

ADULT CHILDREN OF ALCOHOLICS: ATTITUDES TOWARDS INTIMACY

by

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A thesis
presented to the University of Manitoba
in fulfillment of the
thesis requirement for the degree of
Master of Arts
in
Psychology

Winnipeg, Manitoba

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ISBN 0-315-48004-1

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KATE TUNNA

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

MASTER OF ARTS

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ABSTRACT

The suggestion that children of alcoholics find intimacy aversive lacks empirical support. The literature advances a social learning explanation of this relationship in which the intimacy problems experienced by these offspring are rooted in the modelling of an impoverished relationship between their parents. Difficulties with intimacy are described as being characteristic of all children of alcoholics. Thus far, there has been no attempt to consider individual differences between children and important aspects of the alcoholic family environment which may influence the association between parental alcohol abuse and so-called intimacy aversion. In order to empirically determine the relationship between the alcoholic home environment and attitudes towards intimacy a correlational study was conducted. Family intimacy, family adaptability and cohesion, and stimulus intensity modulation were hypothesised as being involved in the relationship between parental alcohol abuse and the intimacy attitudes and behaviours of offspring. 542 male and female undergraduates responded to the following measures: a) Children of Alcoholics Screening Test, b) Vando Reducer - Augmenter Scale, c) Family Adaptability and Cohesion Evaluation Scale,

d) Intimacy in the Family of Origin Scale, e) Intimacy Attitude Scale. The major findings were as follows:

1) fathers' alcohol abuse had a more pervasive effect upon family functioning than mothers'.

2) parental alcohol abuse was more strongly associated with family intimacy than with the intimacy attitudes of offspring.

3) intimacy in the family of origin was the most important predictor of intimacy attitudes of offspring.

4) the reducer - augments construct played a greater role in the determination of intimacy attitudes than did parental alcohol abuse.

It was concluded that the relationship between alcoholic parentage and intimacy aversion in offspring may not be direct. The most important relationship identified in this study was between parental alcohol abuse and the impairment of family intimacy. While parental alcohol abuse did not predict intimacy attitudes it was significantly predictive of family intimacy.

CONTENTS

ABSTRACT	ii
	<u>page</u>
IMPACT OF ALCOHOLISM UPON CHILDREN	1
Interpersonal Relationships	3
Within the Family	3
Beyond the Family	9
Intimacy	13
MEDIATING FACTORS	22
Family Environment	22
Personality	26
Stimulus Intensity Modulation Theory	26
Stimulus Intensity Modulation and Children of Alcoholics	27
HYPOTHESES	31
METHODOLOGY	33
Subjects	33
Measures	34
Predictor Variables	34
Children of Alcoholics Screening Test (CAST)	34
The Family of Origin Scale (FOS)	37
Family Adaptability and Cohesion Evaluation Scale	40
Vando Reducer-Augmenter Scale (VRAS)	43
Demographic Questionnaire (DQ)	45
Criterion Variables	46
Intimacy Attitude Scale Revised (IASR)	46
Intimacy Behaviour Scale (IBS)	50
Procedure	52
RESULTS	54
Characteristics of the Sample	54
Demographic Data	54
Reliability of Measures	57

Personality, Family Functioning, and Intimacy	59
Children of Alcoholics Screening Test (CAST)	61
Predicting Intimacy Attitudes	73
Correlational Analysis	73
Regression Analyses	76
Intimacy in the Family of Origin	77
Family Adaptability and Cohesion (FACES)	81
Intimacy Attitudes	85
DISCUSSION	92
Summary	92
Children of Alcoholics Screening Test	97
Family Environment	99
Intimacy in the Family of Origin	101
Intimacy Attitudes	104
Personality	107
Conclusion	111
REFERENCES	114
FOOTNOTES	124
<u>Appendix</u>	<u>page</u>
A.	129
B.	161
C.	162

IMPACT OF ALCOHOLISM UPON CHILDREN

Alcoholism has long been considered a familial disorder as evidenced by the concern of the Greek philosophers for the effects of alcohol on offspring. Robert Burton's 'Anatomy of Melancholy', originally published in 1621, cites Plutarch's warning that, 'one drunkard begets another' (p.90) and Aristotle's observation that, 'foolish drunken or hare-brain women bring forth children like themselves' (p. 90). Since 1751, when Henry Fielding asked, 'What must become an infant who is conceived in Gin?', researchers and clinicians have extensively explored the effects of parental alcoholism upon children (Warner & Rossett, 1975).

To a large extent, research in the area of effects of parental alcoholism has focused upon the continuity of this disorder from generation to generation as opposed to examining the broader psychosocial consequences of having an alcoholic in the family (Chafetz, Blane & Hill, 1971; Russell, Henderson & Blume, 1985). In the last decade however, investigators have attempted to evaluate the role that parental alcoholism plays in the psychological development and interpersonal functioning of children (Ackerman, 1983; el-Guebaly & Offord, 1977; Jacob, Favorini,

Meisel & Anderson, 1978). Much of this literature however, has been plagued by methodological weaknesses which force a cautionary approach to the data which has emerged. In their general overview of the current state of knowledge regarding the role of family factors in the onset, course and impact of alcoholism, Steinglass and Robertson (1983) report three major criticisms. First, the scientific standards for much of the work are low. Control groups are rarely included and when they are, there is a tendency for them to suffer selection biases. Second, there has been an analytic focus on main effects as opposed to interactions which reflects a biomedical, reductionist orientation - one which is inappropriate in the social sciences. Third, the bulk of the literature is atheoretical and therefore subject to 'all of the pitfalls of unguided empiricism' (Steinglass & Robertson, 1983 p.301).

Research into the alcoholic family conducted in the last decade has followed certain theoretical traditions more closely, as may be seen in family system and interaction studies (Steinglass, 1980), and developmental studies (Barnes, 1977; Jessor & Jessor, 1975). There have also been many attempts to increase methodological sophistication by reducing the selection biases of subjects and by including control groups (Jacob & Leonard, 1986). These improvements have generated data of considerable interest.

Interpersonal Relationships

Within the Family

Many writers have commented upon the difficulties faced by children of alcoholics in establishing close relationships both within and beyond the family boundary (Cork, 1969; Priest, 1985; Woititz, 1985). There appears to be a general consensus in the literature that this problem has its roots in the modelling of an impoverished relationship between the parents which is characterized by tension and aggression, as well as lack of warmth and intimacy. This social learning explanation is no doubt, an oversimplification. It does not consider individual differences between children and it can not account for those youngsters who witness such a relationship between their parents, yet go on to have satisfactory relationships of their own (Anthony & Cohler, 1987).

According to Morris (1982) the establishment of a close attachment relationship is the main socio-emotional issue of the first year of life. The relationship with a primary care-giver paves the way for successful negotiation of other close relationships throughout childhood, adolescence and into adulthood. Central to the notion of attachment is the concept of the caregiver as a secure base; one who is reliable and predictable and one upon whom the child can depend for a reasonable degree of consistency in tending to

his or her needs (Bowlby, 1977). The atmosphere of unpredictability and inconsistency which often prevails in alcoholic homes can be extremely bewildering for children and has been found to seriously impair both appropriate role learning (Nardi, 1981) and the ability to establish meaningful relationships (Morehouse, 1979).

Emotional neglect by one or both parents is a common observation in alcoholic families and can severely disrupt relationships between parents and children (Booz-Allen & Hamilton, 1974; Cork, 1969; Woititz, 1985). Emotional neglect has been defined by Booz-Allen and associates (1974) as follows:-

"Emotional neglect means that the child can not communicate with his parent(s), he gets no emotional support from them; he does not get the feeling that they care about him as a person. The parents ignore the child's basic emotional needs, they do not make an effort to understand him, they spend little or no time with him, they give him no affection or warmth; they build a wall around themselves blocking any meaningful interaction" (p. 19).

Emotional neglect may result from the preoccupation with alcohol by both parents. Children have difficulty

understanding why their needs are so unimportant to their parents. The fact that neglect is not willful does not lessen its devastating effects (Booz-Allen & Hamilton, 1974).

Some of the early investigations into the effects of alcoholism upon family members tended to describe patterns of parent-child relationships as being characteristic of all alcoholic families (Newell, 1950). Cork (1969) was one of the first to emphasise that a variety of parent-child relationships can exist within the alcoholic family. She interviewed 115 children of alcoholics in the 10 to 16 years age group in order to ascertain their perceptions of family life and its effects upon them.

There are some interesting recurring patterns reported by the children in Cork's (1969) study regarding their disinclination to establish close relationships. Over 90% expressed a lack of self-confidence and feelings of being unloved or rejected by one or both parents, consequently they were afraid of similar rejection by peers. Much of the parents' relationship was characterized by fighting and quarrelling. Ninety per cent of children reported this as their main concern, the remaining 10% were most concerned about drunkenness. These children were reluctant to express their emotions for fear of inflating parental anger and because so many of them, were understandably confused regarding their true feelings.

