45.16	11.11	30.19	40.00	41.80	
	176.44	12.35	3.59	21.11	15.9	48.59	
	3.562	1.65	-2.59	-5.11	0.07	2.41	
	0.072	0.22	1.86	1.24	0.00	0.12	
<b>2</b>	182	12	6	21	12	40	273
	26.07	1.72	0.86	3.01	1.72	5.73	39.11
	66.67	4.40	2.20	7.69	4.40	14.65	
	41.08	38.71	66.67	39.62	30.00	32.79	
	173.27	12.13	3.52	20.73	15.65	47.72	
	8.74	-0.13	2.48	0.27	-3.65	-7.72	
	0.44	0.00	1.75	0.00	0.85	1.25	
<b>3</b>	81	5	2	16	12	31	147
	11.60	0.72	0.29	2.29	1.72	4.44	21.06
	55.10	3.40	1.36	10.88	8.16	21.09	
	18.28	16.13	22.22	30.19	30.00	25.41	
	93.30	6.53	1.90	11.16	8.42	25.69	
	-12.30	-1.53	0.11	4.84	3.58	5.31	
	1.62	0.36	0.01	2.10	1.52	1.09	
	443	31	9	53	40	122	698
	63.47	4.44	1.29	7.59	5.73	17.48	

Source	DF	Tests	
		-LogLikelihood	RSquare (U)
Model	10	7.39806	0.0100
Error	686	733.80082	
C Total	696	741.19887	
Total Count	698		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	14.796	0.1397
Pearson	14.498	0.1515

**TOTAL DATA SET-ADULT**  
 (Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)

FAMILY TYPE	ADULT'S LEVEL OF STRESS						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	39	20	11	44	62	88	264
	5.51	2.82	1.55	6.21	8.76	12.43	37.29
	14.77	7.58	4.17	16.67	23.48	33.33	
	41.05	31.25	26.83	38.94	38.04	37.93	
	35.42	23.86	15.29	42.14	60.78	86.51	
	3.58	-3.86	-4.29	1.86	1.22	1.49	
	0.36	0.63	1.20	0.08	0.03	0.03	
2	39	34	21	48	65	77	284
	5.51	4.80	2.97	6.7	9.18	10.88	40.11
	13.73	11.97	7.39	16.90	22.89	27.11	
	41.05	53.12	51.22	42.48	39.88	33.19	
	38.11	25.67	16.45	45.33	65.38	93.06	
	0.89	8.33	4.55	2.67	-0.38	-16.06	
	0.02	2.70	1.26	0.16	0.00	2.77	
3	17	10	9	21	36	67	160
	2.40	1.41	1.27	2.97	5.08	9.46	22.60
	10.62	6.25	5.62	13.12	22.50	41.88	
	17.89	15.62	21.95	18.58	22.09	28.88	
	21.47	14.46	9.27	25.54	36.84	52.43	
	-4.47	-4.46	-0.27	-4.54	-0.84	14.57	
	0.93	1.38	0.01	0.81	0.02	4.05	
	95	64	41	113	163	232	708
	13.42	9.04	5.79	15.96	23.02	32.77	

Source	DF	Tests	
		-LogLikelihood	RSquare (U)
Model	10	8.18115	0.0108
Error	696	749.64221	
C Total	706	757.82336	
Total Count	708		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	16.362	0.0897
Pearson	16.427	0.0880

**TOTAL DATA SET-ADULT**  
 (Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)

FAMILY TYPE		ADULT'S RELEVANT REFERENCE GROUP VALUES						
Count	-1	0	1	2	3	4	5	
Total %								
Row %								
Col %								
Expected								
Deviation								
Cell Chi^2								
<b>1</b>	<b>36</b>	<b>1</b>	<b>19</b>	<b>23</b>	<b>16</b>	<b>27</b>	<b>34</b>	<b>156</b>
	7.98	0.22	4.21	5.10	3.55	5.99	7.54	34.59
	23.08	0.64	12.18	14.74	10.26	17.31	21.79	
	43.37	100.00	36.54	53.49	23.53	28.42	31.19	
	28.71	0.35	17.99	14.87	23.52	32.86	37.70	
	7.29	0.65	1.01	8.13	-7.52	-5.86	-3.70	
	1.85	1.24	0.06	4.44	2.41	1.05	0.36	
<b>2</b>	<b>38</b>	<b>0</b>	<b>21</b>	<b>14</b>	<b>40</b>	<b>45</b>	<b>45</b>	<b>203</b>
	8.43	0.00	4.66	3.10	8.87	9.98	9.98	45.01
	18.72	0.00	10.34	6.90	19.70	22.17	22.17	
	45.78	0.00	40.38	32.56	58.82	47.37	41.28	
	37.36	0.45	23.41	19.36	30.6	42.76	49.06	
	0.64	-0.45	-2.41	-5.36	9.39	2.24	-4.06	
	0.01	0.45	0.25	1.48	2.88	0.12	0.34	
<b>3</b>	<b>9</b>	<b>0</b>	<b>12</b>	<b>6</b>	<b>12</b>	<b>23</b>	<b>30</b>	<b>92</b>
	2.00	0.00	2.66	1.33	2.66	5.10	6.65	20.40
	9.78	0.00	13.04	6.52	13.04	25.00	32.61	
	10.84	0.00	23.08	13.95	17.65	24.21	27.52	
	16.93	0.20	10.61	8.77	13.87	19.38	22.24	
	-7.93	-0.20	1.39	-2.771	-1.87	3.62	7.77	
	3.72	0.20	0.18	0.88	0.25	0.68	2.72	
	<b>83</b>	<b>1</b>	<b>52</b>	<b>43</b>	<b>68</b>	<b>95</b>	<b>109</b>	<b>451</b>
	18.40	0.22	11.53	9.53	15.08	21.06	24.17	

Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	12	12.94021	0.0273
Error	437	460.96866	
C Total	449	473.90887	
Total Count	451		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	25.880	0.0112
Pearson	25.543	0.0124

## TOTAL DATA SET-ADULT

(Scale Levels: 0: Not Applicable; -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)

FAMILY TYPE	ADULTS SOCIAL ISOLATION						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	33	38	33	35	48	54	241
	5.15	5.93	5.15	5.46	7.49	8.42	37.60
	13.69	15.77	13.69	14.52	19.92	22.41	
	45.83	36.54	53.23	36.46	29.09	38.03	
	27.07	39.10	23.31	36.09	62.04	53.39	
	5.93	-1.10	9.69	-1.09	-14.04	0.61	
	1.30	0.03	4.028	0.03	3.18	0.01	
2	30	44	21	40	77	54	266
	4.68	6.86	3.28	6.24	12.01	8.42	41.50
	11.28	16.54	7.89	15.04	28.95	20.30	
	41.67	42.31	33.87	41.67	46.67	38.03	
	29.88	43.16	25.73	39.84	68.47	58.93	
	0.12	0.84	-4.73	0.16	8.53	-4.93	
	0.00	0.016	0.87	0.00	1.06	0.41	
3	9	22	8	21	40	34	134
	1.40	3.43	1.25	3.28	6.24	5.30	20.90
	6.72	16.42	5.97	15.67	29.85	25.37	
	12.50	21.15	12.90	21.88	24.24	23.94	
	15.05	21.74	12.96	20.07	34.49	29.69	
	-6.05	0.26	-4.96	0.93	5.51	4.32	
	2.43	0.00	1.90	0.04	0.88	0.63	
	72	104	62	96	165	142	641
	11.23	16.22	9.67	14.98	25.74	22.15	

Source	DF	Tests	
		-LogLikelihood	RSquare (U)
Model	10	8.60666	0.0127
Error	629	670.83861	
C Total	639	679.44527	
Total Count	641		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	17.213	0.0698
Pearson	16.819	0.0785

**APPENDIX F**

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE III**

**BIVARIATE SIGNIFICANCE TESTS**

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE III**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family  
 Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	PERCEPTION OF THE INCIDENT						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi <sup>2</sup>							
1	30	36	31	57	51	112	317
	6.21	7.45	6.42	11.80	10.56	23.19	65.63
	9.46	11.36	9.78	17.98	16.09	35.33	
	69.77	72.00	67.39	69.51	57.95	64.37	
	28.22	32.82	30.19	53.82	57.76	114.20	
	1.78	3.18	0.81	3.18	-6.76	-2.20	
	0.11	0.31	0.022	0.19	0.79	0.04	
3	13	14	15	25	37	62	166
	2.69	2.90	3.11	5.18	7.66	12.84	34.37
	7.83	8.43	9.04	15.06	22.29	37.35	
	30.23	28.00	32.61	30.49	42.05	35.63	
	14.78	17.18	15.81	28.18	30.24	59.80	
	-1.78	-3.18	-0.81	-3.18	6.76	2.20	
	0.21	0.59	0.04	0.36	1.51	0.08	
	43	50	46	82	88	174	483
	8.90	10.35	9.52	16.98	18.22	36.02	
Tests							
Source		DF			-LogLikelihood		RSquare (U)
Model		5			2.11891		0.0068
Error		477			308.66730		
C Total		482			310.78621		
Total Count		483					
	Test		ChiSquare		Prob>ChiSq		
	Likelihood Ratio		4.238		0.5157		
	Pearson		4.258		0.5129		

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE III**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	ATTACHMENT						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	38	42	22	57	36	39	234
	10.83	11.97	6.27	16.24	10.26	11.11	66.67
	16.24	17.95	9.40	24.36	15.38	16.67	
	79.17	70.00	56.41	61.96	72.00	62.90	
	32	40	26	61.33	33.33	41.33	
	6	2	-4	-4.33	2.67	-2.33	
	1.1250	0.1000	0.6154	0.31	0.21	0.13	
3	10	18	17	35	14	23	117
	2.85	5.13	4.84	9.97	3.99	6.55	33.33
	8.55	15.38	14.53	29.91	11.97	19.66	
	20.83	30.00	43.59	38.04	28.00	37.10	
	16	20	13	30.67	16.67	20.67	
	-6	-2	4	4.33	-2.67	2.33	
	2.2500	0.2000	1.2308	0.61	0.43	0.26	
	48	60	39	92	50	62	351
	13.68	17.09	11.11	26.21	14.25	17.66	

Source	Tests		RSquare (U)
	DF	-LogLikelihood	
Model	5	3.84158	0.0172
Error	345	219.57490	
C Total	350	223.41647	
Total Count	351		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	7.683	0.1746
Pearson	7.475	0.1877

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	ATTITUDE RE: DISCIPLINE						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>1</b>	<b>28</b>	<b>26</b>	<b>16</b>	<b>58</b>	<b>22</b>	<b>27</b>	<b>177</b>
	11.20	10.40	6.40	23.20	8.80	10.80	70.80
	15.82	14.69	9.04	32.77	12.43	15.25	
	80.00	70.27	66.67	76.32	66.67	60.00	
	24.78	26.20	16.99	53.81	23.36	31.86	
	3.22	-0.20	-0.99	4.19	-1.36	-4.86	
	0.4184	0.00	0.058	0.33	0.08	0.74	
<b>3</b>	<b>7</b>	<b>11</b>	<b>8</b>	<b>18</b>	<b>11</b>	<b>18</b>	<b>73</b>
	2.80	4.40	3.20	7.20	4.40	7.20	29.20
	9.59	15.07	10.96	24.66	15.07	24.66	
	20.00	29.73	33.33	23.68	33.33	40.00	
	10.22	10.80	7.01	22.19	9.64	13.14	
	-3.22	0.20	0.99	-4.19	1.36	4.86	
	1.0145	0.00	0.14	0.79	0.19	1.80	
	<b>35</b>	<b>37</b>	<b>24</b>	<b>76</b>	<b>33</b>	<b>45</b>	<b>250</b>
	14.00	14.80	9.60	30.40	13.20	18.00	

Source	Tests		
	DF	-LogLikelihood	RSquare (U)
Model	5	2.78232	0.0184
Error	244	148.20087	
C Total	249	150.98319	
Total Count	250		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	5.565	0.3509
Pearson	5.566	0.3507



**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Parents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	PARENTING KNOWLEDGE & SKILLS							
	-1	0	1	2	3	4	5	
Count	41	1	31	18	58	61	100	310
Total %	8.63	0.21	6.53	3.79	12.21	12.84	21.05	65.26
Row %	13.23	0.32	10.00	5.81	18.71	19.68	32.26	
Col %	80.39	100.00	73.81	72.00	68.24	62.24	57.80	
Expected	33.28	0.65	27.41	16.32	55.47	63.96	112.91	
Deviation	7.72	0.35	3.59	1.68	2.53	-2.96	-12.91	
Cell Chi^2	1.79	0.19	0.47	0.17	0.12	0.14	1.48	
1	10	0	11	7	27	37	73	165
	2.11	0.00	2.32	1.47	5.68	7.79	15.37	34.74
	6.06	0.00	6.67	4.24	16.36	22.42	44.24	
	19.61	0.00	26.19	28.00	31.76	37.76	42.20	
	17.72	0.35	14.59	8.68	29.53	34.04	60.10	
	-7.72	-0.35	-3.59	-1.68	-2.53	2.96	12.91	
	3.36	0.35	0.88	0.33	0.22	0.26	2.77	
3	51	1	42	25	85	98	173	475
	10.74	0.21	8.84	5.26	17.89	20.63	36.42	

Source	Tests		
	DF	-LogLikelihood	RSquare (U)
Model	6	6.64931	0.0217
Error	468	300.10681	
C Total	474	306.75612	
Total Count	475		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	13.299	0.0385
Pearson	12.507	0.0516

**APPENDIX G**

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**

**BIVARIATE SIGNIFICANCE TESTS**

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Parents; Family Type 2: Single Parent Female-Headed Family; Family  
 Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE		SEVERITY OF THE CURRENT INCIDENT				
	1	2	3	4	5	
Count						
Total %						
Row %						
Col %						
Expected						
Deviation						
Cell Chi^2						
<b>1</b>	<b>83</b>	<b>21</b>	<b>193</b>	<b>19</b>	<b>65</b>	<b>381</b>
	<b>10.95</b>	<b>2.77</b>	<b>25.46</b>	<b>2.51</b>	<b>8.58</b>	<b>50.26</b>
	<b>21.78</b>	<b>5.51</b>	<b>50.66</b>	<b>4.99</b>	<b>17.06</b>	
	<b>54.61</b>	<b>19.44</b>	<b>81.43</b>	<b>14.39</b>	<b>50.39</b>	
	<b>76.40</b>	<b>54.29</b>	<b>119.13</b>	<b>66.35</b>	<b>64.84</b>	
	<b>6.60</b>	<b>-33.29</b>	<b>73.88</b>	<b>-47.35</b>	<b>0.16</b>	
	<b>0.57</b>	<b>20.41</b>	<b>45.81</b>	<b>33.79</b>	<b>0.00</b>	
<b>2</b>	<b>69</b>	<b>87</b>	<b>44</b>	<b>113</b>	<b>64</b>	<b>377</b>
	<b>9.10</b>	<b>11.48</b>	<b>5.80</b>	<b>14.91</b>	<b>8.44</b>	<b>49.74</b>
	<b>18.30</b>	<b>23.08</b>	<b>11.67</b>	<b>29.97</b>	<b>16.98</b>	
	<b>45.39</b>	<b>80.56</b>	<b>18.57</b>	<b>85.61</b>	<b>49.61</b>	
	<b>75.60</b>	<b>53.72</b>	<b>117.88</b>	<b>65.65</b>	<b>64.16</b>	
	<b>-6.60</b>	<b>33.29</b>	<b>-73.88</b>	<b>47.35</b>	<b>-0.16</b>	
	<b>0.58</b>	<b>20.63</b>	<b>46.30</b>	<b>34.15</b>	<b>0.00</b>	
	<b>152</b>	<b>108</b>	<b>237</b>	<b>132</b>	<b>129</b>	<b>758</b>
	<b>20.05</b>	<b>14.25</b>	<b>31.27</b>	<b>17.41</b>	<b>17.02</b>	
<b>Tests</b>						
<b>Source</b>		<b>DF</b>		<b>-LogLikelihood</b>		<b>RSquare (U)</b>
<b>Model</b>		<b>4</b>		<b>109.95159</b>		<b>0.2093</b>
<b>Error</b>		<b>753</b>		<b>415.44342</b>		
<b>C Total</b>		<b>757</b>		<b>525.39501</b>		
<b>Total Count</b>		<b>758</b>				
	<b>Test</b>		<b>ChiSquare</b>	<b>Prob&gt;ChiSq</b>		
	<b>Likelihood Ratio</b>		<b>219.903</b>	<b>&lt;.0001</b>		
	<b>Pearson</b>		<b>202.230</b>	<b>&lt;.0001</b>		

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Parents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	SEVERITY OF A PRIOR INCIDENT						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>1</b>	<b>92</b>	<b>43</b>	<b>13</b>	<b>80</b>	<b>20</b>	<b>42</b>	<b>290</b>
	15.36	7.18	2.17	13.36	3.34	7.01	48.41
	31.72	14.83	4.48	27.59	6.90	14.48	
	44.44	60.56	26.53	70.80	29.41	46.15	
	100.22	34.37	23.73	54.71	32.92	44.06	
	-8.22	8.63	-10.73	25.29	-12.92	-2.06	
	0.67	2.17	4.85	11.69	5.07	0.10	
<b>2</b>	<b>115</b>	<b>28</b>	<b>36</b>	<b>33</b>	<b>48</b>	<b>49</b>	<b>309</b>
	19.20	4.67	6.01	5.51	8.01	8.18	51.59
	37.22	9.06	11.65	10.68	15.53	15.86	
	55.56	39.44	73.47	29.20	70.59	53.85	
	106.78	36.63	25.28	58.29	35.08	46.94	
	8.22	-8.63	10.72	-25.29	12.92	2.06	
	0.63	2.03	4.55	10.97	4.76	0.09	
	<b>207</b>	<b>71</b>	<b>49</b>	<b>113</b>	<b>68</b>	<b>91</b>	<b>599</b>
	34.56	11.85	8.18	18.86	11.35	15.19	

Source	Tests		RSquare (U)
	DF	-LogLikelihood	
Model	5	24.47855	0.0590
Error	593	390.41523	
C Total	598	414.89378	
Total Count	599		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	48.957	<.0001
Pearson	47.582	<.0001

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	PERCEPTION OF THE INCIDENT						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>1</b>	<b>30</b>	<b>36</b>	<b>31</b>	<b>57</b>	<b>51</b>	<b>112</b>	<b>317</b>
	4.72	5.66	4.87	8.96	8.02	17.61	49.84
	9.46	11.36	9.78	17.98	16.09	35.33	
	35.29	41.38	55.36	47.90	53.68	57.73	
	42.37	43.36	27.91	59.31	47.35	96.70	
	-12.37	-7.36	3.09	-2.31	3.65	15.31	
	3.61	1.25	0.34	0.09	0.28	2.42	
<b>2</b>	<b>55</b>	<b>51</b>	<b>25</b>	<b>62</b>	<b>44</b>	<b>82</b>	<b>319</b>
	8.65	8.02	3.93	9.75	6.92	12.89	50.16
	17.24	15.99	7.84	19.44	13.79	25.71	
	64.71	58.62	44.64	52.10	46.32	42.27	
	42.63	43.67	28.09	59.69	47.65	97.31	
	12.37	7.36	-3.09	2.31	-3.65	-15.31	
	3.59	1.24	0.34	0.09	0.28	2.41	
	85	87	56	119	95	194	636
	13.36	13.68	8.81	18.71	14.94	30.50	

		Tests		
Source	DF	-LogLikelihood	RSquare (U)	
Model	5	8.04201	0.0182	
Error	630	432.79645		
C Total	635	440.83846		
Total Count	636			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	16.084	0.0066
Pearson	15.941	0.0070

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
(Family Type 1: 2 Biological Parents; Family Type 2: Single Parent Female-Headed Family; Family  
Type 3: Blended Family)  
(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	PERCEPTION OF THE CHILD						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>1</b>	<b>47</b>	<b>31</b>	<b>21</b>	<b>50</b>	<b>73</b>	<b>76</b>	<b>298</b>
	7.69	5.07	3.44	8.18	11.95	12.44	48.77
	15.77	10.40	7.05	16.78	24.50	25.50	
	46.08	40.26	38.89	47.62	53.28	55.88	
	49.75	37.56	26.34	51.21	66.82	66.330	
	-2.75	-6.56	-5.34	-1.21	6.18	9.67	
	0.15	1.14	1.08	0.03	0.57	1.41	
<b>2</b>	<b>55</b>	<b>46</b>	<b>33</b>	<b>55</b>	<b>64</b>	<b>60</b>	<b>313</b>
	9.00	7.53	5.40	9.00	10.47	9.82	51.23
	17.57	14.70	10.54	17.57	20.45	19.17	
	53.92	59.74	61.11	52.38	46.72	44.12	
	52.25	39.45	27.66	53.79	70.18	69.67	
	2.75	6.56	5.34	1.21	-6.18	-9.67	
	0.15	1.09	1.03	0.03	0.55	1.34	
	102	77	54	105	137	136	611
	16.69	12.60	8.84	17.18	22.42	22.26	
<b>Tests</b>							
Source		DF			-LogLikelihood		RSquare (U)
Model		5			4.30314		0.0102
Error		605			419.02564		
C Total		610			423.32878		
Total Count		611					
<b>Test</b>							
		ChiSquare		Prob>ChiSq			
	Likelihood Ratio	8.606		0.1258			
	Pearson	8.565		0.1277			



**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

<b>FAMILY TYPE</b>	<b>ATTITUDE RE: DISCIPLINE</b>						
	-1	1	2	3	4	5	
<b>Count</b>							
<b>Total %</b>							
<b>Row %</b>							
<b>Col %</b>							
<b>Expected</b>							
<b>Deviation</b>							
<b>Cell Chi<sup>2</sup></b>							
<b>1</b>	28	26	16	58	22	27	177
	8.46	7.85	4.83	17.52	6.65	8.16	53.47
	15.82	14.69	9.04	32.77	12.43	15.25	
	37.84	46.43	43.24	68.24	64.71	60.00	
	39.57	29.95	19.79	45.45	18.18	24.06	
	-11.57	-3.95	-3.79	12.55	3.82	2.94	
	3.3835	0.52	0.72	3.46	0.80	0.36	
<b>2</b>	46	30	21	27	12	18	154
	13.90	9.06	6.34	8.16	3.63	5.44	46.53
	29.87	19.48	13.64	17.53	7.79	11.69	
	62.16	53.57	56.76	31.76	35.29	40.00	
	34.43	26.054	17.22	39.55	15.82	20.94	
	11.57	3.95	3.79	-12.55	-3.82	-2.94	
	3.89	0.60	0.83	3.98	0.92	0.41	
	74	56	37	85	34	45	331
	22.36	16.92	11.18	25.68	10.27	13.60	

			<b>Tests</b>		
<b>Source</b>	<b>DF</b>	<b>-LogLikelihood</b>			<b>RSquare (U)</b>
<b>Model</b>	5	10.07752			0.0441
<b>Error</b>	325	218.55446			
<b>C Total</b>	330	228.63198			
<b>Total Count</b>	331				

<b>Test</b>	<b>ChiSquare</b>	<b>Prob&gt;ChiSq</b>
Likelihood Ratio	20.155	0.0012
Pearson	19.885	0.0013



**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE		PARENTING KNOWLEDGE & SKILLS						
Count	-1	0	1	2	3	4	5	
	Total %							
	Row %							
	Col %							
	Expected							
	Deviation							
	Cell Chi^2							
1	41	1	31	18	58	61	100	310
	6.62	0.16	5.01	2.91	9.37	9.85	16.16	50.08
	13.23	0.32	10.00	5.81	18.71	19.68	32.26	
	39.81	100.00	45.59	43.90	51.79	54.95	54.64	
	51.58	0.51	34.06	20.53	56.09	55.59	91.65	
	-10.58	0.50	-3.06	-2.53	1.91	5.41	8.35	
	2.17	0.50	0.27	0.31	0.07	0.53	0.76	
2	62	0	37	23	54	50	83	309
	10.02	0.00	5.98	3.72	8.72	8.08	13.41	49.92
	20.06	0.00	11.97	7.44	17.48	16.18	26.86	
	60.19	0.00	54.41	56.10	48.21	45.05	45.36	
	51.42	0.50	33.95	20.47	55.91	55.41	91.35	
	10.58	-0.50	3.06	2.53	-1.91	-5.41	-8.35	
	2.18	0.50	0.28	0.31	0.07	0.53	0.76	
	103	1	68	41	112	111	183	619
	16.64	0.16	10.99	6.62	18.09	17.93	29.56	

		Tests		
Source	DF	-LogLikelihood	RSquare (U)	
Model	6	4.82703	0.0113	
Error	612	424.23027		
C Total	618	429.05730		
Total Count	619			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	9.654	0.1400
Pearson	9.231	0.1610