These children were able to derive little comfort or warmth from brothers and sisters; relationships with siblings were invariably characterized by tension and competition depriving them of a much needed source of support. Older children were angry at having to take care of younger brothers or sisters and these younger children in turn, resented being dominated by elder siblings. Middle children resented the comparative pampering of younger family members and the authority of older children; consequently their feelings of isolation were often very profound. Cork (1969), concluded that as a result of experiences within the family, the prospect of forming and consolidating relationships beyond the family was met with fear, insecurity and lack of trust.

In a later study, Wilson and Orford (1978) found different responses to parental drinking between siblings in the same family; responses which were believed to adversely affect relationship formation beyond the family. They interviewed children of alcoholics whose parents were either receiving in-patient treatment for alcoholism or were attending an out-patient alcoholism clinic. They found that children's attitudes towards their parents could range from consistent to extremely ambivalent, that siblings differed significantly in their relationships with their parents and that children in the same family reacted very differently to the same alcohol related events.

The children interviewed reported a family atmosphere of extreme tension and argumentativeness and found this more upsetting than the drinking itself. Interviews with family members revealed the fact that certain parental drinking patterns were associated with particular drinking behaviours in the parents. The effects of these behaviours on the children varied according to the sex of the parent. For example, alcoholic fathers tended to drink outside the home and to return in aggressive moods which invariably frightened the children. Alcoholic mothers, on the other hand, were found to drink almost exclusively at home, were less likely to become aggressive and consequently were not feared by their children. They also found that children of alcoholics, when asked to compare their families to those of other children, said that theirs was 'not what a real family should be' (Wilson & Orford, 1978, p.130). They had very little fun and activities involving all family members were exceedingly rare.

These authors concluded that parental alcoholism in and of itself is not highly predictive of the quality of parent-child relationships but that it is more likely to be moderated by variables such as the behaviour of the parent when drunk, the presence or absence of siblings and the nature of the relationship between the child and a non-alcoholic parent.

From his observations of the differential effects of parental alcoholism upon children, Ackerman (1983), has found that the age of the child at the onset of parental alcoholism, the number of children in the family, birth order, whether it is the mother or father who is alcoholic and the nature of the relationships which the child is able to form beyond the boundaries of the family, can modify the quality of the parent-child relationship considerably.

Ackerman (1983) speculates that the personality and level of emotional development of the child will undoubtedly mediate between these variables and their impact upon this relationship, but to date this concern has not been systematically studied. Variation in these factors is expected to make a considerable difference, not only to a child's relationship with an alcoholic parent, but also to the degree of psychosocial impairment suffered by the child.

A central observation in the literature on children from alcoholic homes is the profoundly confusing atmosphere of unpredictability and inconsistency which hampers the development of relationships, most especially between parents and children (Black, 1979; Jackson, 1962; Jacob et al, 1978; Newell, 1950; Woititz, 1985; Yip, 1985). Newell (1950), in a speculative article, raised some interesting hypotheses regarding the psychological effects of having an alcoholic parent. She suggested that children in alcoholic

homes exist in an environment which is not, in essence, dissimilar from that of the experimental animal in a research laboratory. Children of alcoholics are continually tempted towards rewards and then frustrated as their environment is constantly changing in ways over which they have absolutely no control. The experimental animal living under such conditions is technically described as responding on a varied interval schedule of partial reinforcement. The effects of such schedules are well known for their ability to induce states of severe anxiety and withdrawal (Schwartz, 1984).

Beyond the Family

Children from alcoholic families have often been observed to be socially isolated. The behaviour of an alcoholic parent, the family's state of disorganisation and the inability to conform to social expectations result in such shame and humiliation, that children are afraid to develop close relationships or confide in others (Moorehouse, 1979). They are afraid of being stigmatised and so they are reluctant to share aspects of family life with friends (Yip, 1985).

Cork (1969) found that a sense of deep discomfort characterized the relationships which had formed in the children whom she interviewed. Adolescents found it

particularly difficult to conceal so many aspects of family life from their friends. They also felt unreliable in the role of friend due to the unpredictability of domestic turmoil which would command their full attention at the expense of other commitments.

The overwhelming demands placed on them at home as well as the embarrassment of having an alcoholic parent, may leave children feeling inadequately prepared to deal with peer relationships. As a result, they may adopt a number of inflexible, interpersonal styles to compensate for anticipated rejection (Yip, 1985).

Goodwin, Schulsinger, Hermansen and Guze (1973) examined the drinking practices and life experiences of 55 males who had been adopted in early childhood when one parent was hospitalised with a diagnosis of alcoholism. Two matched control groups were included. The first contained 50 adoptees whose biological parents had no recorded psychiatric hospitalisation and the second contained 28 adoptees with a biological parent who had been hospitalised with a psychiatric diagnosis other than alcoholism. Data were gathered from the subjects by an interviewer who was blind to the groupings of subjects. When the control groups were combined, the adult adoptees of alcoholics had four times the alcoholism rate. With regard to other psychopathology and criminal behaviour, the groups were

virtually indistinguishable, however the divorce rate in the group of adoptees of alcoholics was three times higher than in the other two groups. Alcohol consumption by subjects was not related to the higher divorce rate. Moderate drinkers in the proband group were as likely to be divorced as heavy drinkers or alcoholics.

The interpersonal and emotional consequences of being an adult child of an alcoholic were investigated by Belestis and Brown (1981). This was a clinical study in which a number of themes were identified from four years of group therapy with subjects. These researchers reported that adult children of alcoholics labelled their childhood family environment as chaotic and unpredictable. Parents were unable to provide fair and consistent discipline, flexible and loving external control, and were unable to foster independence. Belestis and Brown (1981) speculated that these factors interfered with childrens' growing autonomy and had an adverse impact upon their ability to function as adults. The emotional problems of these adults cited in the study included unresolved emotional bonds with the family, poor communication skills, role confusion, lack of trust, and avoidance of intimacy.

The consequences of alcoholic parentage were also investigated by Black, Bucky and Wilder-Padilla (1986) who conducted a retrospective study of 409 adults raised in

alcoholic homes and 179 controls raised in non-alcoholic homes. The sample was geographically representative of all parts of the United States and included all educational and socio-economic levels. Subjects were solicited via notices in Alcoholic Magazine, Journal of Alcohol and Drug Dependence and Focus on Family Magazine from July 1980 to March 1982. All subjects received mailed questionnaires which focused on perceptions regarding family history, past and present drug and alcohol use, problems experienced growing up in an alcoholic family, communication with significant others and physical and sexual abuse. In comparison to the control group, the adult children of alcoholics were found to have experienced greater family disruption and greater intrafamily physical and sexual violence, both between parents and between parents and children. As adults, those of alcoholic parentage were four times more likely to become alcoholic and marry an alcoholic and there was a 30% increase in the rate of divorce when compared to the non-alcoholic group. The emotional consequences identified in adulthood included difficulty in expressing needs to others, difficulty in the expression of feelings, the inability to put their own needs before the needs of others and an unwillingness to trust others. They found intimacy and dependency aversive and 50% described themselves as being confused and depressed most of the time.

Intimacy

Intimacy is a significant aspect of human experience at the interpersonal level, influencing relationships both within and beyond the family. Early research with primates implied that without some modicum of intimacy, humans can not develop normally (Harlow & Harlow, 1966). Brazelton, Koslowski and Main (1973) have provided striking evidence that even in the first few weeks of life, the human infant can not thrive without emotional stimulation. Such stimulation can not be established without an intimate relationship with a caregiver in which a rhythm of mutual response is fostered. Emotionally rewarding experiences are, according to Brazelton et al (1973), necessary to develop the psychophysiological ability to gain weight and thrive.

Many developmental theorists regard intimacy as a crucial element in the hierarchy of needs (Angyal, 1965; Erikson, 1950; Maslow, 1954; Sullivan, 1953) although this literature is of a philosophical rather than empirical nature. Erikson (1950) refers to the attainment of intimacy as a critical developmental task essential in the transition from adolescence to adulthood. Its acquisition is founded upon the success of earlier developmental tasks of trust and autonomy. Sullivan (1953), associates intimacy with the phases of life beginning in adolescence and describes it

somewhat simply as the need for collaboration with another person. Angyal's (1965) stronger claim is that intimate relationships are the crux of human existence.

The family of origin, be it biological or adoptive, is the family in which an individual has his or her beginnings. The impact of these roots is deep and pervasive and is a powerful influence on continued and current functioning (Hovestadt, Piercy, Anderson, Cochran & Fine, 1985). According to Bowen (1978), patterns of interaction in the family of origin are reflected and sustained in other relationships. In his intergenerational theory Bowen (1978), emphasises the importance of differentiation of self, i.e., the conscious removal of self from intense emotional attachment to parents; he also stresses the need for individuation of partners in intimate relationships. Erikson (1950), believed that the developmental task of autonomy served as the basis for such differentiation and that without autonomy, the later task of intimacy could not be successfully executed.

From their review of studies on intimacy, Schaeffer and Olson (1981), have inferred that some degree of intimacy in interpersonal relationships is necessary for healthy personality development. If one element of a healthy personality is the ability to experience intimacy, then a major task of the family is to assist its members to this end (Hovestadt, Anderson, Piercy, Cochran & Fine, 1985).

Historically, the difficulty in defining intimacy has rendered the construct elusive to empirical testing (Schaefer & Olson, 1981). Most attempts to define intimacy have failed to distinguish it from self-disclosure (Jourard, 1971; Derlega & Chaikin, 1975). Gilbert (1976) however, has helped to clarify the definition by describing intimacy and self-disclosure as two distinctly different concepts. He suggests that the relationship between them may be curvilinear and that there may be a point at which increased self-disclosure actually leads to a reduction in intimacy which decreases satisfaction with the relationship.

According to Schaeffer and Olson (1981), the most refined conceptual definitions of intimacy are that it is a mutual need satisfaction (Clinebell & Clinebell, 1970), and a closeness to another human being on intellectual, physical and emotional levels (Dahms, 1972). Dahms' (1972) characterization of the concept includes mutual accessibility, naturalness, non-possessiveness and the need to view intimacy as an ongoing process.

The search for a satisfying, intimate relationship appears to be particularly difficult for those who have grown up in alcoholic families. As a result of extensive clinical practice with adult children of alcoholics, Woititz (1985), has identified some of the problems which intimacy poses for these individuals. She defines intimacy as,

"the existence of a loving relationship with another person in which the individual offers and is offered validation, understanding and a sense of being valued intellectually, emotionally and physically" (p. 21).

Although there is, as yet, no empirical support for her observations, Woititz's (1985) account of intimacy problems experienced by children of alcoholics is the most detailed available.

Woititz (1985), refers to the ambivalent attitude which is evident as intimacy is contemplated as the "push-pull issue" (p. 23). The uncertainty is fostered by the generation and perpetuation of erroneous beliefs which have been entrenched in the alcoholic family system. In Woititz's (1985) representation, the fears and unreasonable expectations regarding intimacy can be paralyzing for these individuals.

Fear of loss of self - absorption by the other person - may exist because the true self-concept has never been established. Inconsistent, confusing responses from parents can lead to an inconclusive sense of self, consequently the adult with an alcoholic family background may have no identity which is strong enough to withstand intimate association with another person.

Fear of abandonment is often very strong, according to Woititz (1985). Children who grow up in an alcoholic family frequently experience unpredictable parental responses to their needs for nurturance. During the heavy drinking phases children may have felt almost non-existent, knowing that there was no possibility of their needs being met until after the binging and accompanying crises were over. While some children may persist in trying to obtain the attention they crave, others simply give up. This latter group has been found by Woititz (1985) to be the most reluctant to enter adult relationships. These people are constantly afraid that the person whom they love today will be unavailable to them tomorrow. In an attempt to guard against the anticipated loss, they may idealize their role in the relationship and strive for perfection in satisfying the other person's needs. If problems do arise, fear of abandonment can take precedence over the pertinent facts and frequently, the individual will completely lose sight of the issue.

Fear of vulnerability can be pervasive and usually implies loss of self and powerlessness. In group therapy sessions, Woititz (1985), reports that vulnerability is almost invariably defined by these adults as 'being out of control of my life' (p.34). Once their feelings of desired intimacy have been made known to the other person, they

immediately feel that they have set themselves up for some very damaging experiences, especially loss of control.

Adult children of alcoholics tend to believe that conflict and anger do not exist in healthy relationships (Woititz, 1985). While they may recognise at an intellectual level that this is impossible, emotionally, it is what they would like. Their own anger is much misunderstood; in many cases it has been totally repressed. Most of these individuals have grown up in an angry climate but have never been allowed to express their own anger and resentment at the presence of alcohol. As children in an alcoholic home, many had to learn how not to be angry. Since anger is repressed, the only way in which it is likely to be evident is if it erupts in the form of uncontrollable rage. Rage can be terrifying for these adults and they are afraid of its consequences.

The fear of physical violence in association with the expression of anger is common. Such an association may develop in children who repeatedly witness the cycle of drinking, anger and physical attack.

The expectation that complete trust will be an immediate and ever-present element in a close relationship, often turns out to be a major source of disappointment (Woititz, 1985). Trust in others builds from infancy and is dependent

upon consistent caregiving. In alcoholic homes, children's needs are at best partially met, at worst completely unmet. In either case, there will invariably be lack of consistency. Children of alcoholics believe that it is better not to trust as this involves disappointment and can jeopardise survival. Woititz (1985) has found that for many of these adults, trust simply means an absence of physical abuse.

As they search for intimacy, one of the most needed supports of adult children of alcoholics, is to have their feelings validated. In the alcoholic family, feelings are rarely validated and frequently discounted. These children have a very difficult time knowing when and whether their feelings are appropriate. Essentially, their emotional expression in close relationships works on a trial and error basis; communication is therefore seriously impaired. The cornerstone of good communication - respect for similarities and differences in feelings of the parties concerned - is absent (Woititz, 1985).

When intimate relationships begin to disintegrate, children of alcoholics often adopt a stance of self-deprecation and self-blame. They tend to be confused and afraid of the changes which are occurring, but do not believe that they can exert any control over the situation. According to Woititz (1985), this response mirrors the

helplessness of childhood and the realisation that the same process and outcomes are not only possible but plausible, can be a powerful and crippling obstacle to treatment.

In consideration of Woititz's (1985) clinical representation of the many pervasive difficulties faced by adult children of alcoholics in the formation and maintenance of intimate relationships, it would be reasonable to suspect that without intervention, these individuals as a group would have a higher incidence of marital breakdown and divorce than the general population. Research supports this. It has been attributed to genetic influences (Goodwin et al, 1973) and to factors operating within the family environment (Black et al 1986).

In discussing their results, Goodwin et al (1973) commented that divorce in alcoholic families has often been attributed to the disruptive effects of alcohol, but that their data suggest that both alcoholism and divorce could be covariants of a single or related genetic predisposition. Black et al. (1986) on the other hand, suggested that socialisation in an alcoholic family could have serious emotional and interpersonal consequences, evidenced by difficulties with intimate relationships and a significant increase in divorce when compared with controls.

From her observations of children in alcoholic homes, Woititz (1985), appears to attribute the difficulties encountered with intimacy to a lack of appropriate role modelling and the emotional trauma of growing up in a deprived and dysfunctional family environment.

In combination, these somewhat scattered findings indicate that certain fundamental questions regarding the interpersonal experiences of children of alcoholics remain unanswered. It seems reasonable to assume that positive attitudes towards intimacy and intimate behaviours would be amongst the necessary antecedents of satisfactory interpersonal relationships, including of course, marriage. Thus far, the relationship between alcoholic parentage and the attitudes and behaviours of offspring towards intimacy have not been empirically validated. In order to better understand the factors which may in time contribute to the high divorce rate in this group, an examination of intimacy attitudes is necessary. In order to understand more fully any individual's orientation towards intimacy, family environment, as well as individual differences in personality have to be taken into account. In view of the reported difficulties experienced by children of alcoholics in their intimate relationships, this becomes even more important.

MEDIATING FACTORS

Family Environment

The alcoholic family environment can have a devastating and destructive impact upon families and the relationships within them. Obviously, neither all families nor all members of the same family will be affected similarly and consequently it is to be expected that families will function quite differently from each other. The existing research into alcoholic families and their functioning is almost exclusively confined to clinical assessment and case studies which provide vivid and disturbing descriptions of life in an alcoholic home. This literature however, has been strongly criticised by Steinglass (1980) for failing to adequately define and assess the presence of alcoholism, for biased sampling procedures and for the absence of control groups.

A notable exception is a recent study conducted by Olson and Killorin (1987) which sought to investigate the functioning of chemically dependent families. These researchers were able to attend to some of the methodological weaknesses described by Steinglass (1980) by

adequately assessing the presence of chemical dependence, by including control groups and by selecting broad and representative samples. It was hypothesised that the dynamics within chemically dependent families vary enormously and consequently, these families function very differently from one another. They compared families with chemically dependent parents, including alcoholics, to non-dependent families along the dimensions of family adaptability and family cohesion. A clustering of concepts from family theory literature has identified adaptability and cohesion as central dimensions of family behaviour. Family cohesion assesses the degree to which family members are separated from or connected to their family. It is defined as the emotional bonding that family members have towards one another (Olson, Russell & Sprenkle, 1979) and has four levels ranging from low (disengaged) to high (enmeshed).