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Parents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	SUBSTANCE ABUSE						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	167	5	2	17	29	68	288
	28.16	0.84	0.34	2.87	4.89	11.47	48.57
	57.99	1.74	0.69	5.90	10.07	23.61	
	51.54	33.33	40.00	36.17	61.70	43.87	
	157.36	7.29	2.43	22.83	22.83	75.28	
	9.64	-2.29	-0.43	-5.83	6.17	-7.28	
	0.5911	0.72	0.08	1.49	1.67	0.70	
2	157	10	3	30	18	87	305
	26.48	1.69	0.51	5.06	3.04	14.67	51.43
	51.48	3.28	0.98	9.84	5.90	28.52	
	48.46	66.67	60.00	63.83	38.30	56.13	
	166.64	7.72	2.57	24.17	24.17	79.72	
	-9.64	2.29	0.43	5.83	-6.17	7.28	
	0.56	0.68	0.071	1.40	1.58	0.67	
3	324	15	5	47	47	155	593
	54.64	2.53	0.84	7.93	7.93	26.14	

Source	DF	Tests		RSquare (U)
		-LogLikelihood		
Model	5	5.14904		0.0125
Error	587	405.64353		
C Total	592	410.79257		
Total Count	593			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	10.298	0.0672
Pearson	10.196	0.0699

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family  
 Type 3: Blended Family)

(Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	HISTORY OF VIOLENCE						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	280	15	8	9	5	8	325
	42.49	2.28	1.21	1.37	0.76	1.21	49.32
	86.15	4.62	2.46	2.77	1.54	2.46	
	51.09	38.46	44.44	40.91	41.67	40.00	
	270.26	19.23	8.88	10.85	5.92	9.86	
	9.74	-4.23	-0.88	-1.85	-0.92	-1.86	
	0.35	0.93	0.09	0.32	0.14	0.35	
2	268	24	10	13	7	12	334
	40.67	3.64	1.52	1.97	1.06	1.82	50.68
	80.24	7.19	2.99	3.89	2.10	3.59	
	48.91	61.54	55.56	59.09	58.33	60.00	
	277.74	19.77	9.12	11.15	6.08	10.14	
	-9.74	4.23	0.88	1.85	0.92	1.86	
	0.34	0.91	0.08	0.31	0.14	0.34	
	548	39	18	22	12	20	659
	83.16	5.92	2.73	3.34	1.82	3.03	

Source	Tests		
	DF	-LogLikelihood	RSquare (U)
Model	5	2.16498	0.0047
Error	653	454.55755	
C Total	658	456.72253	
Total Count	659		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	4.330	0.5029
Pearson	4.300	0.5070

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family  
 Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	PSYCHOPATHOLOGY/INCAPACITY						
	0	1	2	3	4	5	
Count	180	14	1	16	16	51	278
Total %	32.67	2.54	0.18	2.90	2.90	9.26	50.45
Row %	64.75	5.04	0.36	5.76	5.76	18.35	
Col %	49.72	53.85	14.29	43.24	57.14	56.04	
Expected	182.64	13.12	3.53	18.67	14.13	45.91	
Deviation	-2.64	0.88	-2.53	-2.67	1.87	5.09	
Cell Chi^2	0.04	0.06	1.82	0.38	0.25	0.56	
1	182	12	6	21	12	40	273
	33.03	2.18	1.09	3.81	2.18	7.26	49.55
	66.67	4.40	2.20	7.69	4.40	14.65	
	50.28	46.15	85.71	56.76	42.86	43.96	
	179.36	12.88	3.47	18.33	13.87	45.09	
	2.64	-0.88	2.53	2.67	-1.87	-5.09	
	0.04	0.06	1.85	0.39	0.25	0.57	
2	362	26	7	37	28	91	551
	65.70	4.72	1.27	6.72	5.08	16.52	

Source	DF	Tests		RSquare (U)
		-LogLikelihood		
Model	5	3.33309		0.0087
Error	545	378.56832		
C Total	550	381.90141		
Total Count	551			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	6.666	0.2467
Pearson	6.268	0.2810

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family  
 Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE	STRESS						
	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
1	39	20	11	44	62	88	264
	7.12	3.65	2.01	8.03	11.31	16.06	48.18
	14.77	7.58	4.17	16.67	23.48	33.33	
	50.00	37.04	34.38	47.83	48.82	53.33	
	37.58	26.02	15.42	44.32	61.18	79.49	
	1.42	-6.02	-4.42	-0.32	0.82	8.51	
	0.05	1.39	1.27	0.00	0.01	0.91	
2	39	34	21	48	65	77	284
	7.12	6.20	3.83	8.76	11.86	14.05	51.82
	13.73	11.97	7.39	16.90	22.89	27.11	
	50.00	62.96	65.62	52.17	51.18	46.67	
	40.42	27.99	16.58	47.68	65.82	85.51	
	-1.42	6.015	4.42	0.32	-0.82	-8.51	
	0.05	1.29	1.18	0.00	0.01	0.85	
	78	54	32	92	127	165	548
	14.23	9.85	5.84	16.79	23.18	30.11	

Source	Tests		
	DF	-LogLikelihood	RSquare (U)
Model	5	3.54901	0.0094
Error	542	375.93060	
C Total	547	379.47961	
Total Count	548		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	7.098	0.2135
Pearson	7.012	0.2197

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Patents; Family Type 2: Single Parent Female-Headed Family; Family Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE		REFERENCE GROUP VALUES						
Count	-1	0	1	2	3	4	5	
Total %								
Row %								
Col %								
Expected								
Deviation								
Cell Chi^2								
<b>1</b>	<b>36</b>	<b>1</b>	<b>19</b>	<b>23</b>	<b>16</b>	<b>27</b>	<b>34</b>	<b>156</b>
	10.03	0.28	5.29	6.41	4.46	7.52	9.47	43.45
	23.08	0.64	12.18	14.74	10.26	17.31	21.79	
	48.65	100.00	47.50	62.16	28.57	37.50	43.04	
	32.16	0.44	17.38	16.08	24.33	31.29	34.33	
	3.84	0.57	1.62	6.92	-8.33	-4.29	-0.33	
	0.46	0.74	0.15	2.98	2.85	0.59	0.00	
<b>2</b>	<b>38</b>	<b>0</b>	<b>21</b>	<b>14</b>	<b>40</b>	<b>45</b>	<b>45</b>	<b>203</b>
	10.58	0.00	5.85	3.90	11.14	12.53	12.53	56.55
	18.72	0.00	10.34	6.90	19.70	22.17	22.17	
	51.35	0.00	52.50	37.84	71.43	62.50	56.96	
	41.84	0.57	22.62	20.92	31.67	40.71	44.67	
	-3.84	-0.57	-1.62	-6.92	8.33	4.29	0.33	
	0.36	0.57	0.12	2.29	2.19	0.45	0.00	
	74	1	40	37	56	72	79	359
	20.61	0.28	11.14	10.31	15.60	20.06	22.01	

		Tests		
Source	DF	-LogLikelihood	RSquare (U)	
Model	6	7.14591	0.0291	
Error	352	238.60848		
C Total	358	245.75439		
Total Count	359			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	14.292	0.0265
Pearson	13.743	0.0326

**COMPARISONS OF FAMILY TYPE I AND FAMILY TYPE II**  
 (Family Type 1: 2 Biological Parents; Family Type 2: Single Parent Female-Headed Family; Family  
 Type 3: Blended Family)  
 (Scale Levels: -1: Protective; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)  
 (N: Neglect; P: Physical Abuse; S: Sexual Abuse)

FAMILY TYPE		SOCIAL ISOLATION						
		-1	1	2	3	4	5	
Count								
Total %								
Row %								
Col %								
Expected								
Deviation								
Cell Chi^2								
1		33	38	33	35	48	54	241
		6.51	7.50	6.51	6.90	9.47	10.65	47.53
		13.69	15.77	13.69	14.52	19.92	22.41	
		52.38	46.34	61.11	46.67	38.40	50.00	
		29.95	38.98	25.67	35.65	59.42	51.34	
		3.05	-0.98	7.33	-0.65	-11.42	2.66	
		0.31	0.03	2.09	0.01	2.19	0.14	
2		30	44	21	40	77	54	266
		5.92	8.68	4.14	7.89	15.19	10.65	52.47
		11.28	16.54	7.89	15.04	28.95	20.30	
		47.62	53.66	38.89	53.33	61.60	50.00	
		33.05	43.02	28.33	39.35	65.58	56.66	
		-3.05	0.98	-7.33	0.65	11.42	-2.66	
		0.28	0.02	1.90	0.01	1.99	0.13	
		63	82	54	75	125	108	507
		12.43	16.17	10.65	14.79	24.65	21.30	
Source				Tests				
Model			DF		-LogLikelihood		RSquare (U)	
Error			5		4.58071		0.0131	
C Total			501		346.22829			
Total Count			506		350.80900			
			507					
			Test	ChiSquare	Prob>ChiSq			
			Likelihood Ratio	9.161	0.1028			
			Pearson	9.099	0.1052			

**APPENDIX H**

**HISTOGRAMS & DISPERSION STATISTICS**

**ADULT AGE & CHILD AGE**

**ALL SETS**

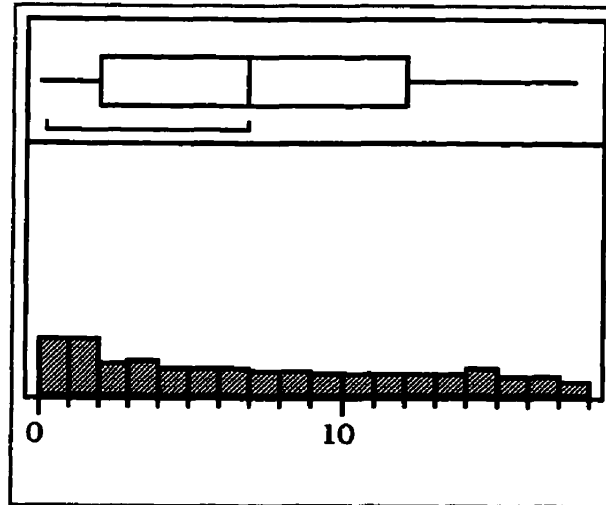


## INTERPRETATION OF THE TABLES

**Outlier Box Plot: ...The ends of the box are the 25th and 75th quantiles, also called the quartiles. The line across the middle of the box identifies the median sample value. The lines on each end, sometimes called *whiskers*, extend from the end of the box to the outermost data point that falls within the distance computed as 1.5 (interquartile range). The bracket at the edge of the box identifies the shortest half (the most dense 50%) of the observations.**

**(SAS Institute, 1994, p. 25)**

**TOTAL DATA SET  
AGE OF CHILD  
(Age: Years)**



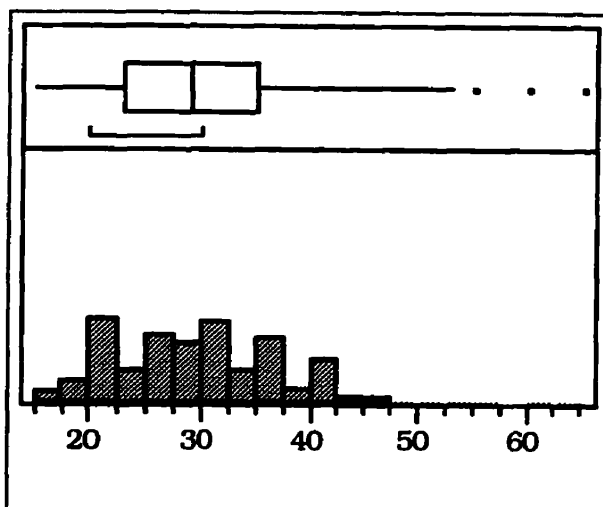
**Quantiles**

maximum	100.0%	17.500
	99.5%	17.000
quartile	97.5%	17.000
	90.0%	15.000
quartile	75.0%	12.000
median	50.0%	7.000
quartile	25.0%	2.000
	10.0%	0.830
minimum	2.5%	0.077
	0.5%	0.003
	0.0%	0.000

**Moments**

Mean	7.2019
Std Dev	5.2505
Std Err Mean	0.1708
upper 95% Mean	7.5371
lower 95% Mean	6.8667
N	945.0000
Sum Wgts	945.0000

TOTAL DATA SET  
AGE OF ADULT  
(Age: Years)



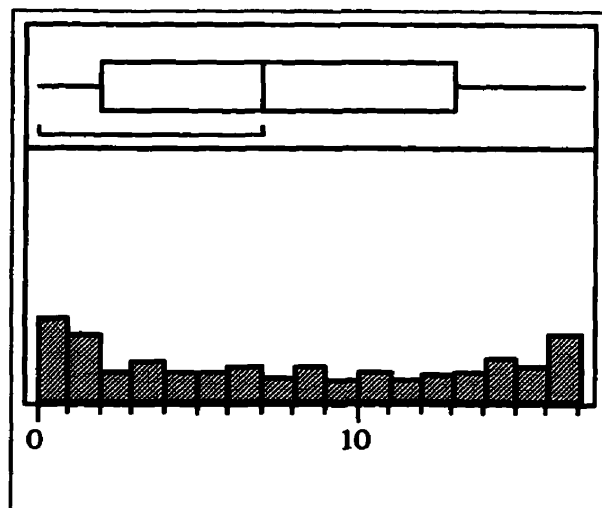
Quantiles

maximum	100.0%	65.000
	99.5%	56.975
	97.5%	46.975
	90.0%	40.000
quartile	75.0%	35.000
median	50.0%	29.000
quartile	25.0%	23.000
	10.0%	20.000
	2.5%	17.000
	0.5%	15.000
minimum	0.0%	15.000

Moments

Mean	29.7596
Std Dev	7.9421
Std Err Mean	0.3483
upper 95% Mean	30.4438
lower 95% Mean	29.0754
N	520.0000
Sum Wgts	520.0000

**FAMILY TYPE I  
AGE OF CHILD  
(Age: Years)**



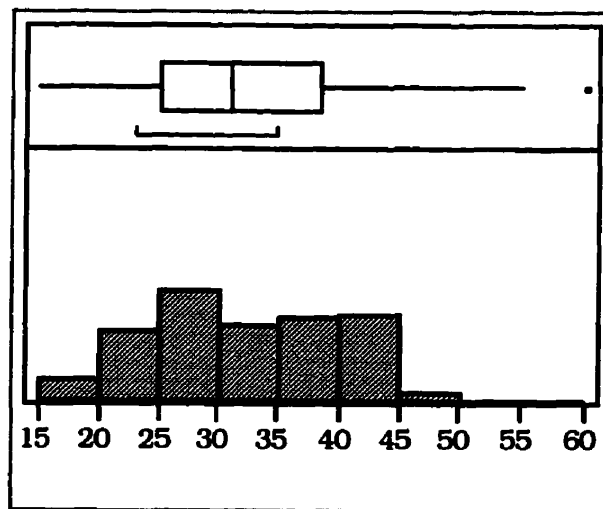
**Quantiles**

<b>maximum</b>	<b>100.0%</b>	<b>17.000</b>
	<b>99.5%</b>	<b>17.000</b>
	<b>97.5%</b>	<b>17.000</b>
	<b>90.0%</b>	<b>15.000</b>
<b>quartile</b>	<b>75.0%</b>	<b>13.000</b>
<b>median</b>	<b>50.0%</b>	<b>7.000</b>
<b>quartile</b>	<b>25.0%</b>	<b>2.000</b>
	<b>10.0%</b>	<b>0.580</b>
	<b>2.5%</b>	<b>0.064</b>
	<b>0.5%</b>	<b>0.003</b>
<b>minimum</b>	<b>0.0%</b>	<b>0.000</b>

**Moments**

<b>Mean</b>	<b>7.6123</b>
<b>Std Dev</b>	<b>5.5214</b>
<b>Std Err Mean</b>	<b>0.2847</b>
<b>upper 95% Mean</b>	<b>8.1722</b>
<b>lower 95% Mean</b>	<b>7.0524</b>
<b>N</b>	<b>376.0000</b>
<b>Sum Wgts</b>	<b>376.0000</b>

**FAMILY TYPE I  
AGE OF ADULT  
(Age: Years)**



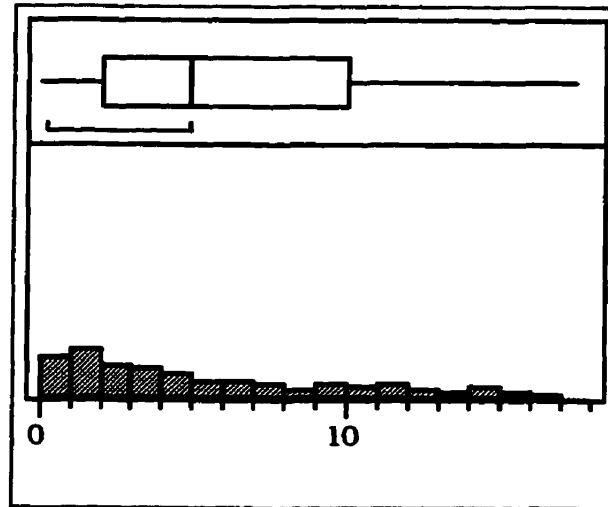
**Quantiles**

maximum	100.0%	60.000
	99.5%	60.000
	97.5%	48.900
	90.0%	42.000
quartile	75.0%	38.500
median	50.0%	31.000
quartile	25.0%	25.000
	10.0%	20.000
	2.5%	17.550
	0.5%	15.000
minimum	0.0%	15.000

**Moments**

Mean	31.7624
Std Dev	8.3960
Std Err Mean	0.6241
upper 95% Mean	32.9939
lower 95% Mean	30.5310
N	181.0000
Sum Wgts	181.0000

**FAMILY TYPE II  
AGE OF CHILD  
(Age: Years)**



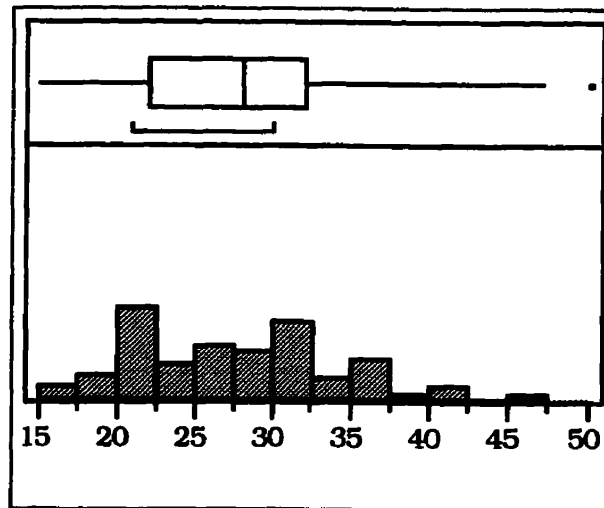
**Quantiles**

<b>maximum</b>	<b>100.0%</b>	<b>17.500</b>
	<b>99.5%</b>	<b>17.060</b>
	<b>97.5%</b>	<b>16.000</b>
	<b>90.0%</b>	<b>14.000</b>
<b>quartile</b>	<b>75.0%</b>	<b>10.000</b>
<b>median</b>	<b>50.0%</b>	<b>5.000</b>
<b>quartile</b>	<b>25.0%</b>	<b>2.000</b>
	<b>10.0%</b>	<b>0.670</b>
	<b>2.5%</b>	<b>0.019</b>
	<b>0.5%</b>	<b>0.002</b>
<b>minimum</b>	<b>0.0%</b>	<b>0.002</b>

**Moments**

<b>Mean</b>	<b>5.9454</b>
<b>Std Dev</b>	<b>4.8223</b>
<b>Std Err Mean</b>	<b>0.2490</b>
<b>upper 95% Mean</b>	<b>6.4351</b>
<b>lower 95% Mean</b>	<b>5.4558</b>
<b>N</b>	<b>375.0000</b>
<b>Sum Wgts</b>	<b>375.0000</b>

**FAMILY TYPE II  
AGE OF ADULT  
(Age: Years)**



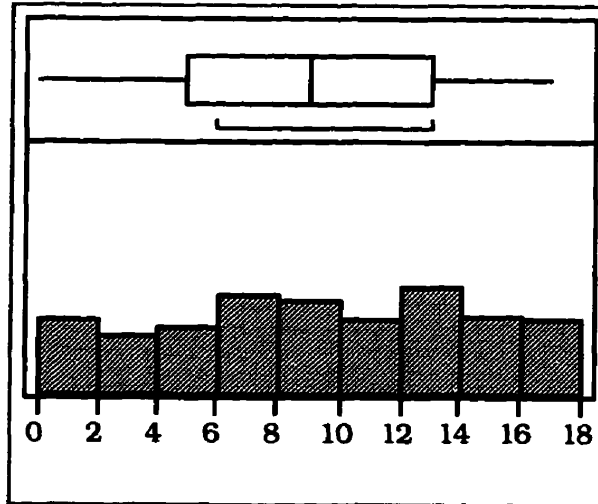
**Quantiles**

maximum	100.0%	50.000
	99.5%	50.000
	97.5%	45.800
	90.0%	38.000
quartile	75.0%	32.000
median	50.0%	28.000
quartile	25.0%	22.000
	10.0%	19.000
	2.5%	16.000
	0.5%	15.000
minimum	0.0%	15.000

**Moments**

Mean	27.9757
Std Dev	7.4271
Std Err Mean	0.4726
upper 95% Mean	28.9065
lower 95% Mean	27.0449
N	247.0000
Sum Wgts	247.0000

FAMILY TYPE III  
AGE OF CHILD  
(Age: Years)



Quantiles

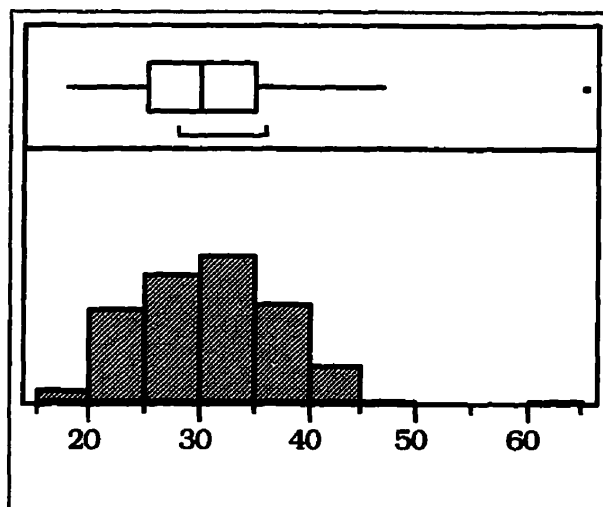
maximum	100.0%	17.000
	99.5%	17.000
	97.5%	17.000
quartile	90.0%	16.000
	75.0%	13.000
median	50.0%	9.000
quartile	25.0%	5.000
	10.0%	1.500
	2.5%	0.160
minimum	0.5%	0.003
	0.0%	0.003

Moments

Mean	8.8354
Std Dev	4.9461
Std Err Mean	0.3551
upper 95% Mean	9.5358
lower 95% Mean	8.1350
N	194.0000
Sum Wgts	194.0000



**FAMILY TYPE III  
AGE OF ADULT  
(Age: Years)**



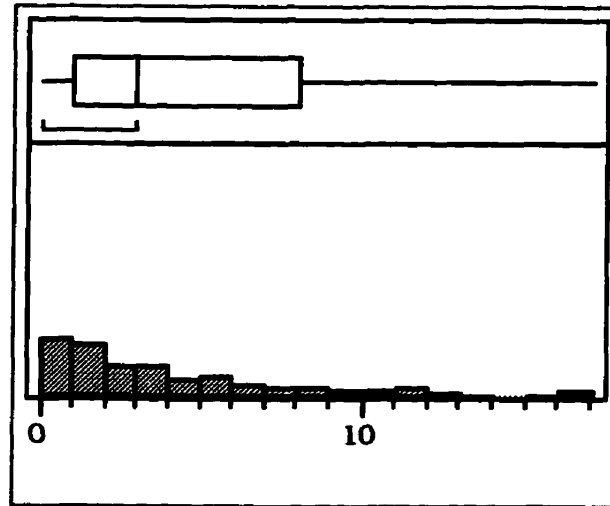
**Quantiles**

<b>maximum</b>	<b>100.0%</b>	<b>65.000</b>
	<b>99.5%</b>	<b>65.000</b>
	<b>97.5%</b>	<b>46.025</b>
	<b>90.0%</b>	<b>39.400</b>
<b>quartile</b>	<b>75.0%</b>	<b>35.000</b>
<b>median</b>	<b>50.0%</b>	<b>30.000</b>
<b>quartile</b>	<b>25.0%</b>	<b>25.250</b>
	<b>10.0%</b>	<b>21.000</b>
	<b>2.5%</b>	<b>18.325</b>
<b>minimum</b>	<b>0.5%</b>	<b>18.000</b>
	<b>0.0%</b>	<b>18.000</b>