Family adaptability, on the other hand, assesses the degree to which the family system is flexible and able to change. It is defined as the ability of the family system to change its power structure and role relationships in response to situational and developmental stress (Olson, Russell & Sprenkle, 1979) Four levels of adaptability range from low (rigid) to high (chaotic). For each dimension, the moderate levels are hypothesised to be the most viable for healthy family functioning.

Olson and Killorin's (1987) study sampled 240 families in which 186 parents were dependent upon alcohol and other substances. A sample of 117 non-dependent families was included as a control measure. All family members, including the identified patients, completed the 20 item Family Adaptability and Cohesion Evaluation Scale (FACES) devised by Olson, Russell & Sprenkle (1979) and a single total score was obtained for each family. Results provided strong evidence that there is a great deal of variety in the way in which families with chemically dependent parents function and that overall, chemically dependent families have more extreme scores on adaptability and cohesion dimensions than non-dependent families. In terms of family adaptability, over 40% of the chemically dependent families perceived their functioning as chaotic compared to 8% of the non-dependent families. Focusing on cohesion, 34% of the chemically dependent families perceived their family as disengaged compared to only 7% of the non-dependent families.

Assessments of the alcoholic family environment suggest that parents with alcohol related problems are usually unable to provide a family atmosphere which is free of conflict. Arguments, aggression, violence and fighting are an integral part of family life for many children. Both as observers or direct participants, they experience the

parents' inept attempts to deal constructively with disagreements (Estes, diJulio & Heinemann, 1980). When children witness physical abuse between their parents, they are often terrified. Wilson and Orford (1978), reported that children would stay home from school in the hope of preventing these fights. When fighting did occur, they would often tidy up the house afterwards and give first aid treatment to parents' wounds.

Ackerman (1986) has identified other variables related to the alcoholic family environment which may be important factors in the experiences of children. First, the severity of the problem. How much alcohol is consumed and how often? Is the alcoholic intoxicated at the weekend only, every day or is this impossible to predict? Can the alcoholic maintain an employment status in between episodes of drunkenness? Second, what type of alcoholic is the child living with? One who is belligerent and possibly abusive when drunk or one who is jovial and quiescent? The third variable and probably the most important for children is their own perception of the entire situation. Do they see themselves as being responsible for the parents condition and the family suffering? Are they afraid of verbal or physical attack? Are they anxious, confused or contemptuous?

Some attempts have been made to compare the consequences of different psychopathologies in children's family

environment although results are inconclusive. Jacob and Leonard (1986), compared the psychosocial functioning of sons and daughters of alcoholic fathers with that of sons and daughters of depressed fathers and control fathers. Analyses of parent and teacher report data indicated that the degree to which children were impaired as a function of a father's diagnostic status was not significant. Of interest however was the finding that among the children whose behaviour was rated in the extreme range of the Child Behaviour Checklist (Jacob & Leonard, 1986) a significantly greater proportion (13%) had an alcoholic parent as opposed to a depressed parent (8%).

Personality

Stimulus Intensity Modulation Theory

Petrie (1967) proposed a general theory of individual differences in sensory processing. Her research described differences between people in terms of their modulation of sensory experience ranging from the most intense to the most subdued degree. In Petrie's (1967) model, the concept is viewed as a continuum along which three kinds of people can be identified - the reducer, the moderate and the augments-who differ from one another in their ways of processing their experience of the sensory environment. The reducer tends to subjectively 'reduce' or decrease what is

perceived; the augments, to 'augment' or increase what is perceived ; the moderate, to neither reduce nor augment what is perceived.

Petrie's original research was concerned with the suffering caused by physical pain; it grew from the observation that the same trauma could have a markedly different effect upon different individuals. The results of her work suggest a neurological or physiological basis for this variation in pain tolerance. The reducer is tolerant of pain, the augments, intolerant of it. In Petrie's (1967) conceptualisation, at one end of the spectrum of sensation, suffering was occasioned by sensory excess and at the other end, by sensory deprivation. Pain was viewed as an excess of stimulation. There are many other contrasting characteristics between reducers and augments. For example, the desire for physical activity is urgent at the reducing end of the modulation spectrum, but not at the other; the desire to be alone characterizes the augmenting rather than reducing end of the continuum, a finding which may have bearing on intimacy issues for augments.

Stimulus Intensity Modulation and Children of Alcoholics

Petrie (1967) observed that alcoholics as a group tended to be augments, i.e., sensitive to sensory stimulation and that the ingestion of alcohol had a reducing effect. She

also studied the effects of alcohol upon non-alcoholics who had previously been classified by the Kinaesthetic Figural Aftereffect (KFA) (Petrie, 1960) as reducers, augmenters or moderates. ¹ The KFA was re-administered on two different occasions after the subject drank either grapefruit juice or grapefruit juice and vodka. There was a dramatic reducing effect in all of the augmenters in the alcohol condition, whereas non-significant changes were observed in the other two groups.

In their experimental study of male alcoholics, Ludwig, Cain and Wikler (1977), found that decisions to work for alcohol and consume the earnings were associated with an augmenting style of stimulus intensity modulation and increased craving and subjective arousal.

Once alcoholism is diagnosed of course, it is impossible to determine whether concurrent personality characteristics such as sensory modulation, predate the pathology or have arisen as a consequence of it. In addressing this important chronological question, one initial task would be to determine whether stimulus augmenting and reducing can be pre-morbid to alcoholism, which would suggest a biological basis to this personality dimension.

Recognising that alcoholics tend to be augmenters and that there is an unquestionable familial component to

alcoholism, Hennecke (1984), investigated the relationship between paternal alcoholism and stimulus intensity modulation in boys and girls in the 10 to 12 years age range. It was hypothesised that the incidence of stimulus augmenting would be higher in the children of alcoholic fathers than in the children of non-alcoholic fathers. Two groups of 16 girls and 14 boys each (N = 60) were studied. One group had alcoholic fathers and non-alcoholic mothers and the other group had non-alcoholic parents. In accordance with Petrie's (1967) original technique, children were tested twice on the KFA with a 48 hour lag between tests. The experimenters were blind as to whether the child's father was alcoholic or not. Results showed that children of alcoholic fathers scored significantly higher toward augmenting than children of non-alcoholics. The mean of the alcoholic group was a full standard deviation higher than the mean of the non-alcoholic group. Among the children of alcoholics there were no reducers. There were significantly more augmenters (over 2.5 times), in the children with alcoholic fathers group versus controls. These results are supportive of the notion that, as a personality characteristic, stimulus intensity modulation is pre-morbid to alcoholism, but it remains unclear as to whether this phenomenon is due to an environmental or genetic factor.

It seems not unreasonable to suggest that reducers and augmenters may be further differentiated in terms of their attitudes towards and experiences within intimate relationships. Schachter (1964) proposed that two factors are involved in every emotion; physical and cognitive arousal which, depending upon the circumstances, designate a specific emotional state. The affiliative process, regardless of intensity must theoretically, invoke some degree of arousal. Intimate relationships which are invariably a consequence of strong interpersonal attraction (Berscheid & Walster, 1974), involve physiological arousal, cognitive arousal and appropriate labelling (Brehm, 1985). In view of the augmentser's sensitivity to sensory stimulation, intimacy may therefore be aversive, while for the reducer it may be particularly comforting.

HYPOTHESES

From the foregoing discussion, the following primary hypotheses were advanced.

- 1). The greater the subjects' reported experience with alcohol abuse by either parent, the more negative intimacy attitudes and behaviours will be.
- 2). Alcohol abuse by either parent will be predictive of perceptions of intimacy in the family of origin. As alcohol abuse increases, perceptions of intimacy in the family of origin will decrease.
- 3). Perceptions of intimacy in the family of origin will be associated with intimacy attitudes. Specifically, the more positive the perception of family intimacy, the more positive intimacy attitudes will be.
- 4). Parental alcohol abuse will be associated with sub-optimal levels (Olson, Russell & Sprenkle, 1979) of family functioning along the dimensions of adaptability and cohesion.
- 5). Family functioning measures of adaptability and cohesion will be predictive of intimacy attitudes and behaviours.

Specifically, the further the distance of family adaptability and cohesion scores from an optimal point i.e., the centre of the Circumplex Model (Olson, Russell & Sprenkle 1979), the more negative intimacy attitudes and behaviours will be.