**Moments**

<b>Mean</b>	<b>30.60870</b>
<b>Std Dev</b>	<b>7.33793</b>
<b>Std Err Mean</b>	<b>0.76503</b>
<b>upper 95% Mean</b>	<b>32.12835</b>
<b>lower 95% Mean</b>	<b>29.08905</b>
<b>N</b>	<b>92.00000</b>
<b>Sum Wgts</b>	<b>92.00000</b>

**NEGLECT  
AGE OF CHILD  
(Age: Years)**



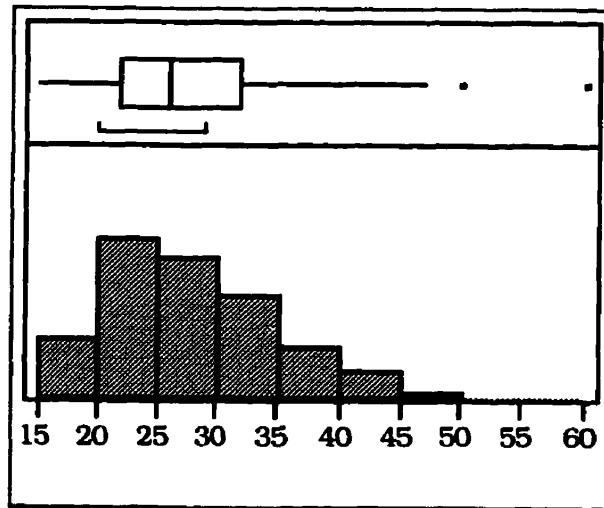
**Quantiles**

<b>maximum</b>	<b>100.0%</b>	<b>17.000</b>
	<b>99.5%</b>	<b>17.000</b>
	<b>97.5%</b>	<b>16.000</b>
	<b>90.0%</b>	<b>12.000</b>
<b>quartile</b>	<b>75.0%</b>	<b>8.000</b>
<b>median</b>	<b>50.0%</b>	<b>3.000</b>
<b>quartile</b>	<b>25.0%</b>	<b>1.000</b>
	<b>10.0%</b>	<b>0.348</b>
	<b>2.5%</b>	<b>0.003</b>
	<b>0.5%</b>	<b>0.002</b>
<b>minimum</b>	<b>0.0%</b>	<b>0.002</b>

**Moments**

<b>Mean</b>	<b>4.8358</b>
<b>Std Dev</b>	<b>4.5781</b>
<b>Std Err Mean</b>	<b>0.2231</b>
<b>upper 95% Mean</b>	<b>5.2744</b>
<b>lower 95% Mean</b>	<b>4.3973</b>
<b>N</b>	<b>421.0000</b>
<b>Sum Wgts</b>	<b>421.0000</b>

**NEGLECT  
AGE OF ADULT  
(Age: Years)**



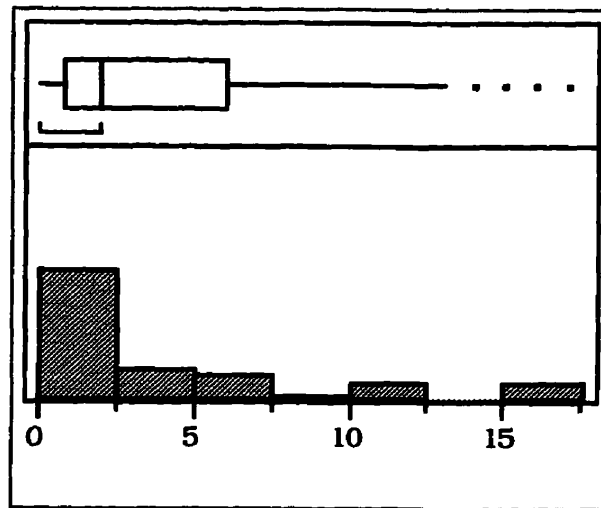
**Quantiles**

<b>maximum</b>	<b>100.0%</b>	<b>60.000</b>
	<b>99.5%</b>	<b>57.050</b>
	<b>97.5%</b>	<b>45.525</b>
	<b>90.0%</b>	<b>38.100</b>
<b>quartile</b>	<b>75.0%</b>	<b>32.000</b>
<b>median</b>	<b>50.0%</b>	<b>26.000</b>
<b>quartile</b>	<b>25.0%</b>	<b>22.000</b>
	<b>10.0%</b>	<b>19.000</b>
	<b>2.5%</b>	<b>16.000</b>
	<b>0.5%</b>	<b>15.000</b>
<b>minimum</b>	<b>0.0%</b>	<b>15.000</b>

**Moments**

<b>Mean</b>	<b>27.5659</b>
<b>Std Dev</b>	<b>7.5700</b>
<b>Std Err Mean</b>	<b>0.4713</b>
<b>upper 95% Mean</b>	<b>28.4940</b>
<b>lower 95% Mean</b>	<b>26.6378</b>
<b>N</b>	<b>258.0000</b>
<b>Sum Wgts</b>	<b>258.0000</b>

NEGLECT - FAMILY TYPE I  
AGE OF CHILD  
(Age: Years)



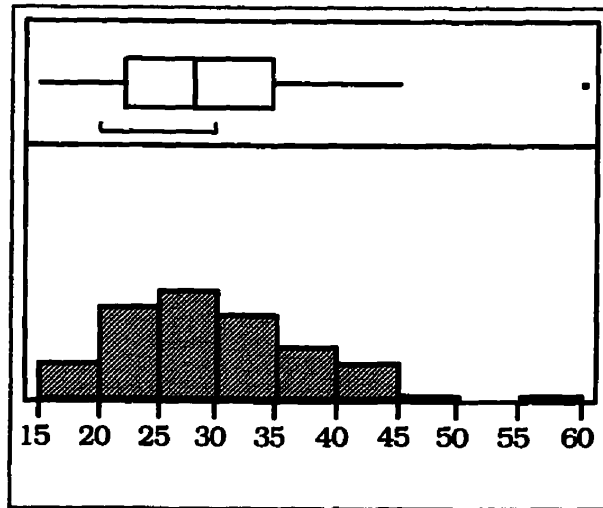
Quantiles

maximum	100.0%	17.000
	99.5%	17.000
	97.5%	16.275
	90.0%	13.100
quartile	75.0%	6.000
median	50.0%	2.000
quartile	25.0%	0.830
	10.0%	0.152
	2.5%	0.003
	0.5%	0.003
minimum	0.0%	0.003

Moments

Mean	4.3807
Std Dev	4.8825
Std Err Mean	0.4698
upper 95% Mean	5.3121
lower 95% Mean	3.4494
N	108.0000
Sum Wgts	108.0000

NEGLECT - FAMILY TYPE I  
AGE OF ADULT  
(Age: Years)



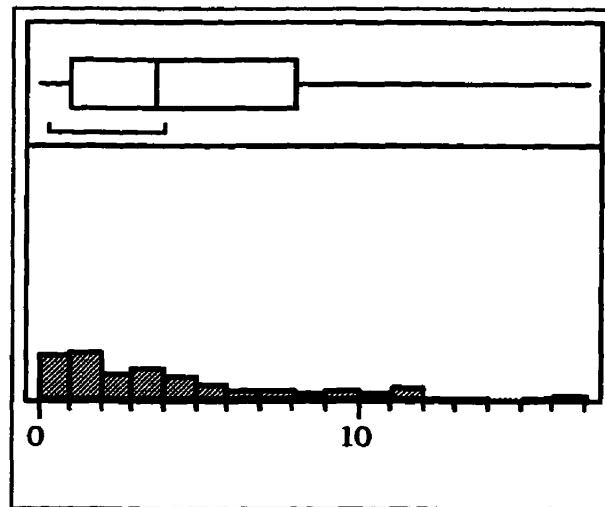
Quantiles

maximum	100.0%	60.000
	99.5%	60.000
	97.5%	53.625
	90.0%	41.300
quartile	75.0%	34.750
median	50.0%	28.000
quartile	25.0%	22.250
	10.0%	19.700
	2.5%	15.425
	0.5%	15.000
minimum	0.0%	15.000

Moments

Mean	29.10714
Std Dev	8.53800
Std Err Mean	1.14094
upper 95% Mean	31.39363
lower 95% Mean	26.82065
N	56.00000
Sum Wgts	56.00000

**NEGLECT - FAMILY TYPE II**  
**AGE OF CHILD**  
 (Age: Years)



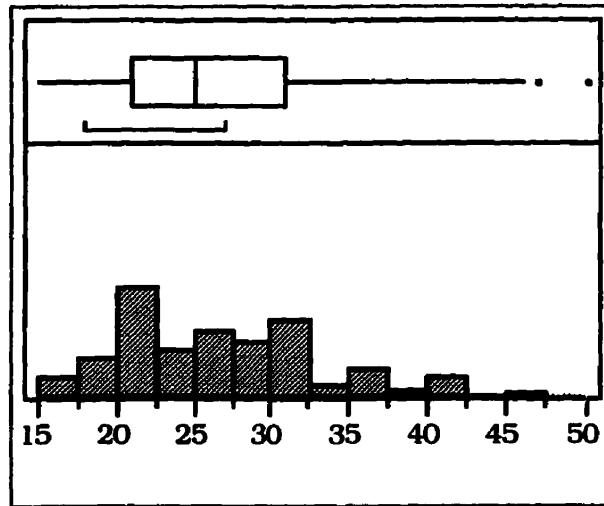
**Quantiles**

<b>maximum</b>	100.0%	17.000
	99.5%	16.685
	97.5%	16.000
	90.0%	12.000
	75.0%	8.000
<b>quartile</b>	75.0%	8.000
<b>median</b>	50.0%	3.750
<b>quartile</b>	25.0%	1.000
	10.0%	0.423
<b>minimum</b>	2.5%	0.003
	0.5%	0.002
	0.0%	0.002

**Moments**

<b>Mean</b>	4.9836
<b>Std Dev</b>	4.4724
<b>Std Err Mean</b>	0.2763
<b>upper 95% Mean</b>	5.5276
<b>lower 95% Mean</b>	4.4395
<b>N</b>	262.0000
<b>Sum Wgts</b>	262.0000

NEGLECT - FAMILY TYPE II  
AGE OF ADULT  
(Age: Years)



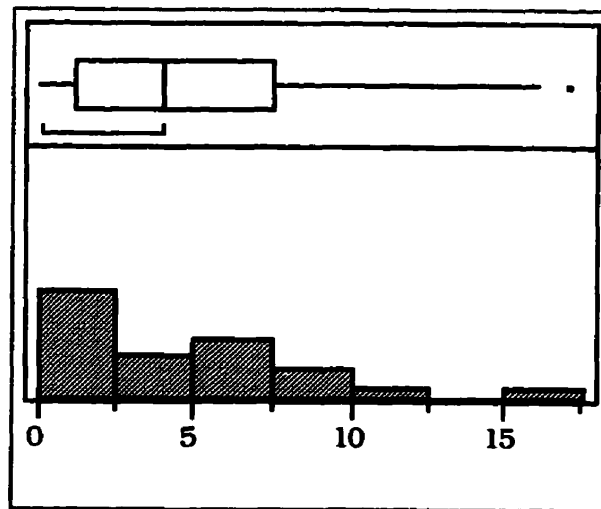
Quantiles

maximum	100.0%	50.000
	99.5%	50.000
	97.5%	45.350
	90.0%	38.000
quartile	75.0%	31.000
median	50.0%	25.000
quartile	25.0%	21.000
	10.0%	19.000
	2.5%	16.000
minimum	0.5%	15.000
	0.0%	15.000

Moments

Mean	27.0291
Std Dev	7.3853
Std Err Mean	0.5631
upper 95% Mean	28.1407
lower 95% Mean	25.9175
N	172.0000
Sum Wgts	172.0000

**NEGLECT - FAMILY TYPE III  
AGE OF CHILD  
(Age: Years)**



**Quantiles**

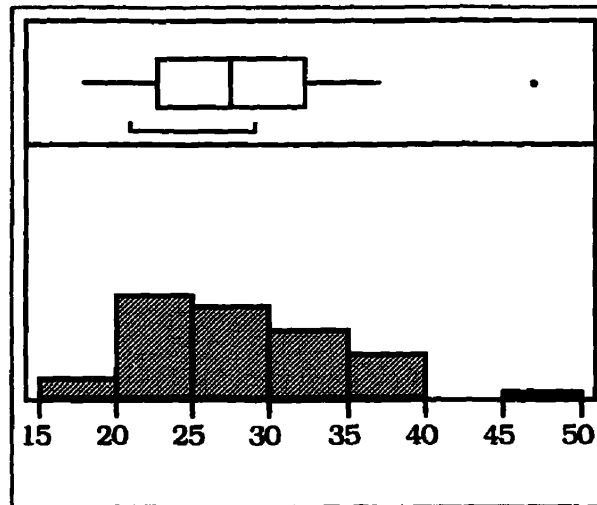
maximum	100.0%	17.000
	99.5%	17.000
quartile	97.5%	16.700
	90.0%	11.800
quartile	75.0%	7.500
median	50.0%	4.000
quartile	25.0%	1.170
	10.0%	0.516
minimum	2.5%	0.050
	0.5%	0.003
	0.0%	0.003

**Moments**

Mean	5.04065
Std Dev	4.47508
Std Err Mean	0.62664
upper 95% Mean	6.29928
lower 95% Mean	3.78201
N	51.00000
Sum Wgts	51.00000



NEGLECT - FAMILY TYPE III  
AGE OF ADULT  
(Age: Years)



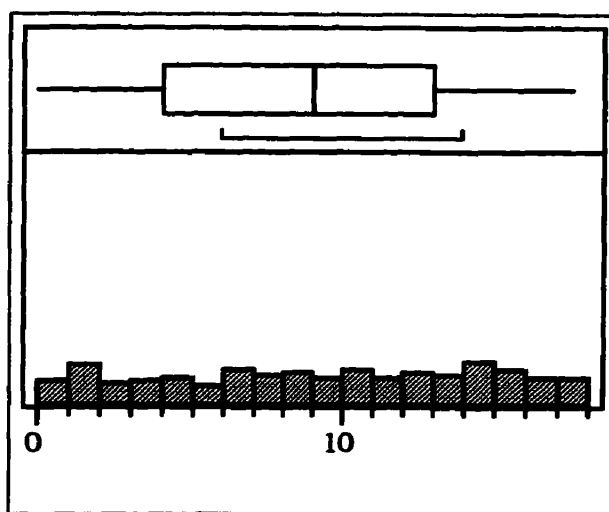
Quantiles

maximum	100.0%	47.000
	99.5%	47.000
	97.5%	47.000
	90.0%	35.000
quartile	75.0%	32.250
median	50.0%	27.500
quartile	25.0%	22.750
	10.0%	20.100
	2.5%	18.000
	0.5%	18.000
minimum	0.0%	18.000

Moments

Mean	27.76667
Std Dev	6.45239
Std Err Mean	1.17804
upper 95% Mean	30.17601
lower 95% Mean	25.35732
N	30.00000
Sum Wgts	30.00000

PHYSICAL ABUSE  
AGE OF CHILD  
(Age: Years)



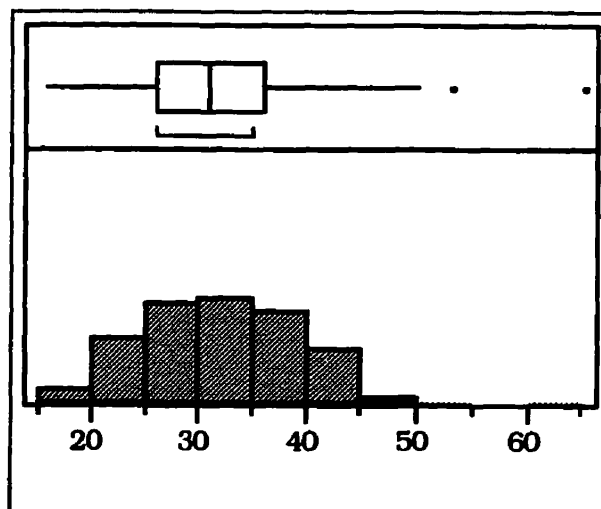
Quantiles

maximum	100.0%	17.500
99.5%	17.000	
97.5%	17.000	
90.0%	16.000	
quartile	75.0%	13.000
median	50.0%	9.000
quartile	25.0%	4.000
	10.0%	1.500
	2.5%	0.198
	0.5%	0.007
minimum	0.0%	0.000

Moments

Mean	8.7500
Std Dev	5.1203
Std Err Mean	0.2510
upper 95% Mean	9.2435
lower 95% Mean	8.2566
N	416.0000
Sum Wgts	416.0000

PHYSICAL ABUSE  
AGE OF ADULT  
(Age: Years)



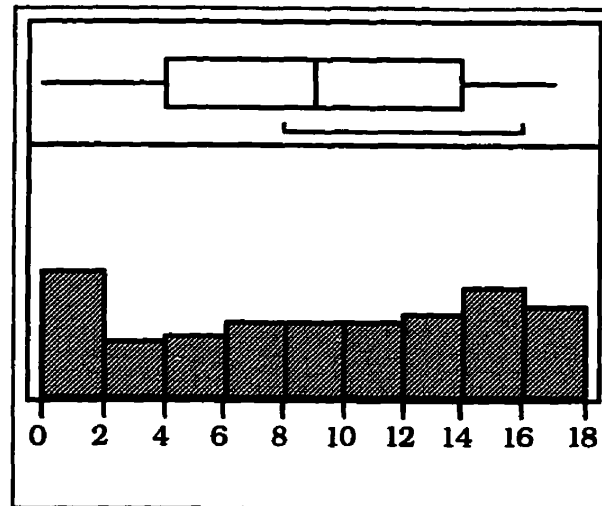
Quantiles

maximum	100.0%	65.000
	99.5%	63.680
	97.5%	47.000
	90.0%	40.000
quartile	75.0%	36.000
median	50.0%	31.000
quartile	25.0%	26.000
	10.0%	21.000
	2.5%	18.550
	0.5%	16.000
minimum	0.0%	16.000

Moments

Mean	31.4661
Std Dev	7.5868
Std Err Mean	0.5103
upper 95% Mean	32.4719
lower 95% Mean	30.4603
N	221.0000
Sum Wgts	221.0000

PHYSICAL ABUSE - FAMILY TYPE I  
AGE OF CHILD  
(Age: Years)



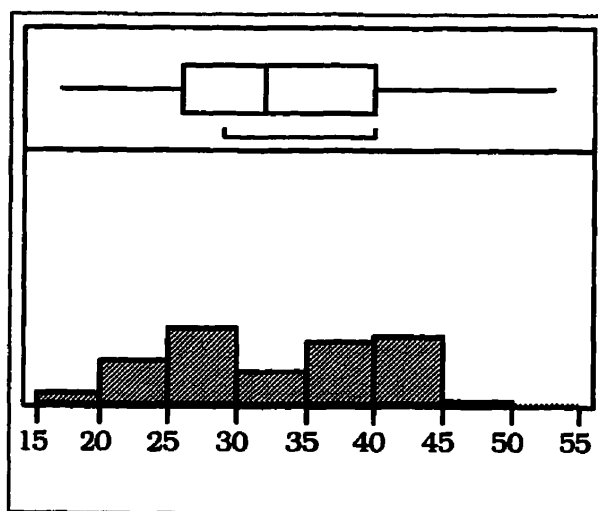
Quantiles

maximum	100.0%	17.000
	99.5%	17.000
	97.5%	17.000
	90.0%	16.000
quartile	75.0%	14.000
median	50.0%	9.000
quartile	25.0%	4.000
	10.0%	1.000
	2.5%	0.100
	0.5%	0.005
minimum	0.0%	0.000

Moments

Mean	8.6963
Std Dev	5.4229
Std Err Mean	0.3681
upper 95% Mean	9.4219
lower 95% Mean	7.9707
N	217.0000
Sum Wgts	217.0000

PHYSICAL ABUSE - FAMILY TYPE I  
AGE OF ADULT  
(Age: Years)



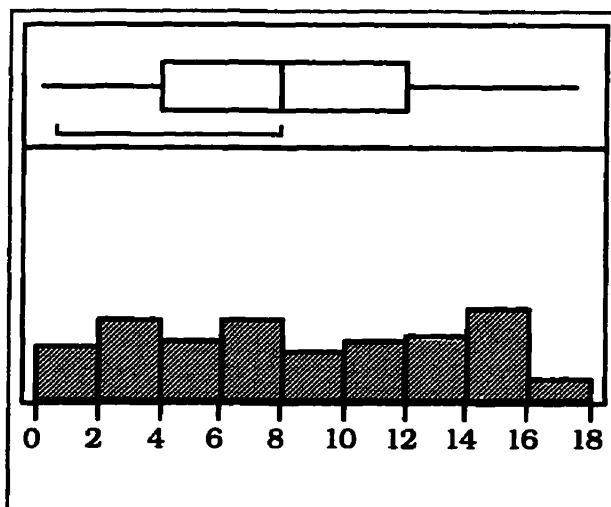
Quantiles

maximum	100.0%	53.000
	99.5%	53.000
	97.5%	47.350
	90.0%	41.000
quartile	75.0%	40.000
median	50.0%	32.000
quartile	25.0%	26.000
	10.0%	20.600
	2.5%	18.300
	0.5%	17.000
minimum	0.0%	17.000

Moments

Mean	32.0476
Std Dev	7.9220
Std Err Mean	0.7731
upper 95% Mean	33.5807
lower 95% Mean	30.5145
N	105.0000
Sum Wgts	105.0000

PHYSICAL ABUSE - FAMILY TYPE II  
AGE OF CHILD  
(Age: Years)



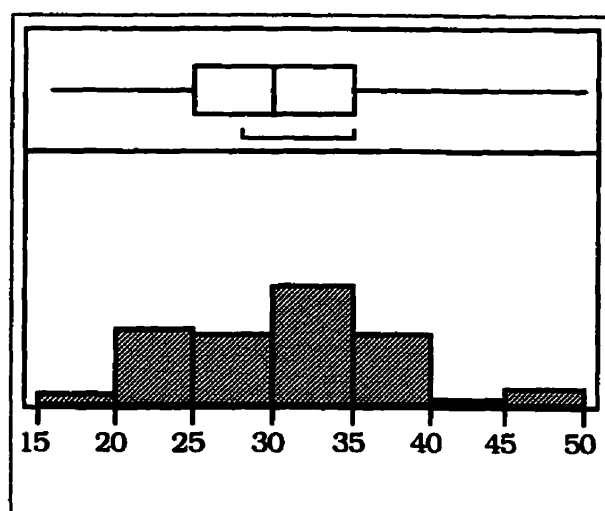
Quantiles

maximum	100.0%	17.500
	99.5%	17.500
	97.5%	17.000
	90.0%	14.800
quartile	75.0%	12.000
median	50.0%	8.000
quartile	25.0%	4.000
	10.0%	1.952
	2.5%	0.951
	0.5%	0.250
minimum	0.0%	0.250

Moments

Mean	8.1756
Std Dev	4.8846
Std Err Mean	0.4595
upper 95% Mean	9.0860
lower 95% Mean	7.2651
N	113.0000
Sum Wgts	113.0000

PHYSICAL ABUSE - FAMILY TYPE II  
AGE OF ADULT  
(Age: Years)



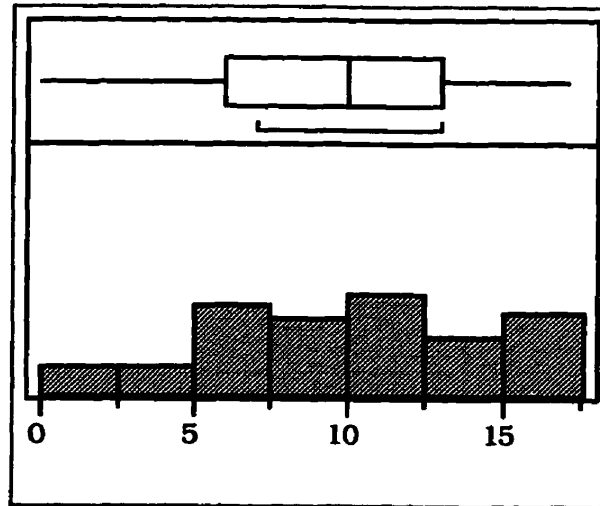
Quantiles

maximum	100.0%	50.000
	99.5%	50.000
	97.5%	47.300
	90.0%	38.000
quartile	75.0%	35.000
median	50.0%	30.000
quartile	25.0%	25.000
	10.0%	20.000
	2.5%	16.000
	0.5%	16.000
minimum	0.0%	16.000

Moments

Mean	30.14667
Std Dev	7.10480
Std Err Mean	0.82039
upper 95% Mean	31.78134
lower 95% Mean	28.51200
N	75.00000
Sum Wgts	75.00000

PHYSICAL ABUSE - FAMILY TYPE III  
 AGE OF CHILD  
 (Age: Years)



Quantiles

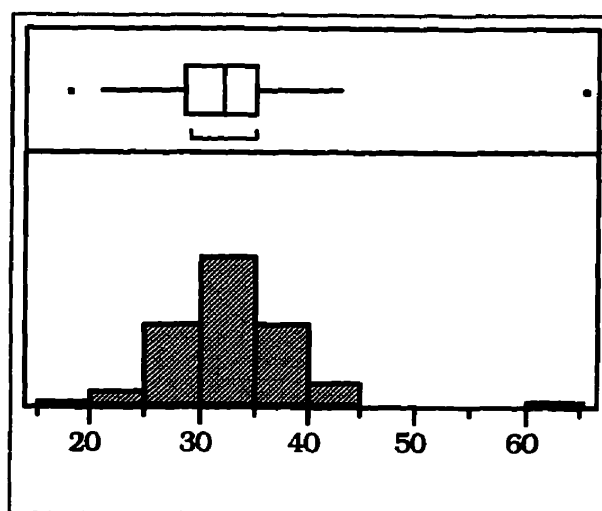
maximum	100.0%	17.000
	99.5%	17.000
	97.5%	17.000
	90.0%	16.000
	75.0%	13.000
quartile	50.0%	10.000
quartile	25.0%	6.000
minimum	10.0%	3.000
	2.5%	0.329
	0.5%	0.003
	0.0%	0.003

Moments

Mean	9.64050
Std Dev	4.53708
Std Err Mean	0.48925
upper 95% Mean	10.61326
lower 95% Mean	8.66774
N	86.00000
Sum Wgts	86.00000



PHYSICAL ABUSE - FAMILY TYPE III  
AGE OF ADULT  
(Age: Years)



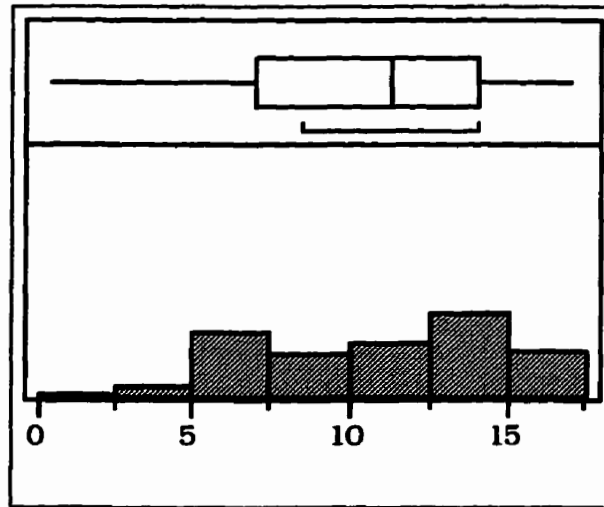
Quantiles

maximum	100.0%	65.000
	99.5%	65.000
	97.5%	63.900
	90.0%	39.400
quartile	75.0%	35.000
median	50.0%	32.000
quartile	25.0%	28.500
	10.0%	25.000
	2.5%	18.150
	0.5%	18.000
minimum	0.0%	18.000

Moments

Mean	32.39024
Std Dev	7.41579
Std Err Mean	1.15815
upper 95% Mean	34.73094
lower 95% Mean	30.04954
N	41.00000
Sum Wgts	41.00000

SEXUAL ABUSE  
AGE OF CHILD  
(Age: Years)



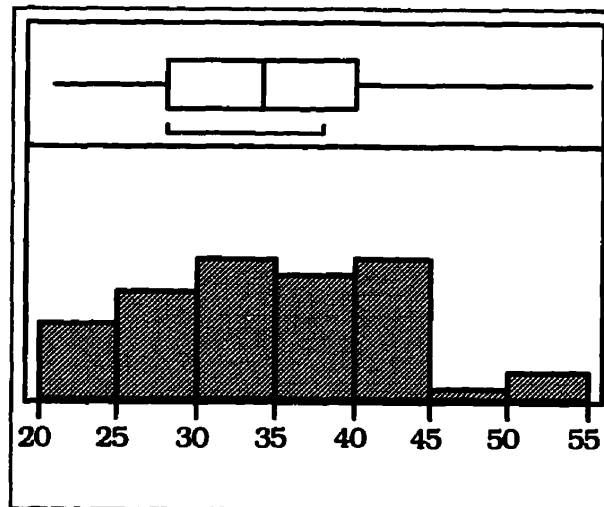
Quantiles

maximum	100.0%	17.000
	99.5%	17.000
	97.5%	17.000
	90.0%	16.000
quartile	75.0%	14.000
median	50.0%	11.250
quartile	25.0%	7.000
	10.0%	5.000
	2.5%	0.863
minimum	0.5%	0.420
	0.0%	0.420

Moments

Mean	10.4622
Std Dev	4.1457
Std Err Mean	0.3989
upper 95% Mean	11.2530
lower 95% Mean	9.6714
N	108.0000
Sum Wgts	108.0000

SEXUAL ABUSE  
AGE OF ADULT  
(Age: Years)



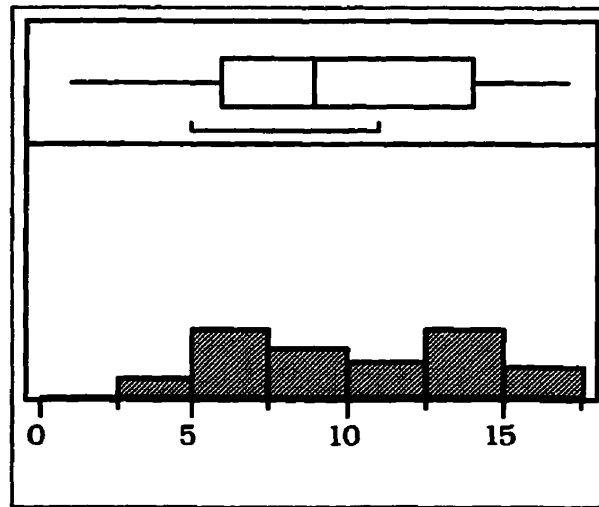
Quantiles

maximum	100.0%	55.000
	99.5%	55.000
	97.5%	54.750
	90.0%	44.000
quartile	75.0%	40.000
median	50.0%	34.000
quartile	25.0%	28.000
	10.0%	22.000
	2.5%	21.000
minimum	0.0%	21.000

Moments

Mean	34.36585
Std Dev	8.04909
Std Err Mean	1.25706
upper 95% Mean	36.90645
lower 95% Mean	31.82526
N	41.00000
Sum Wgts	41.00000

SEXUAL ABUSE - FAMILY TYPE I  
AGE OF CHILD  
(Age: Years)



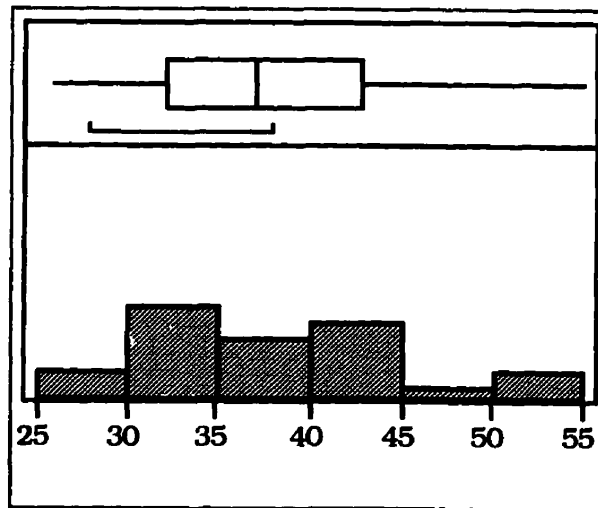
**Quantiles**

maximum	100.0%	17.000
	99.5%	17.000
	97.5%	17.000
	90.0%	15.800
quartile	75.0%	14.000
median	50.0%	9.000
quartile	25.0%	6.000
	10.0%	4.200
	2.5%	1.600
	0.5%	1.000
minimum	0.0%	1.000

**Moments**

Mean	9.84314
Std Dev	4.22551
Std Err Mean	0.59169
upper 95% Mean	11.03158
lower 95% Mean	8.65470
N	51.00000
Sum Wgts	51.00000

SEXUAL ABUSE - FAMILY TYPE I  
AGE OF ADULT  
(Age: Years)



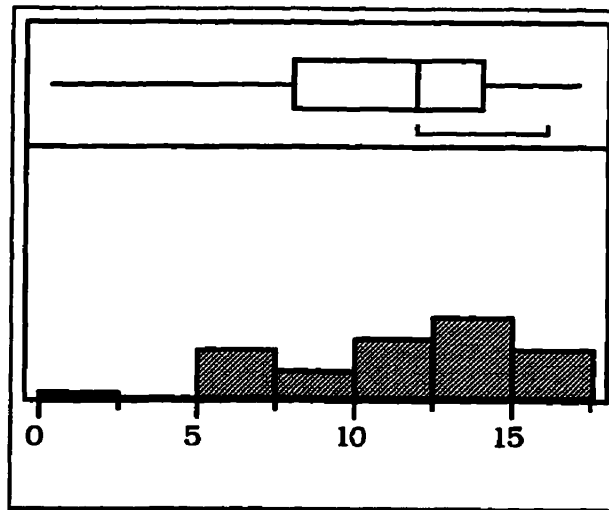
Quantiles

maximum	100.0%	55.000
	99.5%	55.000
	97.5%	55.000
	90.0%	49.500
quartile	75.0%	42.750
median	50.0%	37.000
quartile	25.0%	32.250
	10.0%	28.200
	2.5%	26.000
	0.5%	26.000
minimum	0.0%	26.000

Moments

Mean	37.70000
Std Dev	7.41336
Std Err Mean	1.65768
upper 95% Mean	41.16953
lower 95% Mean	34.23047
N	20.00000
Sum Wgts	20.00000

**SEXUAL ABUSE - FAMILY TYPE III  
AGE OF CHILD  
(Age: Years)**



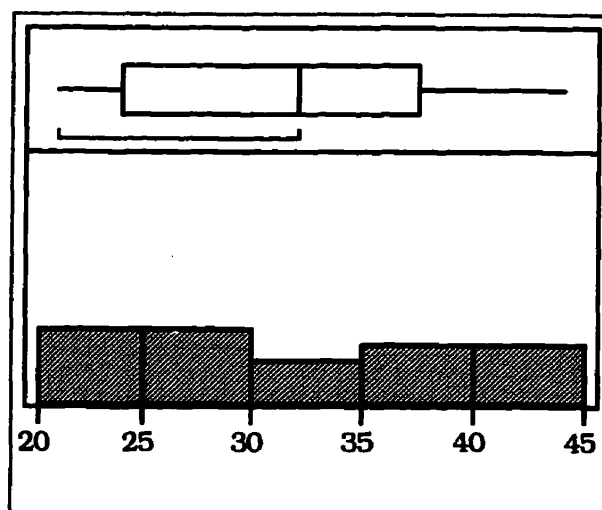
**Quantiles**

maximum	100.0%	17.000
	99.5%	17.000
	97.5%	17.000
	90.0%	16.000
quartile	75.0%	14.000
median	50.0%	12.000
quartile	25.0%	8.000
	10.0%	5.000
	2.5%	0.456
	0.5%	0.420
minimum	0.0%	0.420

**Moments**

Mean	11.01614
Std Dev	4.02929
Std Err Mean	0.53369
upper 95% Mean	12.08526
lower 95% Mean	9.94703
N	57.00000
Sum Wgts	57.00000

SEXUAL ABUSE - FAMILY TYPE III  
AGE OF ADULT  
(Age: Years)



Quantiles

maximum	100.0%	44.000
	99.5%	44.000
	97.5%	44.000
	90.0%	41.600
quartile	75.0%	37.500
median	50.0%	32.000
quartile	25.0%	24.000
	10.0%	21.000
	2.5%	21.000
	0.5%	21.000
minimum	0.0%	21.000

Moments

Mean	31.19048
Std Dev	7.46069
Std Err Mean	1.62806
upper 95% Mean	34.58652
lower 95% Mean	27.79444
N	21.00000
Sum Wgts	21.00000

**APPENDIX I**

**REGRESSION ANALYSES**

**ALL MALTREATMENT SETS**



## INTERPRETATION OF THE TABLES

### Whole Model Test

“The Whole Model table...shows tests that compare the whole-model fit to the model that omits all the regressor effects except the intercept parameters.”

Source lists the three sources of variation...

C Total: “the negative log likelihood that results from a reduced model with only intercept parameters.”

Error: “the negative log for the complete model.”

DF: Degrees of Freedom.

Chi-Square: “test for the hypothesis that all regression parameters are zero.”

Prob>ChiSq: “the probability of obtaining a greater chi-square value by chance alone if the specified model fits no better than the model that includes only intercepts.”

Rsquare: “the ratio of the model to the C Total negative log likelihood values...A Nominal model rarely has a high Rsquare...”

Observations: “the total number of observations in the sample.”

### Lack of Fit

**Lack of Fit:** “whether there is enough information using the variables in the current model, or whether more complex terms need to be added.”

**Prob>ChiSq:** If this statistic exceeds .05 more complex forms of the model will not improve the result.

### Wald Test for Effects

“To test an effect, fit the model both with and without the effect and see if the difference in the -loglikelihood is significant...Each parameter and effect is shown with a Wald Test.”

(SAS Institute, 1994, pp. 215-217)

Comparison of the Neglect & Physical Abuse Categories

Logistic Regression

Whole-Model Test

Source	DF	-LogLikelihood	ChiSquare	Prob>ChiSq
Model	24	51.54770	103.0954	0.000000
Error	129	51.84794		
C Total	153	103.39564		

RSquare (U) 0.4985

Observations 154

Lack of Fit

Source	DF	-LogLikelihood	ChiSquare
Lack of Fit	129	51.847938	103.6959
Pure Error	0	0.000000	Prob>ChiSq
Total Error	129	51.847938	0.950509

Effect Test

Source	Nparm	DF	Wald ChiSquare	Prob>ChiSq
Gender of Child	1	1	0.090765	0.7632
Age of Child	1	1	15.083148	0.0001
Age of Adult	1	1	0.377913	0.5387
Gender of Adult	1	1	2.793803	0.0946
Attachment	5	5	8.699473	0.1217
Attitude re: Discipline	5	5	13.406112	0.0199
Parenting Knowledge &	5	5	12.550962	0.0280

Skill

Substance Abuse 5 5 19.906359 0.0013

Comparison of Family Types I & III

## Whole-Model Test

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	30.820209	23	61.64042	<.0001
Full	60.129004			
Reduced	90.949213			

RSquare (U) 0.3389

Observations 144

## Lack of Fit

Source	DF	-LogLikelihood	ChiSquare
Lack of Fit	120	60.129004	120.258
Pure Error	0	0.000000	Prob>ChiSq
Total Error	120	60.129004	0.4762

## Effect Test

Source	Nparm	DF	Wald ChiSquare	Prob>ChiSq
Gender of Child	1	1	1.900057	0.1681
Age of Child	1	1	14.855285	0.0001
Age of Adult	1	1	7.716725	0.0055
Gender of Adult	1	1	0.811614	0.3676
Severity of Current Incident	4	4	15.065713	0.0046
Perception of the Child	5	5	12.067935	0.0339
Stress	5	5	3.018549	0.6971
Substance Abuse	5	5	2.253868	0.8130



**APPENDIX J**

**FACTOR ANALYSES**

**ALL SETS**

**INTERPRETATION OF THE TABLES**

(SAS Institute, 1994, pp.)

**Variable Names:**

- A11: Perception of the Incident.**
- A12: Perception of the Child.**
- A13 Attachment.**
- A14: Attitude re: Discipline.**
- A15: Parenting Knowledge & Skills.**
- A17: Substance Abuse.**
- A18: Psychopathology/Incapacity.**
- A19: History of Violence.**
- A20: Stress.**
- A24: Reference Group Values.**
- A25: Social Isolation.**

**FACTOR ANALYSIS: TOTAL DATA SET<sup>1</sup>**

**Correlations**

Variable	A11	A12	A13	A14	A15	A17	A18	A19	A20
A11	1.0000	0.8097	0.6301	0.5262	0.5802	0.1060	0.2241	0.2660	0.1893
A12	0.8097	1.0000	0.7489	0.5764	0.6315	0.0450	0.1660	0.3325	0.2340
A13	0.6301	0.7489	1.0000	0.4381	0.6192	0.0717	0.1270	0.2002	0.1180
A14	0.5262	0.5764	0.4381	1.0000	0.3476	-0.0234	0.1046	0.5273	0.2093
A15	0.5802	0.6315	0.6192	0.3476	1.0000	0.2057	0.2110	0.0219	0.1414
A17	0.1060	0.0450	0.0717	-0.0234	0.2057	1.0000	0.3095	0.2728	0.1498
A18	0.2241	0.1660	0.1270	0.1046	0.2110	0.3095	1.0000	0.3065	0.2873
A19	0.2660	0.3325	0.2002	0.5273	0.0219	0.2728	0.3065	1.0000	0.2121
A20	0.1893	0.2340	0.1180	0.2093	0.1414	0.1498	0.2873	0.2121	1.0000

N = 162

**Prin. Components / Factor Analysis  
Principal Components**

EigVal:	3.7311	1.4969	1.0915	0.8545	0.6481	0.4098	0.3707	0.2550	0.1423
Percent:	41.4571	16.6318	12.1283	9.4950	7.2010	4.5528	4.1192	2.8334	1.5815
Cum%:	41.4571	58.0889	70.2172	79.7122	86.9132	91.4660	95.5852	98.4185	100.0
Eigvect:									

A11	0.44037	-0.14517	0.04832	-0.00257	-0.07687	-0.24739	-0.69830	0.04277	0.47549
A12	0.46671	-0.18854	-0.02248	0.03439	0.00871	-0.26702	-0.12371	-0.18555	-0.78983
A13	0.41138	-0.24776	0.13717	-0.05999	0.01592	-0.37677	0.63503	0.38319	0.23378
A14	0.36552	-0.02554	-0.51256	-0.06674	0.05073	0.60542	-0.04139	0.47136	-0.07459
A15	0.37589	-0.17835	0.44228	0.00431	0.04496	0.56307	0.17434	-0.50789	0.15444
A17	0.11689	0.51184	0.42858	-0.44970	0.49693	0.00638	-0.12502	0.24778	-0.12019
A18	0.18707	0.52099	0.23672	0.11490	-0.76752	0.06162	0.03878	0.15008	-0.08619
A19	0.25020	0.42218	-0.52733	-0.33555	0.00946	-0.18789	0.20382	-0.50265	0.19725
A20	0.18126	0.37133	-0.04717	0.81407	0.39122	-0.05323	0.05498	-0.01396	0.07224

**Rotated Components**

**Rotated Factor Pattern**

A11	0.8236740	-0.01553	-0.252745	0.0713417	-0.117689
A12	0.8690240	-0.056523	-0.305985	0.1209929	-0.029634
A13	0.8538025	0.0170568	-0.133474	-0.004881	0.0002048
A14	0.4733627	-0.153376	-0.724938	0.1209662	0.0629662
A15	0.8488834	0.1930415	0.1364867	0.0527642	-0.101823
A17	0.0635772	0.9705926	-0.085661	0.0616291	-0.138742
A18	0.1155451	0.1455328	-0.114377	0.1344153	-0.96198
A19	0.0494112	0.2138184	-0.901414	0.0611930	-0.188991
A20	0.0996380	0.0626643	-0.107983	0.9770083	-0.129869

**Rotation Matrix**

0.86515	0.10138	-0.41375	0.19397	-0.18007
-0.41509	0.54299	-0.32895	0.36432	-0.54030
0.28143	0.48008	0.78959	-0.05622	-0.25239
-0.00235	-0.46769	0.31052	0.82103	-0.10365
0.00297	0.49566	-0.02678	0.39037	0.77538

<sup>1</sup> See the second page of this appendix for the definitions of the variable names.



## Communalities

A11	0.76150
A12	0.86754
A13	0.74711
A14	0.79173
A15	0.78965
A17	0.97648
A18	0.99109
A19	0.90017
A20	0.99693

## Std Score Coefs

A11	0.259229	-0.065141	-0.017086	-0.041169	-0.062366
A12	0.266891	-0.081546	-0.055006	0.026706	0.049721
A13	0.305474	0.014816	0.061483	-0.085407	0.059991
A14	0.034665	-0.162674	-0.482907	0.022007	0.157375
A15	0.348161	0.169308	0.301644	-0.013533	-0.020302
A17	-0.002880	0.963702	-0.006343	-0.017343	0.188571
A18	-0.032334	-0.180880	0.062880	-0.108938	-1.056823
A19	-0.172335	0.133783	-0.678665	-0.114222	-0.035637
A20	-0.058125	-0.018357	0.086122	1.044047	0.116041

## Nonparametric Measures of Association

Variable	by Variable	Spearman Rho	Prob>  Rho
A12	A11	0.7745	<.0001
A13	A11	0.6220	<.0001
A13	A12	0.8239	<.0001
A14	A11	0.5763	<.0001
A14	A12	0.6378	<.0001
A14	A13	0.5420	<.0001
A15	A11	0.5974	<.0001
A15	A12	0.7266	<.0001
A15	A13	0.7246	<.0001
A15	A14	0.5109	<.0001
A17	A11	0.2353	<.0001
A17	A12	0.2725	<.0001
A17	A13	0.2638	<.0001
A17	A14	0.0983	0.0781
A17	A15	0.4663	<.0001
A18	A11	-0.0128	0.7367
A18	A12	-0.0081	0.8356
A18	A13	0.0805	0.0702
A18	A14	-0.0829	0.1293
A18	A15	0.0782	0.0412
A18	A17	0.0906	0.0202
A19	A11	0.1331	0.0012
A19	A12	0.1236	0.0035
A19	A13	0.1366	0.0039
A19	A14	0.5259	<.0001
A19	A15	-0.0023	0.9560

A19	A17	0.2014	<.0001
A19	A18	0.2496	<.0001
A20	A11	0.2927	<.0001
A20	A12	0.3751	<.0001
A20	A13	0.4028	<.0001
A20	A14	0.2719	<.0001
A20	A15	0.4724	<.0001
A20	A17	0.4170	<.0001
A20	A18	0.1454	0.0003
A20	A19	0.0744	0.0814

**FACTOR ANALYSIS: PHYSICAL ABUSE<sup>2</sup>**

**Correlations**

Variable	A11	A12	A13	A14	A15	A17	A18	A19	A20
A11	1.0000	0.7995	0.5651	0.6120	0.4757	0.2299	0.3071	0.4241	0.2148
A12	0.7995	1.0000	0.6878	0.6159	0.5345	0.2237	0.3262	0.5179	0.2749
A13	0.5651	0.6878	1.0000	0.4156	0.5468	0.1432	0.2746	0.3534	0.1545
A14	0.6120	0.6159	0.4156	1.0000	0.4494	0.0590	0.1486	0.5597	0.2199
A15	0.4757	0.5345	0.5468	0.4494	1.0000	0.2929	0.3844	0.1623	0.1730
A17	0.2299	0.2237	0.1432	0.0590	0.2929	1.0000	0.4775	0.2567	0.1731
A18	0.3071	0.3262	0.2746	0.1486	0.3844	0.4775	1.0000	0.2802	0.3479
A19	0.4241	0.5179	0.3534	0.5597	0.1623	0.2567	0.2802	1.0000	0.2021
A20	0.2148	0.2749	0.1545	0.2199	0.1730	0.1731	0.3479	0.2021	1.0000

N = 94

**Prin. Components / Factor Analysis**

	Principal Components								
EigVal:	4.04	1.339	0.948	0.824	0.536	0.488	0.437	0.229	0.162
Percent:	44.85	14.881	10.531	9.152	5.958	5.419	4.855	2.549	1.803
Cum%:	44.85	59.734	70.265	79.416	85.374	90.793	95.648	98.197	100.0
Eigvect:									

A11	0.41193	-0.17753	-0.04642	-0.01612	-0.04899	0.43539	-0.53422	-0.07012	0.56046
A12	0.44115	-0.17659	-0.03055	0.02647	-0.21030	0.23451	-0.13022	-0.31571	-0.74613
A13	0.36849	-0.17466	-0.32168	0.11399	-0.56220	-0.10023	0.43702	0.42198	0.14855
A14	0.36315	-0.32798	0.25376	-0.04242	0.56247	-0.15139	-0.04887	0.57212	-0.15923
A15	0.34352	0.05470	-0.51750	0.20182	0.49303	-0.24663	0.24496	-0.43174	0.14196
A17	0.20111	0.59843	-0.10805	-0.46281	0.16817	0.48260	0.26786	0.19737	-0.06070
A18	0.26691	0.57004	-0.04247	0.01398	-0.17635	-0.54346	-0.49953	0.14467	-0.07000
A19	0.31566	-0.06839	0.53804	-0.47787	-0.13533	-0.30730	0.27364	-0.37799	0.21758
A20	0.19673	0.32937	0.50821	0.70765	0.01250	0.19740	0.21935	-0.02935	0.07533

**Rotated Components**

Rotated Factor Pattern						
A11	0.6243149	-0.114501	0.4676853	-0.089543	0.3179883	
A12	0.7342901	-0.119745	0.4632419	-0.142465	0.2532583	
A13	0.9065721	-0.083092	0.1157646	-0.028082	0.1557421	
A14	0.2266975	0.1021573	0.7670639	-0.130578	0.4912364	
A15	0.4110694	-0.266787	0.0339878	-0.058714	0.8082870	
A17	-0.013726	-0.898231	0.1404708	0.0370921	0.1319435	
A18	0.2728979	-0.736771	0.0124636	-0.344275	0.0730603	
A19	0.2483933	-0.253157	0.8467951	-0.064209	-0.183831	
A20	0.0699817	-0.12891	0.1167859	-0.959469	0.0558549	

**Rotation Matrix**

	0.64751	-0.33234	0.52348	-0.23449	0.37585
	-0.25690	-0.84231	-0.31372	-0.34574	-0.08097
	-0.34835	0.12975	0.61960	-0.51024	-0.46645
	0.14000	0.40349	-0.43481	-0.75159	0.25228
	-0.61138	0.02043	0.23364	0.01555	0.75562

<sup>2</sup> See the second page of this appendix for the definitions of the variable names.