- 6). Stimulus Intensity Modulation will be predictive of attitudes and behaviours in intimate relationships. It is expected that augmenters will find intimacy arousing and will report more negative attitudes towards it than either reducers or moderates

METHODOLOGY

Subjects

Prior to data collection, power analysis was conducted using Cohen and Cohen's (1975) technique. With the significance level set at .05 it was determined that 535 subjects were needed to obtain a desired power of 80% and to detect an effect size of .12. According to Cohen and Cohen (1975) effect sizes should be set according to empirical knowledge already in existence in the field of study. In the absence of empirical guidelines however, Cohen and Cohen (1975) do propose some operational definitions or conventions which link qualitative adjectives to amounts of correlation broadly appropriate to the behavioural sciences. A medium effect size, which would be appropriate for preliminary empirical study would be approximately .12 (Cohen & Cohen, 1975).

Questionnaires were administered to 636 male and female students during 42 research sessions held between February and April 1987. Due to a shortage of subject hours in the Introductory Psychology Subject Pool, students at the second year level in Psychology, Social Work and Family Studies were also invited to participate. Volunteer versus

non-volunteer status was therefore built into the study as an additional variable to control for any potential bias which it reportedly can introduce (Lindsay & Holden, 1977; Kohn, Hunt, Cowles & Davis, 1982). Due to the varying cultural sanctions imposed upon alcohol, data from subjects who indicated that English was not their first language was not used in analysis. Data which was either spoiled or incomplete was also deleted. The final sample consisted in 542 subjects. Subjects who participated to fulfill course requirements were awarded two experimental credits.

Measures

Predictor Variables

The predictor variables in this study were parental alcohol abuse, intimacy in the family of origin, family functioning, personality and family background. Measurements on these variables were obtained respectively from the a) Children of Alcoholic's Screening Test, b) Family of Origin Scale, c) Family Adaptability and Cohesion Evaluation Scale, d) Vando Reducer-Augmenter Scale and e) Demographic questionnaire

Children of Alcoholics Screening Test (CAST).

The CAST (Jones, 1982), was developed to identify children living with at least one alcoholic parent. It is a

30 item inventory which measures childrens' attitudes, feelings, perceptions and experiences related to parental drinking behaviour. It identifies individuals who

a) have been psychologically distressed as a result of parental drinking. (e.g., Have you ever lost sleep because of parents' drinking?).

b) perceive drinking related marital discord between their parents. (e.g., Have you ever heard your parents fight when one of them was drunk?).

c) have attempted to control the drinking. (e.g., Did you ever encourage one of your parents to quit drinking?).

d) have been exposed to drinking-related family violence. (e.g., Has your parent ever yelled at or hit you or other family members when drinking?).

e) tend to perceive their parents as alcoholic. (e.g., Did you ever think that your mother was an alcoholic?).

and f) want to receive help. (e.g., Did you ever wish that you could talk to someone who could understand and help the alcohol-related problems in your family?).

A reliability coefficient of .98 is reported for this instrument (Jones, 1982) using a Spearman-Brown split-half (odd vs even) procedure. The two samples used consisted of

82 adolescent children of clinically diagnosed alcoholics and 133 adolescents, randomly selected from the Chicago school system. ²

To assess its validity, the CAST was administered to 82 children of clinically diagnosed alcoholics, 15 self-reported children of alcoholics and 118 randomly selected control group children. All were in the adolescent age range. Chi square analyses showed that all 30 items significantly discriminated children of alcoholics from control group children.

The 'no' 'yes' answers on the CAST are scored 0 and 1 respectively so that a total score can range from 0 (no experience with parental alcohol misuse), to 30 (multiple experiences with parental alcohol misuse). Jones (1982), found that a cut-off score of six or more reliably identified 100% of the children of clinically diagnosed alcoholics and 100% of the self-reported children of alcoholics. 23% of the control group had scores of six and above.

As previously mentioned, Ackerman (1986) has identified a number of variables which seem to be important in assessing the impact of parental alcohol abuse upon children. The most critical, he believes is the child's own perception of the entire situation. Do they see themselves as responsible?

Are they afraid, contemptuous or angry? Are their lives different from those of their peers because of parents' drinking? It is precisely these perceptions which the CAST measures, which made it an especially appropriate tool to use in the present study.

In summary, the CAST appears to be a valid and reliable screening instrument which can discriminate children of alcoholics from the general population. It has been found to perform equally well with clinical and non-clinical samples. Separate CAST inventories were obtained for the mothers and fathers of subjects, an adjustment which resulted in two 29 item instruments. This gender identification of the parent was deemed necessary in view of the finding that maternal and paternal drinking can have a differential impact upon male and female children both psychosocially (Black, 1979; Wilson & Orford, 1978) and in terms of genetic susceptibility (Bohman, Sigvardsson & Cloninger, 1981; Cloninger, Bohman & Sigvardsson, 1981). Sex of subject was obtained from the demographic questionnaire.

The Family of Origin Scale (FOS).

The FOS (Hovestadt, Piercy, Anderson, Cochran & Fine, 1985) measures perceived levels of autonomy and intimacy in the family of origin, be it biological or adoptive in nature. Lewis, Beavers, Gossett and Phillips (1976), in

their comprehensive investigation of healthy family functioning, identified five aspects of family functioning which they considered important in the development of capable, adaptive persons; power structure, family individuation, acceptance of separation and loss, perception of reality and affect. These theoretical constructs were employed in the development of the FOS.

Originally, 89 items reflective of the core constructs of Lewis et al (1976), were generated by the authors and their colleagues in a university family therapy programme. This number was eventually reduced to 40 by a group of national experts in the field. Items are measured on a five point Likert (1932) scale. The most 'healthy' response receives a score of five and the least healthy response, a score of one. The highest possible score therefore, is 200 and the lowest possible, 40.

To assess its validity, Fine and Hovestadt (1984) administered the FOS, the Rational Behaviour Inventory (Shorkey & Whiteman, 1977), and a semantic differential perception of marriage scale to 184 single (never married) university freshmen and sophomores. Significantly different perceptions of marriage were found among subjects having high, medium and low FOS scores. Pairwise comparisons indicated that the three means of 38.80, 36.64 and 34.20 for high, medium and low F.O.S. scores respectively, were

significantly different from each other. This suggests that individuals who perceived their families of origin as being higher in health had a more positive perception of intimate relationships than those who perceived their families of origin as being lower in health.

Holter (1982) used the FOS to examine perceived health in the family of origin in 25 males from alcohol-distressed and 25 males from non-alcohol distressed marriages. An alcohol distressed marriage was one in which alcohol use by the husband was seen as the major factor in marital distress. In a non-alcohol distressed marriage, alcohol use by the husband was not considered a problem. A significant difference in perceived health of the family of origin was revealed between men in non-alcohol distressed marriages ($M = 140.24$) and men in alcohol-distressed marriages ($M = 119.76$).

A test-retest reliability coefficient of .97 was obtained on the FOS over an interval of two weeks when it was administered to 41 graduate students. A total of 116 undergraduates were tested similarly revealing a standardised item alpha of .97 (Hovestadt et al, 1985).

In view of the pervasiveness of intergenerational influences and their impact upon continued functioning (Bowen, 1978), the information derived from this measure was

expected to make a significant contribution towards the estimation of subjects current intimacy attitudes.

Family Adaptability and Cohesion Evaluation Scale.

(FACES III)

A clustering of concepts from family theory literature has identified three central dimensions of family behaviour; cohesion, adaptability and communication (Olsen, Russell & Sprenkle, 1979). These are the three primary dimensions of the Circumplex Model of Family Functioning formulated by Olson et al (1979). FACES is a self report instrument designed to assess perceptions of family functioning via the two major dimensions of the Circumplex Model, family adaptability and family cohesion.

FACES III is the third version in the series of FACES scales (Olson Portner & Lavee, 1985). It was developed in order to shorten the instrument, to develop two empirically independent (orthogonal) dimensions, and to develop items that were relevant for a variety of family forms (Olson, Portner & Lavee, 1985). Family adaptability and family cohesion, the two dimensions of interest in this study were measured with FACES III. Family communication which is measured on a separate scale, facilitates movement along the other two dimensions and was not included.

FACES III is a 20 item scale containing 10 cohesion and 10 adaptability items. There are two items for each of the five concepts related to cohesion; emotional bonding, supportiveness, family boundaries, time and friends and interest in recreation. There are also two items for each of the five concepts related to adaptability; leadership, control, discipline, roles and rules. Scoring for each statement is carried out on a five point Likert (Likert, 1932) scale ranging from one (almost never) to five (almost always). The cohesion score is the sum of all odd items and the adaptability score, the sum of all even items.

Factor analysis of items was conducted on a national sample of 1206 individuals. Items were selected if they loaded on only one factor. Based on this initial analysis, an iterative process of adding, removing and replacing items was used. The final 20 items load on either cohesion or adaptability, resulting in a two factor test. The Pearson product moment correlation coefficient ($r = .03$) indicates that the two factors are orthogonal.

Reliability coefficients for FACES III have been derived from FACES II, a 50 item measure of precisely the same two dimensions. A national sample of 2412 respondents was divided into two equal sub-groups. On the dimension of cohesion, Cronbach's alpha (Cronbach, 1951) for sample one and sample two was .88 and .86 respectively; on adaptability

it was it was .78 and .79. The overall test-retest reliability was .84 for the entire scale (Olsen et al, 1983).

Moderate scores on both adaptability and cohesion are hypothesised to represent healthy family functioning. Due to this curvilinear hypothesis however, many of the traditional linear analyses which rely on mean scores are not appropriate for use with FACES III. Olson et al (1985) have recently provided the means by which a linear score can be obtained for the purposes of correlation and regression. The Distance from Centre Score (DFC) indicates the distance of an individual's adaptability and cohesion score from the centre of the Circumplex Model. The centre of the model designates optimal family functioning. The DFC simultaneously incorporates an individual's score from both dimensions into one linear measure which was used in the present analysis.

In summary, FACES III is a reliable and valid measure of family behaviour. From a theoretical standpoint it is particularly appropriate. Descriptive research has indicated that life in an alcoholic home can often be chaotic with children constantly shifting roles in an effort to maintain equilibrium (Black, 1979; Cork, 1969; Shulamith, Straussner, Weinstein & Hernandez, 1979). It also points to the extremes of emotional separation of family members from one

another (Chafetz, 1979; Woititz, 1985) or conversely, to enmeshment in the form of co-dependency (Subby & Friel, 1986). All of these authors have suggested that these behaviours have a very destructive impact upon the ability to form and maintain intimate relationships. The measurement of family cohesion and adaptability in the population of interest was therefore considered necessary.

Vando Reducer-Augmenter Scale (VRAS).

The personality variable of interest in this study was subjective reduction versus augmentation of stimulus intensity, measured by the VRAS (Vando, 1969). This pencil and paper test of central nervous system arousability takes approximately five minutes to complete. It was devised as an alternative to Petrie's (1967) cumbersome and time-consuming KFA test of the reducer-augmenter dimension.

Vando (1969), originally attempted to identify a personality dimension related to pain tolerance which was directly associated with the pre-frontal cortex. In developing the reducer-augmenter scale, the theoretical assumption was that people who were high on pain tolerance were characterized by the tendency to reduce sensory input. Consequently, they are relatively stimulus hungry and tend to seek out high levels of stimulation. Conversely, low pain tolerant people tend to augment sensory input and are

relatively overstimulated; they therefore tend to avoid high levels of stimulation.

Although the VRAS has been found to correlate positively with external, internal and general sensation-seeking measures (Barnes, 1983; Kohn, Barnes & Hoffman, 1979) it was specifically developed as a measure of pain sensitivity. It was anticipated that a pencil and paper test would substitute for actual pain producing techniques traditionally used to assess tolerance. From a larger pool of items which were believed to discriminate between individuals with high and low levels of pain tolerance, a final 54 were chosen for the test. The split half reliability reported by Vando (1969) was .89 and the test-retest reliability, .74.

Numerous hypotheses were derived to assess the validity of the scale. Stimulus reducers were found to be more tolerant of pain ($r = .84$), more extroverted ($r = .65$), less hypochondriacal ($r = -.60$) and require less sleep ($r = -.59$). These findings support Petrie's (1969) hypotheses and indicate that the scale is valid in its ability to assess the same factors as Petrie's (1969) KFA task.

The scale is a 54 item forced choice task which examines preferences for low and high stimulation levels across sensory modalities. It is comprised of three subscales;

1) musical reducing-augmenting, 2) general lifestyle reducing-augmenting and 3) physical thrill seeking reducing-augmenting. The correlations between subscales are .21 (1 vs 2), .41 (1 vs 3) and .38 (2 vs 3), indicating a modest interrelationship.

The VRAS is generally considered a reliable and valid instrument which has been used extensively in the assessment of this personality dimension (Kohn, Hunt, Cowles & Davis, 1986).

Demographic Questionnaire (DQ).

The DQ contains items which have been cited in the literature as potential sources of variation in the impact of alcoholic parentage upon children. Comparison between levels of variables, e.g. gender (male/female), will therefore be possible. The demographic information obtained will also facilitate a more detailed description of the sample and an assessment of its representativeness.

The DQ is based upon the Self-Administered Social Assets Scale (Luborsky, Todd & Katcher, 1973). This instrument was devised under the assumption that the more one has of what is valued in society, the easier it should be to cope with its demands. The possession of socially desirable physical and psychological assets suggests that an individual should be better able to deal with current stress. First language

spoken and measurement of volunteer status were also ascertained via the DQ.

Criterion Variables

The criterion variables used in this study were intimacy attitudes and intimacy behaviours. Measurements on these variables were obtained respectively from a) Intimacy Attitude Scale Revised, b) Intimacy Behaviour Scale.

Intimacy Attitude Scale Revised (IASR).

The original IAS (Amidon & Kavanaugh, 1979), was created in an attempt to structure a comprehensive definition of intimacy in order that attitudes towards intimacy in interpersonal relationships could be measured. As Schaefer and Olson (1981) observed, the empirical assessment of intimacy has traditionally been very difficult due to poor conceptualisation and inadequate definition of the construct. The scale was devised around a basic definition of intimacy as the establishment, maintenance and expansion of close relationships at intellectual, physical, emotional and social levels of human awareness of experience (Amidon & Kavanaugh, 1979; Bennis & Shepard, 1956). This is reflected in Dahm's (1972) conceptualisation of intimacy as a

closeness to another human being on intellectual, physical and emotional levels.

In order to determine the reliability of the original IAS, Treadwell (1981), obtained Kuder-Richardson (KR-20) measures (Kuder & Richardson, 1937) of internal consistency and test-retest correlation coefficients from four different groups of subjects attending two universities in Pennsylvania (N = 225). Internal consistency values ranged from .71 to .82 on initial testing and from .77 to .85 on retesting in all cases. Pearson correlations ranged from .65 to .86. All were significantly different from zero regardless of whether the test-retest lag was 1, 6 or 12 weeks. It is interesting to note that the correlations diminished as the test-retest interval increased; for the group with a one week interval, $r = .86$, for the group with a six week interval, $r = .84$ and for the two groups with a 12 week interval, $r = .72$ and $.65$.

In examining the validity of the original IAS, Treadwell (1981), measured the effects of intimacy training on the changes in IAS scores from before to after training. Results showed a significant increase in scores in the intimacy training groups as opposed to a non-significant increase in the two groups which did not receive training. A second investigation examined the relationship between attitudes and behaviours towards intimacy measured by the IAS and a

self-report measure of intimate behaviours, the Intimacy Behaviour Scale (IBS). The IBS was developed by Treadwell (1981) as a criterion variable for determining the validity of the IAS. The IAS and the IBS did not correlate significantly at pre-training, but did correlate significantly at post-training.

As a result of subjecting the original IAS to factor analysis, 15 factors emerged. The intercorrelation matrix (Treadwell, 1981), shows that the extracted factors are essentially orthogonal to each other. None of the factor intercorrelations are significantly different from zero. The IAS is undoubtedly heterogeneous. It can be argued however that this is both realistic and desirable in view of the multi-dimensional nature of the construct. Any measure used to assess attitudes towards such a construct needs to contain sufficient factors in order that they may adequately incorporate the breadth of the definition likely to be found amongst a large number of subjects.

The revision of the IAS (Amidon, Kumar & Treadwell, 1983), was undertaken as a result of Treadwell's (1981) investigation of the reliability and validity of the original instrument. The resulting scale is the IASR which was the major criterion variable in the present study. The instrument includes 51 items, 25 of which are positively worded statements; the remainder are negatively worded. In

scoring the IASR the ratings for the 26 negatively worded items are reversed to correspond to the positive direction of the 25 positively worded items. Total scores can range from 51 (lowest) to 459 (highest), indicating the least favourable attitudes to the most favourable attitudes towards intimacy, respectively. The final score is obtained by subtracting the sum of the ratings on negative items from the sum of ratings on positive items. The main advantage of this scoring procedure is that it eliminates negative scores.

The IASR is slightly shorter than the original version and over 50% of the items have been reworded. Six groups of students and professionals (N = 421), served as subjects in the reliability and validity studies of the IASR (Amidon, Kumar & Treadwell, 1983). Cronbach's alpha coefficients (Cronbach, 1951) obtained for each group ranged from lowest (.78) to highest (.87). Test-retest reliability was determined over a 30 day interval on 29 subjects randomly selected from one of the larger groups of students (N = 162). Initially the reliability was found to be .57, however on closer examination of the data, it was revealed that three subjects had extreme changes in scores of over 32 points from test one to test two. When the reliability was computed without these data, it was found to be .84.