## Communalities

A11	0.73074
A12	0.85255
A13	0.86722
A14	0.90858
A15	0.89808
A17	0.84552
A18	0.74132
A19	0.88077
A20	0.95885

## Std Score Coefs

A11	0.2271972	0.0463587	0.1180016	0.0416020	0.0566815
A12	0.3719788	0.0573898	0.0635812	-0.009112	-0.100141
A13	0.7596185	0.0583001	-0.29537	0.0714284	-0.313191
A14	-0.377133	0.2093025	0.5448282	-0.030318	0.5379427
A15	-0.096788	-0.062118	-0.194056	0.0581146	0.8732491
A17	-0.241175	-0.684308	0.0967950	0.2412297	0.0924053
A18	0.1240734	-0.463419	-0.174988	-0.194517	-0.147699
A19	-0.036328	-0.146963	0.6289732	0.0944801	-0.466428
A20	-0.092832	0.1104259	-0.049643	-0.973494	-0.02012

## Nonparametric Measures of Association

Variable	by Variable	Spearman Rho	Prob> Rho
A12	A11	0.7913	<.0001
A13	A11	0.6385	<.0001
A13	A12	0.7957	<.0001
A14	A11	0.6111	<.0001
A14	A12	0.6295	<.0001
A14	A13	0.4229	<.0001
A15	A11	0.5718	<.0001
A15	A12	0.6943	<.0001
A15	A13	0.7174	<.0001
A15	A14	0.5435	<.0001
A17	A11	0.3088	<.0001
A17	A12	0.2674	<.0001
A17	A13	0.3324	<.0001
A17	A14	0.2166	0.0035
A17	A15	0.5057	<.0001
A18	A11	0.0375	0.5209
A18	A12	0.0607	0.2973
A18	A13	0.0968	0.1450
A18	A14	-0.0212	0.7725
A18	A15	0.0762	0.1802
A18	A17	0.1266	0.0265
A19	A11	0.1053	0.0835
A19	A12	0.1720	0.0049
A19	A13	0.0989	0.1512
A19	A14	0.5346	<.0001
A19	A15	-0.0052	0.9304
A19	A17	0.2059	0.0004
A19	A18	0.2543	<.0001

A20	A11	0.3329	<.0001
A20	A12	0.3524	<.0001
A20	A13	0.4110	<.0001
A20	A14	0.3157	<.0001
A20	A15	0.4872	<.0001
A20	A17	0.3780	<.0001
A20	A18	0.1345	0.0204
A20	A19	0.0714	0.2423

**FACTOR ANALYSIS: NEGLECT<sup>3</sup>**

**Correlations**

Variable	A11	A12	A13	A14	A15	A17	A18	A19	A20
A11	1.0000	0.8217	0.6818	0.5249	0.6744	-0.0009	0.1431	0.1343	0.2557
A12	0.8217	1.0000	0.7906	0.6876	0.7021	-0.0987	0.0138	0.2243	0.3323
A13	0.6818	0.7906	1.0000	0.5876	0.6669	0.0649	-0.0031	0.1067	0.1948
A14	0.5249	0.6876	0.5876	1.0000	0.3776	-0.0251	0.0724	0.5449	0.2308
A15	0.6744	0.7021	0.6669	0.3776	1.0000	0.1747	0.0069	-0.0767	0.1498
A17	-0.0009	-0.0987	0.0649	-0.0251	0.1747	1.0000	0.0824	0.2527	0.0522
A18	0.1431	0.0138	-0.0031	0.0724	0.0069	0.0824	1.0000	0.2966	0.1424
A19	0.1343	0.2243	0.1067	0.5449	-0.0767	0.2527	0.2966	1.0000	0.1730
A20	0.2557	0.3323	0.1948	0.2308	0.1498	0.0522	0.1424	0.1730	1.0000

N = 58

**Prin. Components / Factor Analysis  
Principal Components**

EigVal:	3.8125	1.5176	1.0546	0.9200	0.8269	0.3145	0.2646	0.1975	0.0917
Percent:	42.3613	16.8625	11.7178	10.2227	9.1877	3.4943	2.9402	2.1946	1.0189
Cum%:	42.3613	59.2237	70.9415	81.1643	90.3520	93.8463	96.7865	98.9811	100.0000
Eigvect:									

A11	0.44340	-0.10806	0.01356	0.14584	-0.16447	-0.59287	-0.44162	-0.31345	0.31374
A12	0.48212	-0.11439	-0.12810	-0.01825	0.02023	-0.13484	-0.04727	0.19333	-0.82433
A13	0.43864	-0.16025	0.09419	-0.08190	-0.04715	0.66980	-0.43766	0.25701	0.24061
A14	0.39389	0.21264	-0.26177	-0.38576	0.03790	0.24056	0.34999	-0.63136	0.04352
A15	0.39176	-0.26566	0.35556	0.12504	-0.11639	-0.11212	0.68433	0.27796	0.24940
A17	0.03405	0.32605	0.86107	-0.09020	0.17807	0.01996	-0.12104	-0.23370	-0.20390
A18	0.06365	0.48741	-0.03652	0.55926	-0.62165	0.20155	0.05780	-0.05823	-0.10232
A19	0.16363	0.66451	-0.11651	-0.38422	0.03312	-0.25782	-0.02149	0.51423	0.19492
A20	0.19478	0.21981	-0.15243	0.58199	0.73217	0.06134	0.04407	0.00180	0.10005

**Rotated Components**

**Rotated Factor Pattern**

A11	0.8707455	-0.101316	-0.055899	-0.155254	0.1171605
A12	0.8904467	-0.264923	-0.154394	0.0396476	0.1884374
A13	0.8696871	-0.159521	0.0319020	0.0746818	0.0383824
A14	0.5626916	-0.727268	-0.126455	0.0585603	0.0742867
A15	0.8833853	0.1571137	0.2142849	-0.004605	0.0128553
A17	0.0207301	-0.095677	0.9850626	-0.03275	0.0198426
A18	0.0186004	-0.125951	0.0330230	-0.981638	0.0616243
A19	-0.014344	-0.917695	0.1882764	-0.1983	0.0782188
A20	0.1569184	-0.092619	0.0218090	-0.06434	0.9795751

**Rotation Matrix**

0.91915	-0.33136	0.01004	-0.05341	0.20595
-0.33246	-0.69187	0.32628	-0.50418	0.22389
0.13768	0.29898	0.92806	0.02283	-0.17275
0.03990	0.56318	-0.06506	-0.58377	0.57984
-0.15523	-0.07034	0.16706	0.63376	0.73580

<sup>3</sup> See the second page of this appendix for the definitions of the variable names.

## Communalities

A11	0.80942
A12	0.92400
A13	0.78987
A14	0.87048
A15	0.85116
A17	0.98140
A18	0.98471
A19	0.92326
A20	0.99738

## Std Score Coefs

A11	0.273850	0.087741	-0.054191	-0.170991	-0.020076
A12	0.236437	-0.067150	-0.138623	0.055989	0.056950
A13	0.266998	-0.001456	0.041823	0.072660	-0.086363
A14	0.070422	-0.491906	-0.145091	0.157569	-0.078306
A15	0.328849	0.268649	0.223113	-0.051303	-0.085365
A17	0.009329	-0.004946	0.903530	0.063769	0.007560
A18	0.022913	0.081283	-0.055721	-0.975656	-0.063491
A19	-0.139560	-0.663045	0.103694	-0.022108	-0.047838
A20	-0.088840	0.084190	0.016507	0.057409	1.030400

## Nonparametric Measures of Association

Variable	by Variable	Spearman Rho	Prob> Rho
A12	A11	0.7526	<.0001
A13	A11	0.5979	<.0001
A13	A12	0.8463	<.0001
A14	A11	0.5983	<.0001
A14	A12	0.7513	<.0001
A14	A13	0.7330	<.0001
A15	A11	0.5853	<.0001
A15	A12	0.7336	<.0001
A15	A13	0.7260	<.0001
A15	A14	0.5515	<.0001
A17	A11	0.1613	0.0067
A17	A12	0.2420	<.0001
A17	A13	0.2649	0.0001
A17	A14	0.0389	0.6904
A17	A15	0.4174	<.0001
A18	A11	-0.0304	0.5868
A18	A12	-0.0720	0.2150
A18	A13	0.0893	0.1781
A18	A14	-0.0278	0.7693
A18	A15	0.0790	0.1740
A18	A17	0.0411	0.4930
A19	A11	0.1490	0.0168
A19	A12	0.0850	0.1922
A19	A13	0.1561	0.0315
A19	A14	0.6047	<.0001
A19	A15	-0.0485	0.4525
A19	A17	0.2127	0.0010
A19	A18	0.2124	0.0005

---

A20	A11	0.2881	<.0001
A20	A12	0.3949	<.0001
A20	A13	0.4598	<.0001
A20	A14	0.3572	<.0001
A20	A15	0.4962	<.0001
A20	A17	0.4837	<.0001
A20	A18	0.1257	0.0398
A20	A19	0.0058	0.9312



**APPENDIX K**

**SIGNIFICANCE TESTS**

**ADULT VARIABLES & CHILD VARIABLES**

**TOTAL DATA SET**

**COMPARISONS OF HIGH AND LOW SEVERITY CASES**

**TOTAL DATA SET**  
**(H: High Severity; L: Low Severity)**  
**(1: Male; 2: Female)**

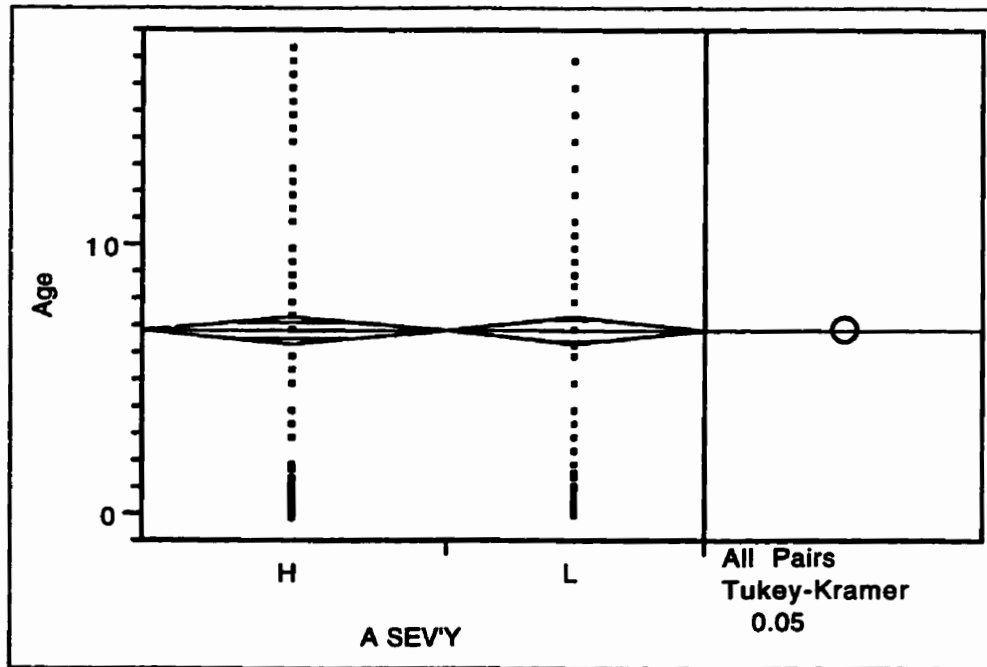
SEVERITY OF THE CURRENT INCIDENT	GENDER OF CHILD		
	1	2	
Count	99	151	250
Total %	10.61	16.18	26.80
Row %	39.60	60.40	
Col %	24.21	28.82	
Expected	109.59	140.41	
Deviation	-10.59	10.59	
Cell Chi^2	1.024	0.80	
<b>H</b>	<b>161</b>	<b>204</b>	<b>365</b>
	17.26	21.86	39.12
	44.11	55.89	
	39.36	38.93	
	160.01	205.00	
	1.00	-1.00	
	0.01	0.01	
<b>L</b>	<b>149</b>	<b>169</b>	<b>318</b>
	15.97	18.11	34.08
	46.86	53.14	
	36.43	32.25	
	139.40	178.60	
	-9.60	9.60	
	0.66	0.52	
	409	524	933
	43.84	56.16	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	2	1.5104	0.0015
Error	929	1012.5616	
C Total	931	1014.0719	
Total Count	933		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.021	0.2208
Pearson	3.011	0.2219

TOTAL DATA SET  
AGE OF CHILD  
(H: High Severity; L: Low Severity)  
(Age in Years)



Means Comparisons

Dif=Mean[i]-Mean[j]	H	L
H	0.000000	0.012732
L	-0.01273	0.000000

Alpha= 0.05

Comparisons for all pairs using Tukey-Kramer HSD

Abs(Dif)-LSD	H	L
H	-0.74341	-0.76242
L	-0.76242	-0.80565

Positive values show pairs of means that are significantly different.

**TOTAL DATA SET-ADULT**  
(H: High Severity; L: Low Severity)  
(1: Male; 2: Female)

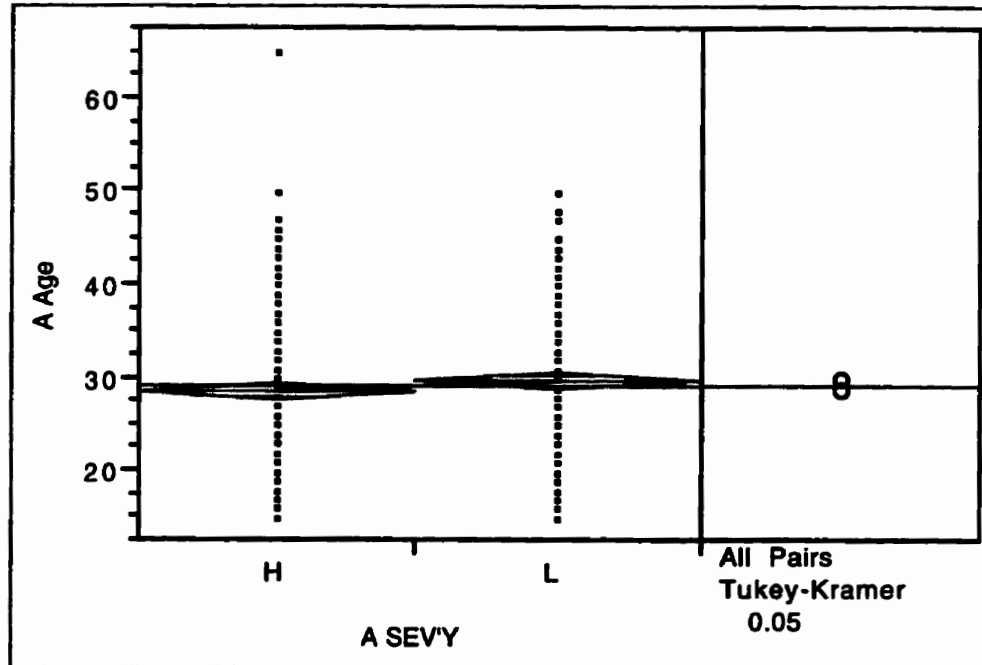
		SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		GENDER OF ADULT	
		1	2		
Count					
Total %					
Row %					
Col %					
Expected					
Deviation					
Cell Chi^2					
H		63	317	380	
		8.99	45.22	54.21	
		16.58	83.42		
		43.15	57.12		
		79.14	300.86		
		-16.14	16.14		
		3.29	0.87		
L		83	238	321	
		11.84	33.95	45.79	
		25.86	74.14		
		56.85	42.88		
		66.86	254.14		
		16.14	-16.14		
		3.90	1.03		
		146	555	701	
		20.83	79.17		

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	1	4.53002	0.0094
Error	699	478.88033	
C Total	700	483.41035	
Total Count	701		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	9.060	0.0026
Pearson	9.083	0.0026
Fisher's Exact Test		Prob
Left		0.0018
Right		0.9990
2-Tail		0.0028

TOTAL DATA SET-ADULT  
(H: High Severity; L: Low Severity)  
(Age in Years)



Means Comparisons

Dif=Mean[i]-Mean[j]	L	H
L	0.00000	1.12159
H	-1.12159	0.00000

Alpha= 0.05

Comparisons for all pairs using Tukey-Kramer HSD

Abs(Dif)-LSD	L	H
L	-1.46132	-0.35960
H	-0.35960	-1.50078

Positive values show pairs of means that are significantly different.

## TOTAL DATA SET-ADULT

(H: High Severity; L: Low Severity)

(Scale Levels: 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)						SEVERITY OF PRIOR MALTREATMENT INCIDENT					
	0	1	2	3	4	5	0	1	2	3	4	5
Count	96	7	1	18	57	108	89	66	62	22	13	11
Total %	17.45	1.27	0.18	3.27	10.36	19.64	16.18	12.00	11.27	4.00	2.36	2.00
Row %	33.45	2.44	0.35	6.27	19.86	37.63	33.84	25.10	23.57	8.37	4.94	4.18
Col %	51.89	9.59	1.59	45.00	81.43	90.76	48.11	90.41	98.41	55.00	18.57	9.24
Expected	96.54	38.09	32.88	20.87	36.53	62.10	88.46	34.91	30.13	19.13	33.42	56.90
Deviation	-0.54	-31.09	-31.88	-2.87	20.47	45.90	0.54	31.09	31.88	2.87	-20.47	-45.90
Cell Chi^2	0.00	25.38	30.91	0.40	11.48	33.93	0.00	27.70	33.73	0.43	12.52	37.03
H	185	73	63	40	70	119	263	73	63	40	70	119
L	33.64	13.27	11.45	7.27	12.73	21.64	47.82	13.27	11.45	7.27	12.73	21.64

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	5	126.61664	0.3326
Error	544	254.09051	
C Total	549	380.70715	
Total Count	550		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	253.233	0.0000
Pearson	213.497	0.0000

**TOTAL DATA SET-ADULT**  
 (H: High Severity; L: Low Severity)  
 (Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
 5: Very High)

		ADULT'S PERCEPTION OF THE INCIDENT					
		-1	1	2	3	4	5
<b>SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)</b>							
<b>Count</b>							
<b>Total %</b>							
<b>Row %</b>							
<b>Col %</b>							
<b>Expected</b>							
<b>Deviation</b>							
<b>Cell Chi^2</b>							
<b>H</b>		21	17	22	47	76	118
		3.63	2.94	3.80	8.12	13.13	20.38
		6.98	5.65	7.31	15.61	25.25	39.20
		27.27	25.00	48.89	45.63	73.79	64.48
		40.03	35.35	23.39	53.55	53.55	95.14
		-19.03	-18.35	-1.39	-6.55	22.45	22.87
		9.0463	9.5259	0.0830	0.8002	9.4161	5.4956
<b>L</b>		56	51	23	56	27	65
		9.67	8.81	3.97	9.67	4.66	11.23
		20.14	18.35	8.27	20.14	9.71	23.38
		72.73	75.00	51.11	54.37	26.21	35.52
		36.97	32.65	21.61	49.45	49.45	87.87
		19.03	18.35	1.39	6.55	-22.45	-22.87
		9.80	10.31	0.09	0.87	10.20	5.95
		77	68	45	103	103	183
		13.30	11.74	7.77	17.79	17.79	31.61

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	37.02340	0.0924
Error	573	363.85187	
C Total	578	400.87528	
Total Count	579		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	74.047	0.0000
Pearson	71.577	0.0000

**TOTAL DATA SET-ADULT**  
**(H: High Severity; L: Low Severity)**  
**(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;**  
**5: Very High)**

		ADULTS PERCEPTION OF THE CHILD					
		-1	1	2	3	4	5
<b>SEVERITY - CURRENT INCIDENT</b>							
<b>(DICHOTOMOUS)</b>							
<b>Count</b>							
<b>Total %</b>							
<b>Row %</b>							
<b>Col %</b>							
<b>Expected</b>							
<b>Deviation</b>							
<b>Cell Chi^2</b>							
<b>H</b>							
	30	18	18	36	78	108	288
	5.33	3.20	3.20	6.39	13.85	19.18	51.15
	10.42	6.25	6.25	12.50	27.08	37.50	
	33.33	29.03	40.91	43.37	62.90	67.50	
	46.04	31.72	22.51	42.46	63.43	81.85	
	-16.04	-13.72	-4.51	-6.46	14.57	26.15	
	5.59	5.93	0.90	0.98	3.35	8.36	
<b>L</b>							
	60	44	26	47	46	52	275
	10.66	7.82	4.62	8.35	8.17	9.24	48.85
	21.82	16.00	9.45	17.09	16.73	18.91	
	66.67	70.97	59.09	56.63	37.10	32.50	
	43.96	30.28	21.49	40.54	60.57	78.15	
	16.04	13.72	4.51	6.46	-14.57	-26.15	
	5.85	6.21	0.95	1.03	3.50	8.75	
	90	62	44	83	124	160	563
	15.99	11.01	7.82	14.74	22.02	28.42	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	26.21981	0.0672
Error	557	363.87195	
C Total	562	390.09176	
Total Count	563		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	52.440	0.0000
Pearson	51.401	0.0000



**TOTAL DATA SET-ADULT**  
 (H: High Severity; L: Low Severity)  
 (Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
 5: Very High)

SEVERITY - CURRENT INCIDENT CHILD (DICHOTOMOUS)		ATTACHMENT BETWEEN THE ADULT AND THE CHILD					
		-1	1	2	3	4	5
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
H	31	41	15	42	27	51	207
	7.00	9.26	3.39	9.48	6.09	11.51	46.73
	14.98	19.81	7.25	20.29	13.04	24.64	
	34.83	45.56	40.54	42.00	47.37	72.86	
	41.59	42.05	17.29	46.73	26.63	32.71	
	-10.59	-1.05	-2.29	-4.73	0.37	18.29	
	2.70	0.03	0.30	0.48	0.01	10.23	
L	58	49	22	58	30	19	236
	13.09	11.06	4.97	13.09	6.77	4.29	53.27
	24.58	20.76	9.32	24.58	12.71	8.05	
	65.17	54.44	59.46	58.00	52.63	27.14	
	47.41	47.95	19.71	53.27	30.37	37.29	
	10.59	1.05	2.29	4.73	-0.37	-18.29	
	2.36	0.02	0.27	0.42	0.00	8.97	
	89	90	37	100	57	70	443
	20.09	20.32	8.35	22.57	12.87	15.80	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	13.19065	0.0431
Error	437	292.92366	
C Total	442	306.11431	
Total Count	443		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	26.381	0.0001
Pearson	25.785	0.0001