Construct validation of the IASR was carried out by selecting instruments which measured similar or related concepts of intimacy and then correlating these measures with the IASR. ³

Intimacy Behaviour Scale (IBS).

The IBS was developed by Treadwell (1981), as a criterion variable for determining the validity of the Intimacy Attitude Scale. It is a 43 item alternate choice (true/false) inventory, which measures the expression of intimate behaviours in interpersonal settings. The two instruments, IAS and IBS, differ in the sense that the former is a self-report measure of disposition while the latter is a self-report measure of behaviour. Each item is assigned a score of one point if the response reflects intimate behaviour, otherwise zero points are assigned. Scores can therefore range from 0 to 40 indicating the least intimate to the most intimate behaviour respectively.

Treadwell (1981), examined the correlation between the IAS and the IBS and found a significant, moderate positive relationship, $r = .47$, $p = <.05$.

The IAS and the IBS are both self-report inventories which sample a wide range of situations. With regard to the existing social psychological literature describing the

inconsistencies between attitudes and behaviours, the correlation between these two measures would be considered moderately strong (Wrightsman & Deaux, 1981). A number of theories exist to explain why attitudes do not predict behaviour more closely. Behaviour is highly complex and multidetermined; attitudes towards intimacy for example, may affect some intimate behaviours, but other factors such as situational influences have been found to be operating also (Wrightsman & Deaux, 1981). Attitudes formed through direct experience with a particular construct have been found to show a much more consistent relationship with behaviours, than attitudes formed vicariously (Regan & Fazio, 1977) hence, when compared to an inexperienced counterpart, an individual who has experienced numerous intimate relationships is likely to demonstrate greater congruence between attitudes and behaviours.

In conclusion, while it would be reasonable to expect some degree of correlation between measures of attitude and behaviour of a single construct, it would be unreasonable to assume that the measures were not related if a strong correlation were not found between them.

Procedure

At the beginning of each session, subjects were assured of confidentiality and were instructed not to write their name or student number on any of the materials. Each subject was given a folder containing eight questionnaires numbered separately from one to eight. They appeared in numerical order in the folder. Two IBM sheets were also given to subjects; they were stapled together and marked A, B, in the top right hand corner of sheets one and two respectively. The same three digit code number was applied to each subjects' IBM sheets for the purpose of computerised scoring and in order that a subject's data set could be identified should the sheets become separated. Subjects proceeded with each measure at their own pace. As each questionnaire was completed, the question sheets were collected by the experimenter. Instructions for the completion of each measure were read aloud to subjects prior to their responding.

Measures were administered in the following order:
1) VANDO, 2) FOS, 3) FACES, 4) DQ, 5) IASR, 6) IBS,
7) CAST - Father, 8) CAST - Mother. The reason for this sequence was that the CAST was likely to be the most disquieting of measures, especially for subjects whose parents were perceived as problem drinkers.

At the end of each session subjects were debriefed as to the exact nature of the research. They were informed of the lifetime prevalence rates of alcoholism and told that roughly 30 per cent of students reported alcohol abuse by a parent. Some of the concerns expressed in the literature regarding the interpersonal consequences of having an alcohol abusing parent were outlined. Each group was then informed that counselling services were available on campus if any individual felt that he/she required them and that referral could be arranged through the researcher. All students were given the researcher's telephone number on campus and the room number where she could be reached in person.

RESULTS

Characteristics of the Sample

Demographic Data

Demographic data are presented in Table 1. The social assets items i.e., 5 - 12, were taken from the Self-Administered Social Assets Scale (Luborsky et al, 1973) and all relate to the time when subjects were growing up.

Table 1

Demographic Data

Variables	Categories	N
1. Sex	Female	334
	Male	208
2. Marital Status	Single	483
	Married	51
	Separated/Divorced	8
3. Siblings	Brothers	150
	Sisters	125
	Both	243
	Neither	24
4. Biological/ Adoptive Parents	Biological	513
	Adoptive	29
5. Father Employed	Always	511
	Sometimes	29
	Never	2
6. Mother Employed	Always	101
	Sometimes	308
	Never	133
7. Parents Own Their Home	Yes	497
	No	45
8. Mother in Good Health	Most of the Time	479
	Some of the Time	46
	Rarely	12
	Never	5
9. Father in Good Health	Most of the Time	491
	Some of the Time	47
	Rarely	2
	Never	2

Table 1 contd.

Variables	Categories	N
10. Parents quarrel	Frequently	178
	Rarely	327
	Never	37
11. Where did you grow up?	City	365
	Town	99
	Rural Area	78
12. Present living arrangement	With parents	319
	With relatives other than parents	51
	In residence	89
	Living alone	53
	Other	30
13. Volunteer	Yes	174
	No	368

Reliability of Measures

Cronbach's (1951) alpha measures of internal consistency which were calculated for personality, family environment, and intimacy variables are presented in Table 2. The Intimacy Behaviour Scale (IBS) showed poor reliability in this sample and thus has been omitted as a criterion variable.

Table 2

Reliability of Measures for Personality, Family Functioning,
and Intimacy Variables.

Variables	Cronbach's Alpha
FOS	.96
FACES	.84
CASTF	.96
CASTM	.97
VANDO	.81
IAS	.85
IBS	.31

Personality, Family Functioning, and Intimacy

Means and standard deviations for personality, family functioning and intimacy variables are presented for males and females in Table 3. In the present investigation data analysis was carried out using Statistical Analysis Systems (SAS, 1987). In computing statistics SAS (1987) excludes data from subjects whose questionnaires contain missing values. Each variable however, is treated individually so that a missing value in one variable does not affect the calculations for other variables for a given subject. The changes in sample sizes between variables, which can be observed in the following tables may be accounted for as the result of the exclusion of incomplete data.

Table 3

Descriptive Statistics for Personality, Family Functioning
and Intimacy Variables for Males and Females

Variable	Females			Males		
	N	Mean	SD	N	Mean	SD
VANDO	334	29.14	7.33	208	33.62	6.98
FACES	330	10.40	6.01	206	10.69	5.84
FOS	334	141.63	27.43	208	138.08	23.39
CASTF	334	4.11	6.87	208	3.74	6.72
CASTM	334	1.68	5.18	208	1.35	4.08
IAS	334	170.01	16.74	208	168.68	14.85

Note

- VANDO Reducer - Augmenter Scale
(LPS = 0 HPS = 54: High score = reducers)
- FACES Family Adaptability and Cohesion Evaluation Scale
(LPS = 0 HPS = 40: High score = poor family functioning)
- FOS Family of Origin Scale
(LPS = 40 HPS = 200: High score = more intimacy)
- CASTF Children of Alcoholics Screening Test (father's drinking)
(LPS = 0 HPS = 29: See diagnostic criteria, Table 5)
- CASTM Children of Alcoholics Screening Test (mother's drinking)
(Same as CASTF)
- IAS Intimacy Attitude Scale
(LPS = 49 HPS = 245; High score = positive attitudes)

Note LPS = Lowest Possible Score
HPS = Highest Possible Score

Children of Alcoholics Screening Test (CAST)

The CAST was the major distinguishing variable in this study upon which many hypotheses were based. Table 4 shows the distribution of parental alcohol use scores for father's (CASTF) and mother's (CASTM) as well as Jones' (1982) diagnostic categories. As mentioned earlier, on the basis of a number of validation studies, Jones (1982) found that CAST scores of zero and one indicated that parental drinking was not a problem, scores ranging between two and five were indicative of problem drinking by parents, and scores of six and above were, in 100% of cases, diagnostic of parental alcoholism. In a series of studies (Jones, 1982), the percentage of subjects with scores of six and above ranged from 25.5 in a high school sample to 46.2 in a sample of clinical therapists.

Results provided in Table 4 indicate that in the sample under investigation, 32% of subjects gave their parents scores of six or above. Of these parents (N = 173) who would be described by Jones (1982) as alcoholic, 75% were males and 25% were females.