## TOTAL DATA SET-ADULT

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; O: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)						ADULT'S ATTITUDE CONCERNING DISCIPLINE					
	-1	1	2	3	4	5	-1	1	2	3	4	5
Count	24	12	8	14	16	27	41	37	21	51	11	15
Total %	8.66	4.33	2.89	5.05	5.78	9.75	14.80	13.36	7.58	18.41	3.97	5.42
Row %	23.76	11.88	7.92	13.86	15.84	26.73	23.30	21.02	11.93	28.98	6.25	8.52
Col %	36.92	24.49	27.59	21.54	59.26	64.29	63.08	75.51	72.41	78.46	40.74	35.71
Expected	23.70	17.87	10.57	23.70	9.85	15.314079	41.30	31.13	18.43	41.30	17.16	26.69
Deviation	0.30	-5.87	-2.57	-9.70	6.16	11.69	-0.30	5.87	2.57	9.70	-6.16	-11.69
Cell Chi^2	0.00	1.93	0.63	3.97	3.85	8.92	0.00	1.11	0.36	2.28	2.21	5.12
H	24	12	8	14	16	27	41	37	21	51	11	15
	8.66	4.33	2.89	5.05	5.78	9.75	14.80	13.36	7.58	18.41	3.97	5.42
	23.76	11.88	7.92	13.86	15.84	26.73	23.30	21.02	11.93	28.98	6.25	8.52
	36.92	24.49	27.59	21.54	59.26	64.29	63.08	75.51	72.41	78.46	40.74	35.71
	23.70	17.87	10.57	23.70	9.85	15.314079	41.30	31.13	18.43	41.30	17.16	26.69
	0.30	-5.87	-2.57	-9.70	6.16	11.69	-0.30	5.87	2.57	9.70	-6.16	-11.69
	0.00	1.93	0.63	3.97	3.85	8.92	0.00	1.11	0.36	2.28	2.21	5.12
L	41	37	21	51	11	15	41	37	21	51	11	15
	14.80	13.36	7.58	18.41	3.97	5.42	14.80	13.36	7.58	18.41	3.97	5.42
	23.30	21.02	11.93	28.98	6.25	8.52	23.30	21.02	11.93	28.98	6.25	8.52
	63.08	75.51	72.41	78.46	40.74	35.71	63.08	75.51	72.41	78.46	40.74	35.71
	41.30	31.13	18.43	41.30	17.16	26.69	41.30	31.13	18.43	41.30	17.16	26.69
	-0.30	5.87	2.57	9.70	-6.16	-11.69	-0.30	5.87	2.57	9.70	-6.16	-11.69
	0.00	1.11	0.36	2.28	2.21	5.12	0.00	1.11	0.36	2.28	2.21	5.12
	65	49	29	65	27	42	65	49	29	65	27	42
	23.47	17.69	10.47	23.47	9.75	15.16	23.47	17.69	10.47	23.47	9.75	15.16

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	5	15.06927	0.0829
Error	271	166.65122	
C Total	276	181.72049	
Total Count	277		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	30.139	0.0000
Pearson	30.364	0.0000

**TOTAL DATA SET-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		ADULT'S PARENTING KNOWLEDGE AND SKILLS					
	-1	1	2	3	4	5		
Count								
Total %								
Row %								
Col %								
Expected								
Deviation								
Cell Chi^2								
H	21	14	13	41	60	166	315	
	3.65	2.43	2.26	7.13	10.43	28.87	54.78	
	6.67	4.44	4.13	13.02	19.05	52.70		
	23.60	24.56	37.14	45.56	61.22	80.58		
	48.76	31.23	19.17	49.30	53.69	112.85		
	-27.76	-17.23	-6.17	-8.30	6.31	53.15		
	15.80	9.50	1.99	1.40	0.74	25.03		
L	68	43	22	49	38	40	260	
	11.83	7.48	3.83	8.52	6.61	6.96	45.22	
	26.15	16.54	8.46	18.85	14.62	15.38		
	76.40	75.44	62.86	54.44	38.78	19.42		
	40.24	25.77	15.83	40.70	44.31	93.15		
	27.76	17.23	6.17	8.30	-6.31	-53.15		
	19.14	11.51	2.41	1.70	0.90	30.33		
	89	57	35	90	98	206	575	
	15.48	9.91	6.09	15.65	17.04	35.83		

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	63.57018	0.1606
Error	569	332.35499	
C Total	574	395.92517	
Total Count	575		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	127.140	0.0000
Pearson	120.448	0.0000

**TOTAL DATA SET-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

		ADULT'S SUBSTANCE ABUSE					
		0	1	2	3	4	5
<b>SEVERITY - CURRENT INCIDENT</b>		<b>(DICHOTOMOUS)</b>					
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>H</b>	113	5	2	17	24	136	297
	20.36	0.90	0.36	3.06	4.32	24.50	53.51
	38.05	1.68	0.67	5.72	8.08	45.79	
	40.65	41.67	33.33	47.22	60.00	74.32	
	148.77	6.42	3.21	19.27	21.41	97.93	
	-35.77	-1.42	-1.21	-2.27	2.60	38.07	
	8.60	0.31	0.46	0.27	0.32	14.80	
<b>L</b>	165	7	4	19	16	47	258
	29.73	1.26	0.72	3.42	2.88	8.47	46.49
	63.95	2.71	1.55	7.36	6.20	18.22	
	59.35	58.33	66.67	52.78	40.00	25.68	
	129.23	5.58	2.79	16.74	18.60	85.07	
	35.77	1.42	1.21	2.27	-2.60	-38.07	
	9.90	0.36	0.53	0.31	0.36	17.04	
	278	12	6	36	40	183	555
	50.09	2.16	1.08	6.49	7.21	32.97	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	27.47689	0.0717
Error	549	355.84839	
C Total	554	383.32528	
Total Count	555		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	54.954	0.0000
Pearson	53.244	0.0000

**TOTAL DATA SET-ADULT**  
**(H: High Severity; L: Low Severity)**  
**(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;**  
**5: Very High)**

	<b>SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)</b>						
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<b>Count</b>							
<b>Total %</b>							
<b>Row %</b>							
<b>Col %</b>							
<b>Expected</b>							
<b>Deviation</b>							
<b>Cell Chi^2</b>							
<b>H</b>	271	12	10	12	6	12	323
	44.72	1.98	1.65	1.98	0.99	1.98	53.30
	83.90	3.72	3.10	3.72	1.86	3.72	
	53.88	36.36	62.50	44.44	66.67	66.67	
	268.10	17.59	8.53	14.39	4.80	9.59	
	2.90	-5.59	1.47	-2.39	1.20	2.41	
	0.03	1.78	0.25	0.40	0.30	0.60	
<b>L</b>	232	21	6	15	3	6	283
	38.28	3.47	0.99	2.48	0.50	0.99	46.70
	81.98	7.42	2.12	5.30	1.06	2.12	
	46.12	63.64	37.50	55.56	33.33	33.33	
	234.90	15.41	7.47	12.61	4.20	8.41	
	-2.90	5.59	-1.47	2.39	-1.20	-2.41	
	0.04	2.03	0.29	0.45	0.34	0.69	
	503	33	16	27	9	18	606
	83.00	5.45	2.64	4.46	1.49	2.97	

**Tests**

<b>Source</b>	<b>DF</b>	<b>-LogLikelihood</b>	<b>RSquare (U)</b>
<b>Model</b>	5	3.63676	0.0087
<b>Error</b>	600	415.08934	
<b>C Total</b>	605	418.72610	
<b>Total Count</b>	606		

<b>Test</b>	<b>ChiSquare</b>	<b>Prob&gt;ChiSq</b>
<b>Likelihood Ratio</b>	7.274	0.2011
<b>Pearson</b>	7.203	0.2060

## TOTAL DATA SET-ADULT

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

SEVERITY - CURRENT INCIDENT ADULT'S HISTORY OF VIOLENCE TOWARDS ADULTS  
(DICHOTOMOUS)

	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
H	172	12	1	11	22	55	273
	32.51	2.27	0.19	2.08	4.16	10.40	51.61
	63.00	4.40	0.37	4.03	8.06	20.15	
	53.58	44.44	12.50	28.21	66.67	54.46	
	165.66	13.93	4.13	20.13	17.03	52.12	
	6.34	-1.93	-3.13	-9.13	4.97	2.88	
	0.24	0.27	2.37	4.14	1.45	0.16	
L	149	15	7	28	11	46	256
	28.17	2.84	1.32	5.29	2.08	8.70	48.39
	58.20	5.86	2.73	10.94	4.30	17.97	
	46.42	55.56	87.50	71.79	33.33	45.54	
	155.34	13.07	3.87	18.87	15.97	48.88	
	-6.34	1.93	3.13	9.13	-4.97	-2.88	
	0.26	0.29	2.53	4.41	1.55	0.17	
	321	27	8	39	33	101	529
	60.68	5.10	1.51	7.37	6.24	19.09	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	5	9.35234	0.0255
Error	523	357.04932	
C Total	528	366.40165	
Total Count	529		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	18.705	0.0022
Pearson	17.832	0.0032

**TOTAL DATA SET-ADULT**  
**(H: High Severity; L: Low Severity)**  
**(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;**  
**5: Very High)**

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)						ADULT'S LEVEL OF STRESS							
	Count	0	1	2	3	4	5	Count	0	1	2	3	4	5
H	34	14	7	27	82	108	272	6.45	2.66	1.33	5.12	15.56	20.49	51.61
	12.50	5.15	2.57	9.93	30.15	39.71		50.00	29.17	21.21	36.99	60.74	63.53	
	35.10	24.77	17.03	37.68	69.68	87.74		-1.10	-10.77	-10.03	-10.68	12.32	20.26	
	0.03	4.69	5.91	3.03	2.18	4.68								
L	34	34	26	46	53	62	255	6.45	6.45	4.93	8.73	10.06	11.76	48.39
	13.33	13.33	10.20	18.04	20.78	24.31		50.00	70.83	78.79	63.01	39.26	36.47	
	32.90	23.23	15.97	35.32	65.32	82.26		1.10	10.77	10.03	10.68	-12.32	-20.26	
	0.04	5.00	6.30	3.23	2.33	4.99								
	68	48	33	73	135	170	527	12.90	9.11	6.26	13.85	25.62	32.26	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	21.78554	0.0597
Error	521	343.22878	
C Total	526	365.01432	
Total Count	527		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	43.571	0.0000
Pearson	42.390	0.0000

**TOTAL DATA SET-ADULT**  
**(H: High Severity; L: Low Severity)**  
**(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;**  
**5: Very High)**

**SEVERITY - CURRENT INCIDENT      ADULT'S RELEVANT REFERENCE GROUP VALUES**  
**(DICHOTOMOUS)**

	-1	0	1	2	3	4	5	
<b>Count</b>								
<b>Total %</b>								
<b>Row %</b>								
<b>Col %</b>								
<b>Expected</b>								
<b>Deviation</b>								
<b>Cell Chi^2</b>								
<b>H</b>	19	1	7	9	19	56	68	179
	5.62	0.30	2.07	2.66	5.62	16.57	20.12	52.96
	10.61	0.56	3.91	5.03	10.61	31.28	37.99	
	31.15	100.00	20.59	29.03	38.00	74.67	79.07	
	32.31	0.53	18.01	16.42	26.48	39.72	45.54	
	-13.31	0.47	-11.01	-7.42	-7.48	16.28	22.46	
	5.48	0.42	6.73	3.35	2.11	6.67	11.07	
<b>L</b>	42	0	27	22	31	19	18	159
	12.43	0.00	7.99	6.51	9.17	5.62	5.33	47.04
	26.42	0.00	16.98	13.84	19.50	11.95	11.32	
	68.85	0.00	79.41	70.97	62.00	25.33	20.93	
	28.70	0.47	15.99	14.58	23.52	35.28	40.46	
	13.31	-0.47	11.01	7.42	7.48	-16.28	-22.46	
	6.17	0.47	7.57	3.77	2.38	7.51	12.46	
	61	1	34	31	50	75	86	338
	18.05	0.30	10.06	9.17	14.79	22.19	25.44	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	6	40.12047	0.1717
Error	331	193.57121	
C Total	337	233.69169	
Total Count	338		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	80.241	0.0000
Pearson	76.175	0.0000



**TOTAL DATA SET-ADULT**  
**(H: High Severity; L: Low Severity)**  
**(Scale Levels: -1: Protective; O: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;**  
**5: Very High)**

		<b>ADULT'S SOCIAL ISOLATION</b>					
		<b>-1</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>SEVERITY - CURRENT INCIDENT</b>							
<b>(DICHOTOMOUS)</b>							
<b>Count</b>							
<b>Total %</b>							
<b>Row %</b>							
<b>Col %</b>							
<b>Expected</b>							
<b>Deviation</b>							
<b>Cell Chi^2</b>							
<b>H</b>	13	26	18	42	93	62	254
	2.77	5.54	3.84	8.96	19.83	13.22	54.16
	5.12	10.24	7.09	16.54	36.61	24.41	
	28.89	34.67	40.91	60.87	68.89	61.39	
	24.37	40.62	23.83	37.37	73.11	54.70	
	-11.37	-14.62	-5.83	4.63	19.89	7.30	
	5.31	5.26	1.43	0.57	5.41	0.97	
<b>L</b>	32	49	26	27	42	39	215
	6.82	10.45	5.54	5.76	8.96	8.32	45.84
	14.88	22.79	12.09	12.56	19.53	18.14	
	71.11	65.33	59.09	39.13	31.11	38.61	
	20.63	34.38	20.17	31.63	61.89	46.30	
	11.37	14.62	5.83	-4.63	-19.89	-7.30	
	6.27	6.23	1.69	0.68	6.39	1.15	
	45	75	44	69	135	101	469
	9.59	15.99	9.38	14.71	28.78	21.54	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	20.99387	0.0649
Error	463	302.46875	
C Total	468	323.46262	
Total Count	469		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	41.988	0.0000
Pearson	41.338	0.0000

**APPENDIX L**

**SIGNIFICANCE TESTS**

**ADULT VARIABLES & CHILD VARIABLES**

**NEGLECT**

**COMPARISONS OF HIGH AND LOW SEVERITY CASES**

**NEGLECT**  
(H: High Severity; L: Low Severity)  
(1: Male; 2: Female)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		GENDER OF CHILD
	1	2	
Count			
Total %			
Row %			
Col %			
Expected			
Deviation			
Cell Chi^2			
<b>H</b>	<b>161</b>	<b>204</b>	<b>365</b>
	<b>23.57</b>	<b>29.87</b>	<b>53.44</b>
	<b>44.11</b>	<b>55.89</b>	
	<b>51.94</b>	<b>54.69</b>	
	<b>165.67</b>	<b>199.33</b>	
	<b>-4.67</b>	<b>4.67</b>	
	<b>0.13</b>	<b>0.11</b>	
<b>L</b>	<b>149</b>	<b>169</b>	<b>318</b>
	<b>21.82</b>	<b>24.74</b>	<b>46.56</b>
	<b>46.86</b>	<b>53.14</b>	
	<b>48.06</b>	<b>45.31</b>	
	<b>144.33</b>	<b>173.67</b>	
	<b>4.67</b>	<b>-4.67</b>	
	<b>0.15</b>	<b>0.13</b>	
	<b>310</b>	<b>373</b>	<b>683</b>
	<b>45.39</b>	<b>54.61</b>	

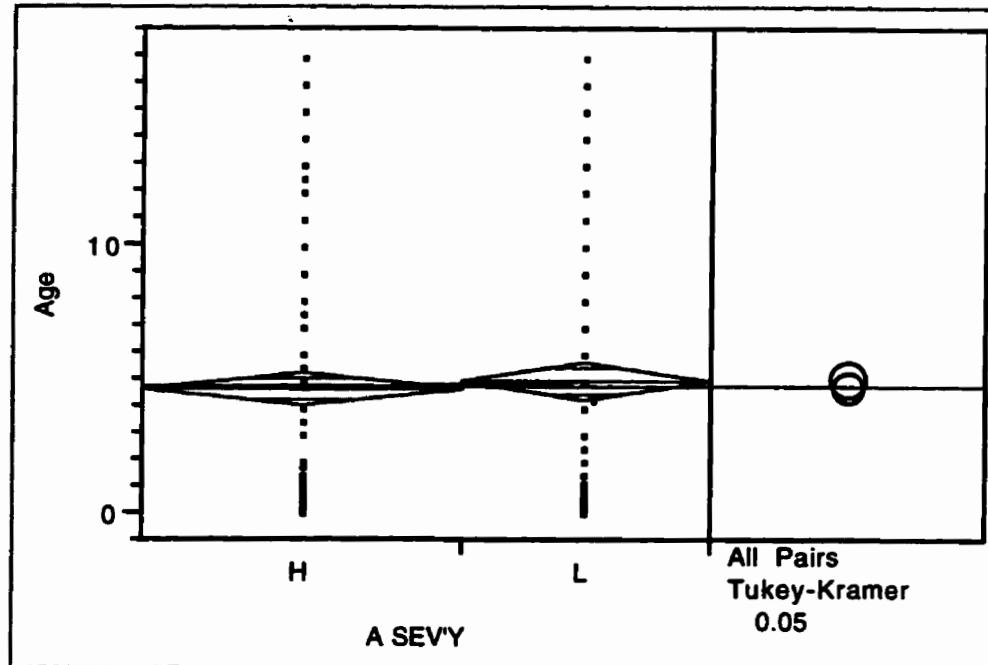
**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	1	0.25842	0.0005
Error	681	471.54270	
C Total	682	471.80112	
Total Count	683		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.517	0.4722
Pearson	0.517	0.4722

**NEGLECT**  
 (H: High Severity; L: Low Severity)  
 (Age in Years)

SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)      AGE OF CHILD



**Means Comparisons**

Dif=Mean[i]-Mean[j]	L	H
L	0.000000	0.229561
H	-0.22956	0.000000

Alpha= 0.05

Comparisons for all pairs using Tukey-Kramer HSD

$q^*$

1.96695

Abs(Dif)-LSD	L	H
L	-1.02566	-0.73980
H	-0.73980	-0.90958

Positive values show pairs of means that are significantly different.

**NEGLECT-ADULT**  
**(H: High Severity; L: Low Severity)**  
**(1: Male; 2: Female)**

SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)	GENDER OF ADULT		
	1	2	
Count			
Total %			
Row %			
Col %			
Expected			
Deviation			
Cell Chi^2			
<b>H</b>	<b>18</b>	<b>177</b>	<b>195</b>
	<b>5.20</b>	<b>51.16</b>	<b>56.36</b>
	<b>9.23</b>	<b>90.77</b>	
	<b>40.91</b>	<b>58.61</b>	
	<b>24.80</b>	<b>170.20</b>	
	<b>-6.80</b>	<b>6.80</b>	
	<b>1.86</b>	<b>0.27</b>	
<b>L</b>	<b>26</b>	<b>125</b>	<b>151</b>
	<b>7.51</b>	<b>36.13</b>	<b>43.64</b>
	<b>17.22</b>	<b>82.78</b>	
	<b>59.09</b>	<b>41.39</b>	
	<b>19.20</b>	<b>131.80</b>	
	<b>6.80</b>	<b>-6.80</b>	
	<b>2.41</b>	<b>0.35</b>	
	<b>44</b>	<b>302</b>	<b>346</b>
	<b>12.72</b>	<b>87.28</b>	

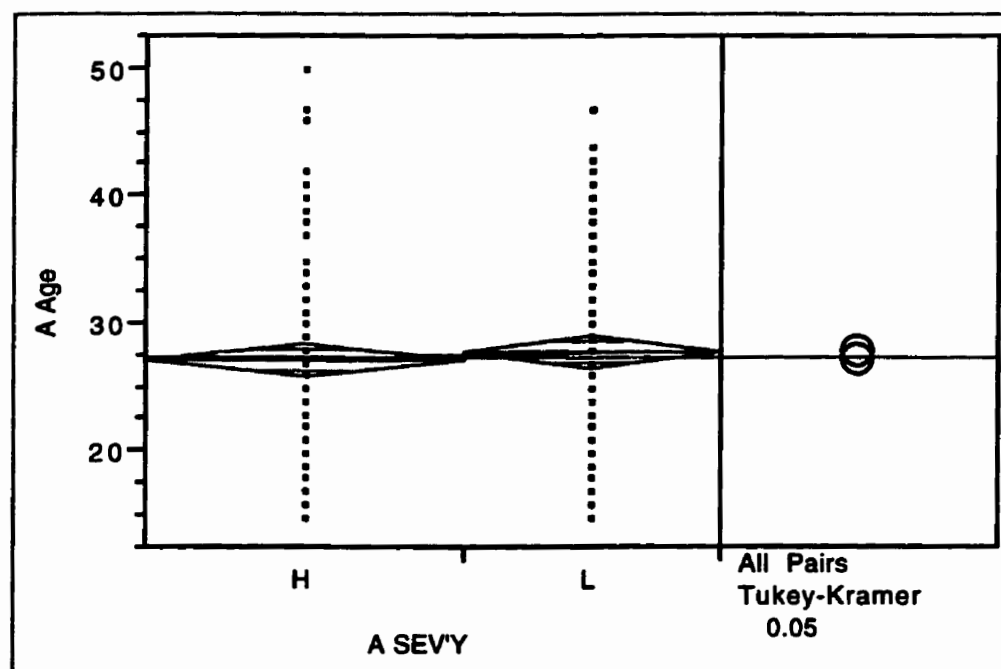
**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	1	2.42527	0.0102
Error	344	234.59838	
C Total	345	237.02365	
Total Count	346		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	4.851	0.0276
Pearson	4.892	0.0270
Fisher's Exact Test		Prob
Left		0.0206
Right		0.9910
2-Tail		0.0340

**NEGLECT**  
(H: High Severity; L: Low Severity)  
(Age in Years)

SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)      AGE OF ADULT



**Means Comparisons**

Dif=Mean[i]-Mean[j]	L	H
L	0.000000	0.627918
H	-0.62792	0.000000

Alpha= 0.05

**Comparisons for all pairs using Tukey-Kramer HSD**

Abs(Dif)-LSD	L	H
L	-2.05769	-1.31548
H	-1.31548	-1.82195

Positive values show pairs of means that are significantly different.

**NEGLECT-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)						SEVERITY OF PRIOR MALTREATMENT INCIDENT					
	0	1	2	3	4	5	0	1	2	3	4	5
<b>Count</b>	56	3	0	9	32	52	152					
<b>Total %</b>	20.44	1.09	0.00	3.28	11.68	18.98	55.47					
<b>Row %</b>	36.84	1.97	0.00	5.92	21.05	34.21						
<b>Col %</b>	58.33	12.50	0.00	45.00	74.42	88.14						
<b>Expected</b>	53.26	13.31	17.75	11.095	23.85	32.73						
<b>Deviation</b>	2.75	-10.31	-17.75	-2.10	8.15	19.27						
<b>Cell Chi^2</b>	0.14	7.99	17.75	0.40	2.78	11.35						
<b>H</b>												
<b>L</b>	40	21	32	11	11	7	122					
	14.60	7.66	11.68	4.01	4.01	2.55	44.53					
	32.79	17.21	26.23	9.02	9.02	5.74						
	41.67	87.50	100.00	55.00	25.58	11.86						
	42.75	10.69	14.25	8.91	19.15	26.27						
	-2.75	10.31	17.75	2.10	-8.15	-19.27						
	0.18	9.96	22.1	0.49	3.47	14.14						
	96	24	32	20	43	59	274					
	35.04	8.76	11.68	7.30	15.69	21.53						

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	54.32901	0.2886
Error	268	133.94769	
C Total	273	188.27669	
Total Count	274		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	108.658	0.0000
Pearson	90.748	0.0000

## NEGLECT-ADULT

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		ADULT'S PERCEPTION OF THE INCIDENT					
	-1	1	2	3	4	5		
Count								
Total %								
Row %								
Col %								
Expected								
Deviation								
Cell Chi^2								
H	15	14	13	29	36	55	162	
	4.98	4.65	4.32	9.63	11.96	18.27	53.82	
	9.26	8.64	8.02	17.90	22.22	33.95		
	36.59	46.67	54.17	50.00	66.67	58.51		
	22.07	16.15	12.92	31.22	29.06	50.59		
	-7.07	-2.15	0.08	-2.22	6.94	4.41		
	2.26	0.29	0.00	0.16	1.66	0.38		
L	26	16	11	29	18	39	139	
	8.64	5.32	3.65	9.63	5.98	12.96	46.18	
	18.71	11.51	7.91	20.86	12.95	28.06		
	63.41	53.33	45.83	50.00	33.33	41.49		
	18.93	13.85	11.08	26.78	24.94	43.41		
	7.07	2.15	-0.08	2.22	-6.94	-4.41		
	2.64	0.33	0.00	0.18	1.93	0.45		
	41	30	24	58	54	94	301	
	13.62	9.97	7.97	19.27	17.94	31.23		

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	5	5.19093	0.0250
Error	295	202.56677	
C Total	300	207.75771	
Total Count	301		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	10.382	0.0651
Pearson	10.277	0.0678



**NEGLECT-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)						ADULT'S PERCEPTION OF THE CHILD					
	-1	1	2	3	4	5	-1	1	2	3	4	5
Count												
Total %												
Row %												
Col %												
Expected												
Deviation												
Cell Chi^2												
<b>H</b>	20	14	8	24	43	41	150					
	7.09	4.96	2.84	8.51	15.25	14.54	53.19					
	13.33	9.33	5.33	16.00	28.67	27.33						
	41.67	53.85	44.44	50.00	58.90	59.42						
	25.53	13.83	9.58	25.53	38.83	36.70						
	-5.531	0.17	-1.58	-1.53	4.17	4.30						
	1.20	0.00	0.26	0.09	0.45	0.50						
<b>L</b>	28	12	10	24	30	28	132					
	9.93	4.26	3.55	8.51	10.64	9.93	46.81					
	21.21	9.09	7.58	18.18	22.73	21.21						
	58.33	46.15	55.56	50.00	41.10	40.58						
	22.47	12.17	8.43	22.47	34.17	32.30						
	5.53	-0.17	1.58	1.53	-4.17	-4.30						
	1.36	0.00	0.29	0.10	0.51	0.57						
	48	26	18	48	73	69	282					
	17.02	9.22	6.38	17.02	25.89	24.47						

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	2.67899	0.0137
Error	276	192.21366	
C Total	281	194.89265	
Total Count	282		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	5.358	0.3738
Pearson	5.347	0.3751

## NEGLECT-ADULT

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

	ATTACHMENT BETWEEN THE ADULT AND THE CHILD (DICHOTOMOUS)						
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
H	22	27	7	19	11	20	106
	10.28	12.62	3.27	8.88	5.14	9.35	49.53
	20.75	25.47	6.60	17.92	10.38	18.87	
	47.83	56.25	43.75	38.00	39.29	76.92	
	22.79	23.78	7.93	24.77	13.87	12.88	
	-0.79	3.22	-0.93	-5.77	-2.87	7.12	
	0.03	0.44	0.11	1.34	0.59	3.94	
L	24	21	9	31	17	6	108
	11.21	9.81	4.21	14.49	7.94	2.80	50.47
	22.22	19.44	8.33	28.70	15.74	5.56	
	52.17	43.75	56.25	62.00	60.71	23.08	
	23.22	24.22	8.08	25.23	14.13	13.12	
	0.79	-3.22	0.93	5.77	2.87	-7.12	
	0.03	0.43	0.11	1.32	0.58	3.87	
	46	48	16	50	28	26	214
	21.50	22.43	7.48	23.36	13.08	12.15	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	5	6.61400	0.0446
Error	208	141.71015	
C Total	213	148.32415	
Total Count	214		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	13.228	0.0213
Pearson	12.774	0.0256

## NEGLECT-ADULT

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)						ADULT'S ATTITUDE CONCERNING DISCIPLINE					
	-1	1	2	3	4	5						
Count	18	5	5	7	10	12	23	8	4	16	3	3
Total %	15.79	4.39	4.39	6.14	8.77	10.53	20.18	7.02	3.51	14.04	2.63	2.63
Row %	31.58	8.77	8.77	12.28	17.54	21.05	40.35	14.04	7.02	28.07	5.26	5.26
Col %	43.90	38.46	55.56	30.43	76.92	80.00	56.10	61.54	44.44	69.57	23.08	20.00
Expected	20.5	6.5	4.5	11.5	6.5	7.5	20.5	6.5	4.5	11.5	6.5	7.5
Deviation	-2.5	-1.5	0.5	-4.5	3.5	4.5	2.5	1.5	-0.5	4.5	-3.5	-4.5
Cell Chi^2	0.31	0.35	0.06	1.76	1.89	2.70	0.31	0.35	0.06	1.76	1.89	2.70
H												57
												50.00
L												57
												50.00
	41	13	9	23	13	15	41	13	9	23	13	114
	35.96	11.40	7.89	20.18	11.40	13.16						

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	5	7.398842	0.0936
Error	108	71.619937	
C Total	113	79.018779	
Total Count	114		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	14.798	0.0113
Pearson	14.104	0.0150

## NEGLECT-ADULT

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

SEVERITY - CURRENT INCIDENT  
(DICHOTOMOUS)

## ADULT'S PARENTING KNOWLEDGE AND SKILLS

	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
H	15	9	8	20	34	69	155
	5.32	3.19	2.84	7.09	12.06	24.47	54.96
	9.68	5.81	5.16	12.90	21.94	44.52	
	31.91	42.86	50.00	55.56	54.84	69.00	
	25.83	11.54	8.79	19.79	34.08	54.97	
	-10.83	-2.54	-0.79	0.21	-0.08	14.04	
	4.54	0.56	0.07	0.00	0.00	3.58	
L	32	12	8	16	28	31	127
	11.35	4.26	2.84	5.67	9.93	10.99	45.04
	25.20	9.45	6.30	12.60	22.05	24.41	
	68.09	57.14	50.00	44.44	45.16	31.00	
	21.17	9.46	7.21	16.21	27.92	45.04	
	10.83	2.54	0.79	-0.21	0.08	-14.04	
	5.55	0.68	0.088	0.00	0.00	4.37	
	47	21	16	36	62	100	282
	16.67	7.45	5.67	12.77	21.99	35.46	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	5	9.88605	0.0509
Error	276	184.18909	
C Total	281	194.07514	
Total Count	282		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	19.772	0.0014
Pearson	19.454	0.0016

**NEGLECT-ADULT**  
 (H: High Severity; L: Low Severity)  
 (Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
 5: Very High)

	ADULT'S SUBSTANCE ABUSE						
	0	1	2	3	4	5	
<b>SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)</b>							
Count	0	1	2	3	4	5	
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>H</b>	54	4	2	12	9	68	149
	20.22	1.50	0.75	4.49	3.37	25.47	55.81
	36.24	2.68	1.34	8.05	6.04	45.64	
	46.96	66.67	40.00	54.55	40.91	70.10	
	64.18	3.35	2.79	12.28	12.28	54.13	
	-10.18	0.65	-0.79	-0.28	-3.28	13.87	
	1.61	0.13	0.22	0.01	0.88	3.55	
<b>L</b>	61	2	3	10	13	29	118
	22.85	0.75	1.12	3.75	4.87	10.86	44.19
	51.69	1.69	2.54	8.47	11.02	24.58	
	53.04	33.33	60.00	45.45	59.09	29.90	
	50.82	2.65	2.21	9.72	9.72	42.87	
	10.18	-0.65	0.79	0.28	3.28	-13.87	
	2.04	0.16	0.28	0.01	1.11	4.49	
	115	6	5	22	22	97	267
	43.07	2.25	1.87	8.24	8.24	36.33	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	7.37308	0.0402
Error	261	175.89353	
C Total	266	183.26661	
Total Count	267		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	14.746	0.0115
Pearson	14.478	0.0128

**NEGLECT-ADULT**  
**(H: High Severity; L: Low Severity)**  
**(Scale Levels: -1: Protective; O: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;**  
**5: Very High)**

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		ADULT'S PSYCHOPATHOLOGY/INCAPACITY				
	0	1	2	3	4	5	
Count	0	1	2	3	4	5	
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>H</b>	<b>136</b>	<b>9</b>	<b>6</b>	<b>6</b>	<b>5</b>	<b>6</b>	<b>168</b>
	44.88	2.97	1.98	1.98	1.65	1.98	55.45
	80.95	5.36	3.57	3.57	2.98	3.57	
	55.97	47.37	75.00	42.86	71.43	50.00	
	134.73	10.54	4.44	7.76	3.88	6.65	
	1.267	-1.54	1.56	-1.76	1.12	-0.65	
	0.01	0.22	0.55	0.40	0.32	0.06	
<b>L</b>	<b>107</b>	<b>10</b>	<b>2</b>	<b>8</b>	<b>2</b>	<b>6</b>	<b>135</b>
	35.31	3.30	0.66	2.64	0.66	1.98	44.55
	79.26	7.41	1.48	5.93	1.48	4.44	
	44.03	52.63	25.00	57.14	28.57	50.00	
	108.27	8.47	3.56	6.24	3.12	5.35	
	-1.27	1.54	-1.56	1.76	-1.12	0.65	
	0.02	0.28	0.69	0.50	0.40	0.08	
	<b>243</b>	<b>19</b>	<b>8</b>	<b>14</b>	<b>7</b>	<b>12</b>	<b>303</b>
	80.20	6.27	2.64	4.62	2.31	3.96	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	1.81430	0.0087
Error	297	206.40870	
C Total	302	208.22300	
Total Count	303		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.629	0.6040
Pearson	3.533	0.6184

## NEGLECT-ADULT

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

(Cell Counts Too Low: No Result)

SEVERITY - CURRENT INCIDENT ADULTS HISTORY OF VIOLENCE TOWARDS ADULTS  
(DICHOTOMOUS)

Count	0	1	2	3	4	5	
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
H	74	6	0	9	14	23	126
	30.20	2.45	0.00	3.67	5.71	9.39	51.43
	58.73	4.76	0.00	7.14	11.11	18.25	
	47.44	60.00	0.00	50.00	82.35	56.10	
	80.23	5.14	1.54	9.26	8.74	21.09	
	-6.23	0.86	-1.54	-0.26	5.26	1.91	
	0.48	0.14	1.54	0.01	3.16	0.17	
L	82	4	3	9	3	18	119
	33.47	1.63	1.22	3.67	1.22	7.35	48.57
	68.91	3.36	2.52	7.56	2.52	15.13	
	52.56	40.00	100.00	50.00	17.65	43.90	
	75.77	4.86	1.46	8.74	8.26	19.91	
	6.23	-0.86	1.54	0.26	-5.26	-1.91	
	0.51	0.15	1.63	0.01	3.35	0.18	
	156	10	3	18	17	41	245
	63.67	4.08	1.22	7.35	6.94	16.73	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	5	6.55315	0.0386
Error	239	163.16789	
C Total	244	169.72105	
Total Count	245		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	13.106	
Pearson	11.347	

**NEGLECT-ADULT**  
 (H: High Severity; L: Low Severity)  
 (Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
 5: Very High)

		SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)						ADULT'S LEVEL OF STRESS	
		0	1	2	3	4	5		
Count									
Total %									
Row %									
Col %									
Expected									
Deviation									
Cell Chi^2									
H	15	11	6	17	37	45	131		
	6.00	4.40	2.40	6.80	14.80	18.00	52.40		
	11.45	8.40	4.58	12.98	28.24	34.35			
	45.45	61.11	40.00	48.57	56.06	54.22			
	17.29	9.43	7.86	18.34	34.58	43.49			
	-2.29	1.57	-1.86	-1.34	2.42	1.51			
	0.30	0.26	0.44	0.10	0.17	0.05			
L	18	7	9	18	29	38	119		
	7.20	2.80	3.60	7.20	11.60	15.20	47.60		
	15.13	5.88	7.56	15.13	24.37	31.93			
	54.55	38.89	60.00	51.43	43.94	45.78			
	15.71	8.57	7.14	16.66	31.42	39.51			
	2.29	-1.57	1.86	1.34	-2.42	-1.51			
	0.33	0.29	0.49	0.11	0.19	0.06			
33		18	15	35	66	83	250		
13.20		7.20	6.00	14.00	26.40	33.20			

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	1.39451	0.0081
Error	244	171.60417	
C Total	249	172.99868	
Total Count	250		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	2.789	0.7325
Pearson	2.781	0.7338



## NEGLECT-ADULT

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

SEVERITY - CURRENT INCIDENT      ADULT'S RELEVANT REFERENCE GROUP VALUES  
(DICHOTOMOUS)

(Cell Counts Too Low: No Result)

Count	-1	0	1	2	3	4	5	
Total %								
Row %								
Col %								
Expected								
Deviation								
Cell Chi^2								
H	10	1	3	4	13	33	36	100
	5.81	0.58	1.74	2.33	7.56	19.19	20.93	58.14
	10.00	1.00	3.00	4.00	13.00	33.00	36.00	
	40.00	100.00	33.33	28.57	43.33	70.21	78.26	
	14.54	0.58	5.23	8.14	17.44	27.33	26.74	
	-4.54	0.42	-2.23	-4.14	-4.44	5.67	9.26	
	1.42	0.30	0.95	2.11	1.13	1.18	3.20	
L	15	0	6	10	17	14	10	72
	8.72	0.00	3.49	5.81	9.88	8.14	5.81	41.86
	20.83	0.00	8.33	13.89	23.61	19.44	13.89	
	60.00	0.00	66.67	71.43	56.67	29.79	21.74	
	10.47	0.42	3.77	5.86	12.56	19.67	19.26	
	4.54	-0.42	2.23	4.14	4.44	-5.67	-9.26	
	1.97	0.42	1.32	2.92	1.57	1.64	4.45	
	25	1	9	14	30	47	46	172
	14.53	0.58	5.23	8.14	17.44	27.33	26.74	

## Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	6	12.76507	0.1092
Error	165	104.16700	
C Total	171	116.93207	
Total Count	172		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	25.530	
Pearson	24.574	

**NEGLECT-ADULT**  
(H: High Severity; L: Low Severity)  
(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

		SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)						ADULT'S SOCIAL ISOLATION						
		-1	1	2	3	4	5	-1	1	2	3	4	5	
H	Count	6	14	8	23	49	26	126						
	Total %	2.54	5.93	3.39	9.75	20.76	11.02	53.39						
	Row %	4.76	11.11	6.35	18.25	38.89	20.63							
	Col %	35.29	51.85	40.00	67.65	62.82	43.33							
	Expected	9.08	14.42	10.68	18.15	41.64	32.03							
	Deviation	3.08	0.42	2.68	-4.85	-7.36	6.03							
	Cell Chi^2	1.04	0.01	0.67	1.30	1.30	1.14							
L	Count	11	13	12	11	29	34	110						
	Total %	4.66	5.51	5.08	4.66	12.29	14.41	46.61						
	Row %	10.00	11.82	10.91	10.00	26.36	30.91							
	Col %	64.71	48.15	60.00	32.35	37.18	56.67							
	Expected	7.92	12.59	9.32	15.85	36.36	27.97							
	Deviation	-3.08	-0.42	-2.68	4.85	7.36	-6.03							
	Cell Chi^2	1.19	0.01	0.77	1.48	1.49	1.30							
		17	27	20	34	78	60	236						
		7.20	11.44	8.47	14.41	33.05	25.42							

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	5.91658	0.0363
Error	230	157.12337	
C Total	235	163.03995	
Total Count	236		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	11.833	0.0371
Pearson	11.707	0.0390

**APPENDIX M**

**SIGNIFICANCE TESTS**

**ADULT VARIABLES & CHILD VARIABLES**

**PHYSICAL ABUSE**

**COMPARISONS OF HIGH AND LOW SEVERITY CASES**

**PHYSICAL ABUSE**  
**(H: High Severity; L: Low Severity)**  
**(Age in Years)**

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		GENDER OF CHILD
	1	2	
<b>Count</b>			
<b>Total %</b>			
<b>Row %</b>			
<b>Col %</b>			
<b>Expected</b>			
<b>Deviation</b>			
<b>Cell Chi^2</b>			
	<b>99</b>	<b>151</b>	<b>250</b>
	<b>10.61</b>	<b>16.18</b>	<b>26.80</b>
	<b>39.60</b>	<b>60.40</b>	
	<b>24.21</b>	<b>28.82</b>	
	<b>109.59</b>	<b>140.41</b>	
	<b>-10.59</b>	<b>10.59</b>	
	<b>1.02</b>	<b>0.80</b>	
<b>H</b>	<b>161</b>	<b>204</b>	<b>365</b>
	<b>17.26</b>	<b>21.86</b>	<b>39.12</b>
	<b>44.11</b>	<b>55.89</b>	
	<b>39.36</b>	<b>38.93</b>	
	<b>160.01</b>	<b>205.00</b>	
	<b>1.00</b>	<b>-1.00</b>	
	<b>0.01</b>	<b>0.01</b>	
<b>L</b>	<b>149</b>	<b>169</b>	<b>318</b>
	<b>15.97</b>	<b>18.11</b>	<b>34.08</b>
	<b>46.86</b>	<b>53.14</b>	
	<b>36.43</b>	<b>32.25</b>	
	<b>139.40</b>	<b>178.60</b>	
	<b>9.60</b>	<b>-9.60</b>	
	<b>0.66</b>	<b>0.52</b>	
	<b>409</b>	<b>524</b>	<b>933</b>
	<b>43.84</b>	<b>56.16</b>	

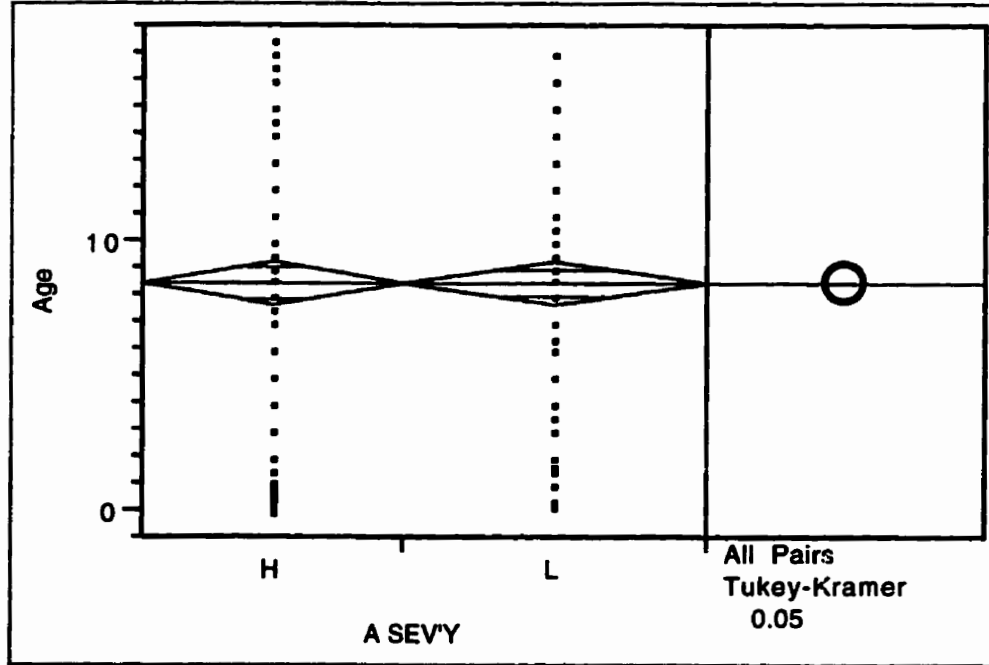
**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	2	1.5104	0.0015
Error	929	1012.5616	
C Total	931	1014.0719	
Total Count	933		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.021	0.2208
Pearson	3.011	0.2219

**PHYSICAL ABUSE**  
 (H: High Severity; L: Low Severity)  
 (Age in Years)

**SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)      AGE OF CHILD**



**Means Comparisons**

Dif=Mean[i]-Mean[j]	L	H
L	0.000000	0.066300
H	-0.0663	0.000000

Alpha= 0.05

**Comparisons for all pairs using Tukey-Kramer HSD**

Abs(Dif)-LSD	L	H
L	-1.13368	-1.10862
H	-1.10862	-1.21476

Positive values show pairs of means that are significantly different.

**PHYSICAL ABUSE-ADULT**  
**(H: High Severity; L: Low Severity)**  
**(1: Male; 2: Female)**

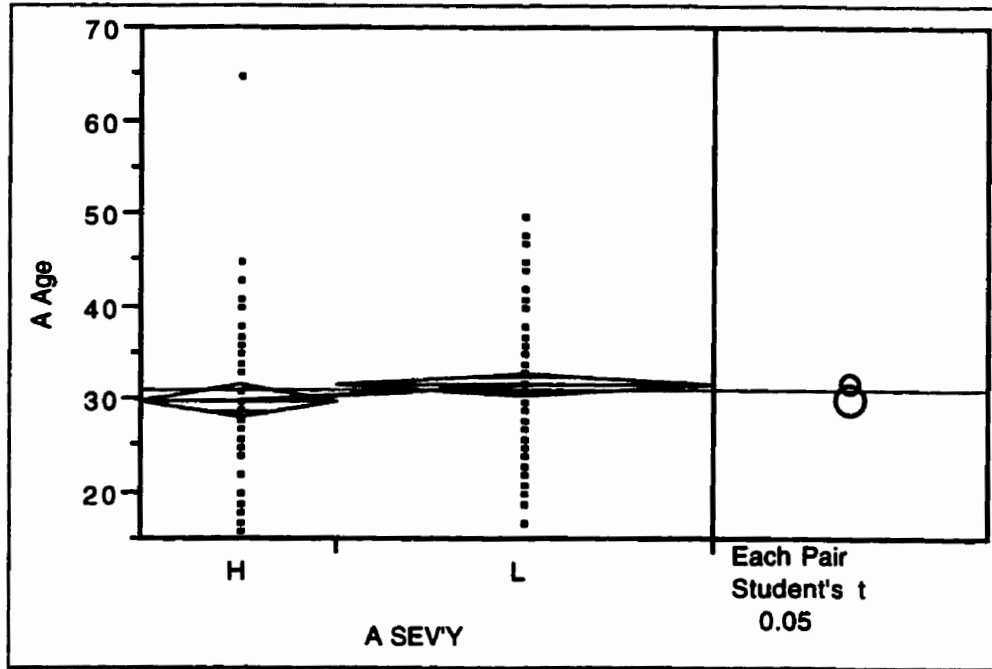
	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		GENDER OF ADULT
	1	2	
Count			
Total %			
Row %			
Col %			
Expected			
Deviation			
Cell Chi^2			
<b>H</b>	<b>29</b>	<b>106</b>	<b>135</b>
	10.00	36.55	46.55
	21.48	78.52	
	35.37	50.96	
	38.17	96.83	
	-9.17	9.17	
	2.20	0.87	
<b>L</b>	<b>53</b>	<b>102</b>	<b>155</b>
	18.28	35.17	53.45
	34.19	65.81	
	64.63	49.04	
	43.83	111.17	
	9.17	-9.17	
	1.92	0.76	
	<b>82</b>	<b>208</b>	<b>290</b>
	28.28	71.72	

Source	DF	Tests		RSquare (U)
		-LogLikelihood		
Model	1	2.91240		0.0145
Error	288	197.41008		
C Total	289	200.32248		
Total Count	290			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	5.825	0.0158
Pearson	5.749	0.0165
Fisher's Exact Test		Prob
Left		0.0114
Right		0.9945
2-Tail		0.0187

PHYSICAL ABUSE  
 (H: High Severity; L: Low Severity)  
 (Age in Years)

SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)      AGE OF ADULT



Means Comparisons

Dif=Mean[i]-Mean[j]	L	H
L	0.00000	1.65917
H	-1.65917	0.00000

Alpha= 0.05

Comparisons for each pair using Student's t

Abs(Dif)-LSD	L	H
L	-2.02585	-0.79279
H	-0.79279	-2.81427

Positive values show pairs of means that are significantly different.

**PHYSICAL ABUSE-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High; 5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		SEVERITY OF PRIOR MALTREATMENT INCIDENT				
	0	1	2	3	4	5	
Count	33	3	1	4	18	37	96
Total %	14.60	1.33	0.44	1.77	7.96	16.37	42.48
Row %	34.38	3.12	1.04	4.17	18.75	38.54	
Col %	41.25	6.82	3.85	26.67	90.00	90.24	
Expected	33.98	18.69	11.04	6.37	8.50	17.42	
Deviation	-0.98	-15.69	-10.04	-2.37	9.50	19.58	
Cell Chi^2	0.028	13.17	9.14	0.88	10.63	22.02	
<b>H</b>							
	47	41	25	11	2	4	130
	20.80	18.14	11.06	4.87	0.88	1.77	57.52
	36.15	31.54	19.23	8.46	1.54	3.08	
	58.75	93.18	96.15	73.33	10.00	9.76	
	46.02	25.31	14.96	8.63	11.50	23.58	
	0.98	15.69	10.04	2.37	-9.50	-19.58	
	0.02	9.73	6.75	0.65	7.85	16.26	
<b>L</b>							
	80	44	26	15	20	41	226
	35.40	19.47	11.50	6.64	8.85	18.14	

Source	DF	Tests		RSquare (U)
		-LogLikelihood		
Model	5	56.36519		0.3658
Error	220	97.71881		
C Total	225	154.08400		
Total Count	226			

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	112.730	0.0000
Pearson	97.133	0.0000



**PHYSICAL ABUSE-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)						ADULT'S PERCEPTION OF THE INCIDENT					
	-1	1	2	3	4	5	-1	1	2	3	4	5
Count	2	3	5	15	28	42	29	34	12	24	9	21
Total %	0.89	1.34	2.23	6.70	12.50	18.75	12.95	15.18	5.36	10.71	4.02	9.38
Row %	2.11	3.16	5.26	15.79	29.47	44.21	22.48	26.36	9.30	18.60	6.98	16.28
Col %	6.45	8.11	29.41	38.46	75.68	66.67	93.55	91.89	70.59	61.54	24.32	33.33
Expected	13.15	15.69	7.21	16.54	15.69	26.72	17.85	21.31	9.79	22.46	21.31	36.28
Deviation	-11.15	-12.69	-2.21	-1.54	12.31	15.28	11.15	12.69	2.21	1.54	-12.31	-15.28
Cell Chi^2	9.45	10.27	0.68	0.14	9.65	8.74	6.96	7.56	0.50	0.11	7.11	6.44
H	2	3	5	15	28	42	29	34	12	24	9	21
	0.89	1.34	2.23	6.70	12.50	18.75	12.95	15.18	5.36	10.71	4.02	9.38
	2.11	3.16	5.26	15.79	29.47	44.21	22.48	26.36	9.30	18.60	6.98	16.28
	6.45	8.11	29.41	38.46	75.68	66.67	93.55	91.89	70.59	61.54	24.32	33.33
	13.15	15.69	7.21	16.54	15.69	26.72	17.85	21.31	9.79	22.46	21.31	36.28
	-11.15	-12.69	-2.21	-1.54	12.31	15.28	11.15	12.69	2.21	1.54	-12.31	-15.28
	9.45	10.27	0.68	0.14	9.65	8.74	6.96	7.56	0.50	0.11	7.11	6.44
L	29	34	12	24	9	21	29	34	12	24	9	21
	12.95	15.18	5.36	10.71	4.02	9.38	12.95	15.18	5.36	10.71	4.02	9.38
	22.48	26.36	9.30	18.60	6.98	16.28	22.48	26.36	9.30	18.60	6.98	16.28
	93.55	91.89	70.59	61.54	24.32	33.33	93.55	91.89	70.59	61.54	24.32	33.33
	17.85	21.31	9.79	22.46	21.31	36.28	17.85	21.31	9.79	22.46	21.31	36.28
	11.15	12.69	2.21	1.54	-12.31	-15.28	11.15	12.69	2.21	1.54	-12.31	-15.28
	6.96	7.56	0.50	0.11	7.11	6.44	6.96	7.56	0.50	0.11	7.11	6.44
	31	37	17	39	37	63	31	37	17	39	37	63
	13.84	16.52	7.59	17.41	16.52	28.12	13.84	16.52	7.59	17.41	16.52	28.12

Source	Tests		
	DF	-LogLikelihood	RSquare (U)
Model	5	37.93599	0.2485
Error	218	114.73862	
C Total	223	152.67461	
Total Count	224		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	75.872	0.0000
Pearson	67.602	0.0000

**PHYSICAL ABUSE-ADULT**  
**(H: High Severity; L: Low Severity)**  
**(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;**  
**5: Very High)**

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		ADULT'S PERCEPTION OF THE CHILD				
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>H</b>	<b>8</b>	<b>4</b>	<b>10</b>	<b>7</b>	<b>26</b>	<b>47</b>	<b>102</b>
	3.38	1.69	4.22	2.95	10.97	19.83	43.04
	7.84	3.92	9.80	6.86	25.49	46.08	
	20.51	11.43	41.67	23.33	66.67	67.14	
	16.79	15.06	10.33	12.91	16.79	30.13	
	-8.79	-11.06	-0.33	-5.91	9.22	16.87	
	4.60	8.13	0.01	2.71	5.06	9.45	
<b>L</b>	<b>31</b>	<b>31</b>	<b>14</b>	<b>23</b>	<b>13</b>	<b>23</b>	<b>135</b>
	13.08	13.08	5.91	9.70	5.49	9.70	56.96
	22.96	22.96	10.37	17.04	9.63	17.04	
	79.49	88.57	58.33	76.67	33.33	32.86	
	22.22	19.94	13.67	17.09	22.22	39.87	
	8.79	11.06	0.33	5.91	-9.22	-16.87	
	3.47	6.14	0.01	2.05	3.82	7.14	
	39	35	24	30	39	70	237
	16.46	14.77	10.13	12.66	16.46	29.54	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	27.99852	0.1729
Error	231	133.97241	
C Total	236	161.97093	
Total Count	237		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	55.997	0.0000
Pearson	52.579	0.0000

**PHYSICAL ABUSE-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

**SEVERITY - CURRENT INCIDENT      ATTACHMENT BETWEEN THE ADULT AND THE CHILD**  
(DICHOTOMOUS)

	-1	1	2	3	4	5	
<b>Count</b>							
<b>Total %</b>							
<b>Row %</b>							
<b>Col %</b>							
<b>Expected</b>							
<b>Deviation</b>							
<b>Cell Chi^2</b>							
<b>H</b>	8	7	7	15	11	25	73
	4.12	3.61	3.61	7.73	5.67	12.89	37.63
	10.96	9.59	9.59	20.55	15.07	34.25	
	19.51	20.59	36.84	35.71	50.00	69.44	
	15.43	12.79	7.15	15.80	8.28	13.55	
	-7.43	-5.79	-0.15	-0.80	2.72	11.45	
	3.58	2.62	0.00	0.04	0.90	9.68	
<b>L</b>	33	27	12	27	11	11	121
	17.01	13.92	6.19	13.92	5.67	5.67	62.37
	27.27	22.31	9.92	22.31	9.09	9.09	
	80.49	79.41	63.16	64.29	50.00	30.56	
	25.57	21.21	11.85	26.20	13.72	22.45	
	7.43	5.79	0.15	0.80	-2.72	-11.45	
	2.16	1.58	0.00	0.03	0.54	5.84	
	41	34	19	42	22	36	194
	21.13	17.53	9.79	21.65	11.34	18.56	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	13.66178	0.1063
Error	188	114.80851	
C Total	193	128.47029	
Total Count	194		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	27.324	0.0000
Pearson	26.972	0.0001

**PHYSICAL ABUSE-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

		ADULTS ATTITUDE CONCERNING DISCIPLINE						
		-1	1	2	3	4	5	
<b>SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)</b>								
<b>Count</b>								
<b>Total %</b>								
<b>Row %</b>								
<b>Col %</b>								
<b>Expected</b>								
<b>Deviation</b>								
<b>Cell Chi^2</b>								
<b>H</b>		2	3	2	5	6	13	31
		1.37	2.05	1.37	3.42	4.11	8.90	21.23
		6.45	9.68	6.45	16.13	19.35	41.94	
		10.00	9.68	11.11	12.50	42.86	56.52	
		4.25	6.58	3.82	8.49	2.97	4.89	
		-2.25	-3.58	-1.82	-3.49	3.03	8.12	
		1.19	1.95	0.87	1.44	3.08	13.49	
<b>L</b>		18	28	16	35	8	10	115
		12.33	19.18	10.96	23.97	5.48	6.85	78.77
		15.65	24.35	13.91	30.43	6.96	8.70	
		90.00	90.32	88.89	87.50	57.14	43.48	
		15.75	24.42	14.18	31.51	11.03	18.12	
		2.25	3.58	1.82	3.49	-3.03	-8.12	
		0.32	0.53	0.23	0.39	0.83	3.64	
		20	31	18	40	14	23	146
		13.70	21.23	12.33	27.40	9.59	15.75	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	12.471397	0.1652
Error	140	63.014372	
C Total	145	75.485769	
Total Count	146		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	24.943	0.0001
Pearson	27.951	0.0000

**PHYSICAL ABUSE-ADULT**

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		ADULT'S PARENTING KNOWLEDGE AND SKILLS					
	-1	1	2	3	4	5		
Count								
Total %								
Row %								
Col %								
Expected								
Deviation								
Cell Chi^2								
<b>H</b>	<b>6</b>	<b>3</b>	<b>4</b>	<b>14</b>	<b>18</b>	<b>70</b>	<b>115</b>	
	2.47	1.23	1.65	5.76	7.41	28.81	47.33	
	5.22	2.61	3.48	12.17	15.65	60.87		
	14.63	8.82	23.53	29.79	69.23	89.74		
	19.40	16.09	8.05	22.24	12.31	36.91		
	-13.40	-13.09	-4.05	-8.24	5.70	33.09		
	9.26	10.65	2.03	3.06	2.64	29.66		
<b>L</b>	<b>35</b>	<b>31</b>	<b>13</b>	<b>33</b>	<b>8</b>	<b>8</b>	<b>128</b>	
	14.40	12.76	5.35	13.58	3.29	3.29	52.67	
	27.34	24.22	10.16	25.78	6.25	6.25		
	85.37	91.18	76.47	70.21	30.77	10.26		
	21.60	17.91	8.96	24.76	13.70	41.09		
	13.40	13.09	4.05	8.24	-5.70	-33.09		
	8.32	9.57	1.83	2.74	2.37	26.64		
	41	34	17	47	26	78	243	
	16.87	13.99	7.00	19.34	10.70	32.10		

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	61.12946	0.3637
Error	237	106.95740	
C Total	242	168.08686	
Total Count	243		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	122.259	0.0000
Pearson	108.761	0.0000

**PHYSICAL ABUSE-ADULT**  
 (H: High Severity; L: Low Severity)  
 (Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
 5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		ADULT'S SUBSTANCE ABUSE					
	0	1	2	3	4	5		
Count	46	0	0	3	9	49	107	
Total %	19.41	0.00	0.00	1.27	3.80	20.68	45.15	
Row %	42.99	0.00	0.00	2.80	8.41	45.79		
Col %	32.39	0.00	0.00	27.27	75.00	74.24		
Expected	64.11	2.26	0.45	4.97	5.42	29.80		
Deviation	-18.11	-2.26	-0.45	-1.97	3.58	19.20		
Cell Chi^2	5.12	2.26	0.45	0.78	2.37	12.38		
<b>H</b>	<b>46</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>9</b>	<b>49</b>	<b>107</b>	
	19.41	0.00	0.00	1.27	3.80	20.68	45.15	
	42.99	0.00	0.00	2.80	8.41	45.79		
	32.39	0.00	0.00	27.27	75.00	74.24		
	64.11	2.26	0.45	4.97	5.42	29.80		
	-18.11	-2.26	-0.45	-1.97	3.58	19.20		
	5.12	2.26	0.45	0.78	2.37	12.38		
<b>L</b>	<b>96</b>	<b>5</b>	<b>1</b>	<b>8</b>	<b>3</b>	<b>17</b>	<b>130</b>	
	40.51	2.11	0.42	3.38	1.27	7.17	54.85	
	73.85	3.85	0.77	6.15	2.31	13.08		
	67.61	100.00	100.00	72.73	25.00	25.76		
	77.89	2.74	0.55	6.03	6.58	36.20		
	18.11	2.26	0.45	1.97	-3.58	-19.20		
	4.21	1.86	0.37	0.64	1.95	10.19		
	142	5	1	11	12	66	237	
	59.92	2.11	0.42	4.64	5.06	27.85		

Tests

Source	DF	-LogLikelihood	RSquare (U)
Model	5	22.87869	0.1402
Error	231	140.27940	
C Total	236	163.15809	
Total Count	237		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	45.757	0.0000
Pearson	42.562	0.0000

**PHYSICAL ABUSE-ADULT**  
 (H: High Severity; L: Low Severity)  
 (Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
 5: Very High)

**(Cell Counts Too Low: No Result)**

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		ADULT'S PSYCHOPATHOLOGY/INCAPACITY					
	0	1	2	3	4	5		
Count								
Total %								
Row %								
Col %								
Expected								
Deviation								
Cell Chi^2								
<b>H</b>	103	1	3	3	0	5	115	
	40.87	0.40	1.19	1.19	0.00	1.98	45.63	
	89.57	0.87	2.61	2.61	0.00	4.35		
	47.25	9.09	42.86	30.00	0.00	100.00		
	99.48	5.02	3.19	4.56	0.46	2.28		
	-3.52	4.02	0.19	1.56	0.46	-2.72		
	0.12	3.22	0.01	0.54	0.46	3.24		
<b>L</b>	115	10	4	7	1	0	137	
	45.63	3.97	1.59	2.78	0.40	0.00	54.37	
	83.94	7.30	2.92	5.11	0.73	0.00		
	52.75	90.91	57.14	70.00	100.00	0.00		
	118.52	5.98	3.81	5.44	0.54	2.72		
	3.52	-4.02	-0.19	-1.56	-0.46	2.72		
	0.10	2.70	0.01	0.45	0.38	2.72		
	218	11	7	10	1	5	252	
	86.51	4.37	2.78	3.97	0.40	1.98		

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	8.69591	0.0501
Error	246	165.01564	
C Total	251	173.71155	
Total Count	252		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	17.392	
Pearson	13.953	

**PHYSICAL ABUSE-ADULT**

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

**(Cell Counts Too Low: No Result)**

**SEVERITY - CURRENT INCIDENT ADULT'S HISTORY OF VIOLENCE TOWARDS ADULTS  
(DICHOTOMOUS)**

	0	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>H</b>	<b>73</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>23</b>	<b>106</b>
	31.33	1.72	0.00	0.43	2.15	9.87	45.49
	68.87	3.77	0.00	0.94	4.72	21.70	
	53.68	26.67	0.00	5.26	41.67	48.94	
	61.87	6.82	1.82	8.64	5.46	21.38	
	11.13	-2.82	-1.82	-7.64	-0.46	1.62	
	2.00	1.17	1.82	6.76	0.04	0.12	
<b>L</b>	<b>63</b>	<b>11</b>	<b>4</b>	<b>18</b>	<b>7</b>	<b>24</b>	<b>127</b>
	27.04	4.72	1.72	7.73	3.00	10.30	54.51
	49.61	8.66	3.15	14.17	5.51	18.90	
	46.32	73.33	100.00	94.74	58.33	51.06	
	74.13	8.18	2.18	10.36	6.54	25.62	
	-11.13	2.82	1.82	7.64	0.46	-1.62	
	1.67	0.98	1.52	5.64	0.03	0.10	
	136	15	4	19	12	47	233
	58.37	6.44	1.72	8.15	5.15	20.17	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	13.32164	0.0830
Error	227	147.23401	
C Total	232	160.55566	
Total Count	233		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	26.643	
Pearson	21.852	



**PHYSICAL ABUSE-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

	ADULTS LEVEL OF STRESS						
	0	1	2	3	4	5	
<b>SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)</b>							
<b>Count</b>	0	1	2	3	4	5	
<b>Total %</b>							
<b>Row %</b>							
<b>Col %</b>							
<b>Expected</b>							
<b>Deviation</b>							
<b>Cell Chi^2</b>							
<b>H</b>	14	2	0	8	35	44	103
	6.06	0.87	0.00	3.46	15.15	19.05	44.59
	13.59	1.94	0.00	7.77	33.98	42.72	
	50.00	6.90	0.00	22.86	60.34	68.75	
	12.49	12.93	7.58	15.61	25.86	28.54	
	1.52	-10.93	-7.58	-7.61	9.14	15.46	
	0.18	9.24	7.58	3.71	3.23	8.38	
<b>L</b>	14	27	17	27	23	20	128
	6.06	11.69	7.36	11.69	9.96	8.66	55.41
	10.94	21.09	13.28	21.09	17.97	15.62	
	50.00	93.10	100.00	77.14	39.66	31.25	
	15.52	16.07	9.42	19.39	32.14	35.46	
	-1.52	10.93	7.58	7.61	-9.14	-15.46	
	0.15	7.44	6.10	2.98	2.60	6.74	
	28	29	17	35	58	64	231
	12.12	12.55	7.36	15.15	25.11	27.71	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	34.55999	0.2177
Error	225	124.20154	
C Total	230	158.76153	
Total Count	231		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	69.120	0.0000
Pearson	58.326	0.0000

**PHYSICAL ABUSE-ADULT**

(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; O: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

**(Cell Counts Too Low: No Result)**

**SEVERITY - CURRENT INCIDENT      ADULT'S RELEVANT REFERENCE GROUP VALUES**  
**(DICHOTOMOUS)**

	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>H</b>	<b>6</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>14</b>	<b>25</b>	<b>56</b>
	4.29	2.14	2.14	3.57	10.00	17.86	40.00
	10.71	5.36	5.36	8.93	25.00	44.64	
	18.18	12.50	20.00	26.32	82.35	78.12	
	13.2	9.6	6	7.6	6.8	12.8	
	-7.2	-6.6	-3	-2.6	7.2	12.2	
	3.93	4.54	1.50	0.89	7.62	11.63	
<b>L</b>	<b>27</b>	<b>21</b>	<b>12</b>	<b>14</b>	<b>3</b>	<b>7</b>	<b>84</b>
	19.29	15.00	8.57	10.00	2.14	5.00	60.00
	32.14	25.00	14.29	16.67	3.57	8.33	
	81.82	87.50	80.00	73.68	17.65	21.88	
	19.8	14.4	9	11.4	10.2	19.2	
	7.2	6.6	3	2.6	-7.2	-12.2	
	2.62	3.03	1.00	0.59	5.08	7.75	
	<b>33</b>	<b>24</b>	<b>15</b>	<b>19</b>	<b>17</b>	<b>32</b>	<b>140</b>
	23.57	17.14	10.71	13.57	12.14	22.86	

**Tests**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	26.343898	0.2796
Error	134	67.877736	
C Total	139	94.221633	
Total Count	140		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	52.688	
Pearson	50.177	

**PHYSICAL ABUSE-ADULT**  
(H: High Severity; L: Low Severity)

(Scale Levels: -1: Protective; 0: Not Applicable; 1: Very Low; 2: Low; 3: Medium; 4: High;  
5: Very High)

	SEVERITY - CURRENT INCIDENT (DICHOTOMOUS)		ADULT'S SOCIAL ISOLATION				
	-1	1	2	3	4	5	
Count							
Total %							
Row %							
Col %							
Expected							
Deviation							
Cell Chi^2							
<b>H</b>	<b>4</b>	<b>5</b>	<b>9</b>	<b>9</b>	<b>33</b>	<b>29</b>	<b>89</b>
	2.13	2.66	4.79	4.79	17.55	15.43	47.34
	4.49	5.62	10.11	10.11	37.08	32.58	
	16.67	12.20	39.13	37.50	76.74	87.88	
	11.36	19.41	10.89	11.36	20.36	15.62	
	-7.36	-14.41	-1.89	-2.36	12.64	13.38	
	4.77	10.70	0.33	0.49	7.85	11.46	
<b>L</b>	<b>20</b>	<b>36</b>	<b>14</b>	<b>15</b>	<b>10</b>	<b>4</b>	<b>99</b>
	10.64	19.15	7.45	7.98	5.32	2.13	52.66
	20.20	36.36	14.14	15.15	10.10	4.04	
	83.33	87.80	60.87	62.50	23.26	12.12	
	12.64	21.59	12.11	12.64	22.64	17.38	
	7.36	14.41	1.89	2.36	-12.64	-13.38	
	4.29	9.62	0.29	0.44	7.06	10.30	
	<b>24</b>	<b>41</b>	<b>23</b>	<b>24</b>	<b>43</b>	<b>33</b>	<b>188</b>
	12.77	21.81	12.23	12.77	22.87	17.55	

**Test**

Source	DF	-LogLikelihood	RSquare (U)
Model	5	37.24848	0.2864
Error	182	92.79711	
C Total	187	130.04559	
Total Count	188		

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	74.497	0.0000
Pearson	67.594	0.0000

**APPENDIX N**

**REGRESSION ANALYSES**

**PREDICTION OF THE SEVERITY OF THE CURRENT INCIDENT**

## Table

Logistic Regression Analysis: Prediction of the Severity of the Current Incident Within the Total Data Set

Whole-Model Test				
Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	71.27425	41	142.5485	<.0001
Full	198.80613			
Reduced	270.08038			
RSquare (U)			0.2639	
Observations (or Sum Wgts)			175	
Lack of Fit				
Source	DF	-LogLikelihood	ChiSquare	Prob>ChiSq
Lack of Fit	579	187.71578	375.4316	
Pure Error	-449	11.09035		Prob>ChiSq
Total Error	130	198.80613		1.0000
Effect Test				
Source	Nparm	DF	Wald ChiSquare	Prob>ChiSq
Gender of Adult	1	1	0.018481	0.8919
Severity of a Prior Incident	5	5	51.393562	0.0000
Perception of the Incident	5	5	3.126652	0.6805
Attachment	5	5	6.387762	0.2703
Attitude re: Discipline	5	5	2.338598	0.8006
Parenting Knowledge & Skills	5	5	11.385555	0.0442
Substance Abuse	5	5	9.845749	0.0797
History of Violence	5	5	10.944870	0.0525
Stress	5	5	6.178642	0.2892

Table

**Logistic Regression Analysis: Prediction of the Severity of the Current Incident Within  
the Neglect Cases**

Whole-Model Test				
Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	60.36983	31	120.7397	<.0001
Full	66.92120			
Reduced	127.29103			
RSquare (U)			0.4743	
Observations (or Sum Wgts)			80	
Lack of Fit				
Source	DF	-LogLikelihood	ChiSquare	
Lack of Fit	225	59.126684	118.2534	
Pure Error	-180	7.794518	Prob>ChiSq	
Total Error	45	66.921202	1.0000	
Effect Test				
Source	Nparm	DF	Wald ChiSquare	Prob>ChiSq
Gender of Adult	1	1	7.695391	0.0055
Severity of a Prior Incident	5	5	24.607251	0.0002
Perception of the Incident	5	5	8.890717	0.1135
Attachment	5	5	14.211482	0.0143
Attitude re: Discipline	5	5	6.373177	0.2716
Parenting Knowledge & Skills	5	5	10.059532	0.0736
Substance Abuse	5	5	6.220849	0.2853

Table

**Logistic Regression Analysis: Prediction of the Severity of the Current Incident Within  
the Physical Abuse Cases**

Whole-Model Test				
Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	44.78345	35	89.5669	<.0001
Full	104.08692			
Reduced	148.87037			
RSquare (U)			0.3008	
Observations (or Sum Wgts)			107	
Lack of Fit				
Source	DF	-LogLikelihood	ChiSquare	Prob>ChiSq
Lack of Fit	361	98.01849	196.037	
Pure Error	-293	6.06843		Prob>ChiSq
Total Error	68	104.08692		1.0000
Effect Test				
Source	Nparm	DF	Wald ChiSquare	Prob>ChiSq
Gender of Adult	1	1	0.405752	0.5241
Severity of a Prior Incident	5	5	18.794131	0.0021
Perception of the Incident	5	5	14.356798	0.0135
Attachment	5	5	7.105748	0.2129
Attitude re: Discipline	5	5	11.413269	0.0438
Parenting Knowledge & Skills	5	5	14.298373	0.0138
Substance Abuse	4	4	1.049732	0.9022
Stress	5	5	2.412070	0.7897

Table

**Logistic Regression Analysis: Prediction of the Severity of the Current Incident Within  
the Total Data Set (The Variable, "Severity of a Prior Incident" Has Been Deleted)**

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	39.33817	36	78.67633	<.0001
Full	249.99545			
Reduced	289.33362			

RSquare (U) 0.1360

Observations (or Sum Wgts) 188

## Lack of Fit

Source	DF	-LogLikelihood	ChiSquare	Prob>ChiSq
Lack of Fit	608	226.24500	452.49	
Pure Error	-460	23.75045		
Total Error	148	249.99545		1.0000

## Effect Test

Source	Nparm	DF	Wald ChiSquare	Prob>ChiSq
A M/F	1	1	0.147753	0.7007
A11	5	5	9.455055	0.0922
A13	5	5	5.300870	0.3803
A14	5	5	4.898603	0.4284
A15	5	5	22.387073	0.0004
A17	5	5	8.371328	0.1369
A19	5	5	8.428049	0.1342
A20	5	5	8.175290	0.1468



Table

**Logistic Regression Analysis: Prediction of the Severity of the Current Incident Within  
the Neglect Subset (The Variable, "Severity of a Prior Incident" Has Been Deleted)**

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	17.41322	26	34.82645	0.1155
Full	123.42115			
Reduced	140.83438			

RSquare (U) 0.1236

Observations (or Sum Wgts) 89

## Lack of Fit

Source	DF	-LogLikelihood	ChiSquare
Lack of Fit	254	107.32677	214.6535
Pure Error	-195	16.09438	Prob>ChiSq
Total Error	59	123.42115	0.9652

## Effect Test

Source	Nparm	DF	Wald ChiSquare	Prob>ChiSq
A M/F	1	1	1.401347	0.2365
A11	5	5	10.150146	0.0711
A13	5	5	11.983929	0.0350
A14	5	5	5.997711	0.3064
A15	5	5	4.525929	0.4764
A17	5	5	4.489282	0.4813

**Logistic Regression Analysis: Prediction of the Severity of the Current Incident Within  
the Physical Abuse Subset (The Variable, "Severity of a Prior Incident" Has Been Deleted)**

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	37.61823	30	75.23646	<.0001
Full	126.79636			
Reduced	164.41459			

RSquare (U)	0.2288
Observations (or Sum Wgts)	118

**Lack of Fit**

Source	DF	-LogLikelihood	ChiSquare
Lack of Fit	390	116.90885	233.8177
Pure Error	-306	9.88751	Prob>ChiSq
Total Error	84	126.79636	1.0000

**Effect Test**

Source	Nparm	DF	Wald ChiSquare	Prob>ChiSq
A M/F	1	1	0.635046	0.4255
A11	5	5	11.177130	0.0480
A13	5	5	10.438135	0.0637
A14	5	5	13.623556	0.0182
A15	5	5	15.655738	0.0079
A17	4	4	2.042318	0.7280
A20	5	5	8.090270	0.1513