Table 4

Distribution of CASTF and CASTM Scores Using
Jones' (1982) Diagnostic Categories

CAST Score	N	%	Diagnostic Category (Jones, 1982)
<u>FATHERS</u>			
0 - 1	348	64	Father's drinking presents no problem
2 - 5	64	12	Father is a problem drinker
6 or >	130	24	Father is alcoholic
<u>MOTHERS</u>			
0 - 1	462	85	Mother's drinking presents no problem
2 - 5	37	7	Mother is a problem drinker
6 or >	43	8	Mother is alcoholic

The categories proposed by Jones (1982) were used to determine whether the severity of parental alcohol abuse resulted in significant differences between means on personality, family environment, and intimacy variables (see Table 5). The statistic used for testing the mean differences was the Welch procedure (Welch, 1951). This omnibus test represents an alternative to the analysis of variance (ANOVA). The use of the ANOVA was inappropriate in this case due to the violation of one of its assumptions, i.e., variances were not homogeneous. Although the ANOVA is a robust statistical procedure which may allow violations of assumptions with only minor effect, the presence of variance heterogeneity in conjunction with unequal sample sizes, both of which occurred in this case, forbid its use (Howell, 1982).

The Welch F statistic compares the group means while taking into account the group variances and sample sizes (See Appendix C for the Welch computational formula). The Welch weighted squared mean differences (i.e., $\sum_k w_k (\bar{X} - \bar{X}')^2$) for personality, family environment and intimacy variables are provided in Table 6. The Welch procedure (Welch, 1951) is robust with regard to variance heterogeneity and unequal sample sizes provided that data are obtained from normal populations. To test for the

normality assumption, the Univariate Procedure (SAS, 1987) computes a test statistic for the hypothesis that data are drawn from a normal distribution. This procedure resulted in a rejection of the null hypothesis; however, the plots suggest normality. As Hays (1981) has repeatedly cautioned, large sample sizes, such as was used in this study, can result in significance, significance which in reality, is trivial. In view of the normality plots, it is assumed that scores on the personality, family environment and intimacy variables were basically normal in form. The Children of Alcoholics Screening Tests for mothers (CASTM) and fathers (CASTF) were not normally distributed, a finding which would be expected given the construction of the test. The CAST scores are unevenly distributed in terms of the categories with which they are associated. For example, there are 2 possible scores attributable to category 1, (0 and 1); there are 4 possible scores attributable to category 2, (2, 3, 4, and 5); there are 24 possible scores attributable to category 3, (6 to 29 inclusive).

Thus while the CAST is theoretically continuous, the categorization of scores is uneven and the variable can not be considered normal in its distribution. The distribution probability plots are shown in Appendix B.

Table 5

Means and Variances for Personality, Family Functioning
and Intimacy Variables by CASTF and CASTM Categories

Jones' Diagnostic Category	Variable	N	Mean	Variance
<u>FATHERS</u>				
0 - 1	VANDO	348	31.10	53.66
	FACES	347	9.89	31.18
	FOS	348	145.19	543.45
	IAS	348	170.63	251.27
2 - 5	VANDO	64	31.26	47.78
	FACES	63	10.59	34.16
	FOS	64	141.78	495.47
	IAS	64	171.07	305.43
6 or >	VANDO	130	30.01	68.51
	FACES	126	12.18	44.32
	FOS	130	126.36	868.14
	IAS	130	165.70	235.21
<u>MOTHERS</u>				
0 - 1	VANDO	462	31.02	56.19
	FACES	458	10.32	33.00
	FOS	462	142.68	633.61
	IAS	462	169.84	252.80
2 - 5	VANDO	37	31.10	55.76
	FACES	36	12.18	45.51
	FOS	37	129.40	652.52
	IAS	37	168.64	377.45
6 or >	VANDO	43	28.90	59.65
	FACES	42	11.17	51.67
	FOS	43	123.69	738.40
	IAS	43	166.60	206.86

Table 6

Cell and Welch Weighted Squared Mean Differences for
 Personality, Family Environment and Intimacy
 Variables by CASTF and CASTM Categories

Jones' Diagnostic Category	Variable	Cell Mean	$\sum w_k (\bar{X} - \bar{X}')^2$ (Welch, 1951)
<u>FATHERS</u>			
0 - 1	VANDO	31.10	201.68
	FACES	9.89	110.07
	FOS	145.19	92.92
	IAS	170.63	235.46
2 - 5	VANDO	31.26	41.85
	FACES	10.59	19.48
	FOS	141.78	18.43
	IAS	171.07	34.91
6 or >	VANDO	30.01	56.95
	FACES	12.18	34.59
	FOS	126.36	18.95
	IAS	165.70	91.13
<u>MOTHERS</u>			
0 - 1	VANDO	31.02	255.05
	FACES	10.32	143.22
	FOS	142.68	104.01
	IAS	169.84	310.29
2 - 5	VANDO	31.10	20.62
	FACES	12.18	9.63
	FOS	129.40	7.25
	IAS	168.64	16.52
6 or >	VANDO	28.90	20.80
	FACES	11.17	9.07
	FOS	123.69	7.17
	IAS	166.60	34.48

Following the Welch (1951) omnibus test, the strength of association between parents' drinking (criterion variable) and personality, family environment, and intimacy attitudes (predictor variables) was obtained. The measure used was omega squared (ω^2) as proposed by Maxwell, Camp and Arvey (1981). The main advantage of strength of association tests is that they can reveal whether or not a statistically significant value is meaningful. As Hays (1981) has cautioned, the use of a large number of subjects can result in significant effects which are, in reality, absurdly trivial. The results of the Welch procedure (Welch, 1951) and corresponding strength of association measures are provided in Table 7. The test statistics may be found in Appendix C. As Table 7 shows, fathers' drinking had a statistically significant influence upon family adaptability and cohesion, family intimacy and intimacy attitudes. In the case of mothers' drinking, only family intimacy was statistically significant. In all cases parents' abuse as opposed to non-abuse of alcohol was associated with lower scores on these measures.

The ω values provided in Table 7 indicate that parental alcohol abuse is more strongly associated with family intimacy (FOS) than it is with either family adaptability and cohesion (FACES) or intimacy attitudes (IAS). Fathers' and mothers' drinking share 20% and 27%, respectively, of

the variance with family intimacy. By comparison, fathers' drinking shares only five per cent of the variance in family adaptability and cohesion and six per cent of the variance with intimacy attitudes.

Table 7

Welch F Test and Strength of Association Measures

Variable	df	Observed (Critical) Value	η^2 w
<u>(CASTF)</u>			
VANDO	2,155	.96 (3.00)	
FACES	2,148	5.97 (3.00) *	.06
FOS	2,165	21.54 (3.00) *	.20
IAS	2,151	5.09 (3.00) *	.05
<u>(CASTM)</u>			
VANDO	2,60	1.50 (3.15)	
FACES	2,55	1.51 (3.15)	
FOS	2,59	13.38 (3.00) *	.27
IAS	2,60	1.00 (3.15)	

Note * Critical values were obtained for a .05 level of significance.

The Welch (1951) omnibus test identified variables which had significant overall F values in both CASTF and CASTM categories. These differences were probed further in order to determine whether increasing levels of parental alcohol abuse, as defined by Jones' (1982) categories, were associated with lower scores on family environment and intimacy attitude measures. The Welch procedure (Welch, 1951) which had been used as an omnibus test was used on a pairwise basis in order to make the comparisons between CASTF and CASTM groups.

Table 8 shows the pairwise comparisons of CASTF and CASTM categories for those variables whose means were found to be significantly different. Family intimacy scores decreased significantly as CAST scores increased. In the case of fathers' drinking (CASTF) these differences were significant between categories one and three and two and three; mothers' drinking resulted in significant differences in family intimacy between categories one and three only. Family adaptability and cohesion scores were significantly different in CASTF categories one and three indicating that as fathers' drinking increased, this aspect of family functioning moved away from an optimal point (Olson, Russell & Sprenkle, 1979).

Interestingly, in the pairwise analysis where many hypotheses were tested, intimacy attitudes did not vary significantly in relation to fathers' (CASTF) or mothers' (CASTM) drinking.

Previous research has suggested that maternal and paternal drinking can have a differential impact upon male and female children (Cloninger, Bohman & Sigvardsson, 1981; Wilson & Orford, 1978). The Welch procedure (Welch, 1951) was used to test for the presence of this interaction. The predictor variables were CAST diagnostic category (1, 2, 3) and sex of subject (male, female). The criterion variables were personality (VANDO), family adaptability and cohesion (FACES) family intimacy (FOS) and intimacy attitudes (IAS). The interactions between CAST category and sex of subject were indirectly examined for each criterion variable using a one-way omnibus test on the six cells. None were found to be significant which suggests that there is no differential relationship between sons and daughters and their mothers' and fathers' abuse of alcohol.

Table 8
Welch Pairwise Comparisons
for CASTF and CASTM Categories

Variable	Comparison Group	df	Observed (Critical) Value
<u>FATHERS</u>			
(CASTF)			
FACES	1 - 2	1,90	.38 (5.15)
	1 - 3	1,250	5.91 (5.02) *
	2 - 3	1,277	1.40 (5.02)
FOS	1 - 2	1,100	.62 (5.15)
	1 - 3	1,250	21.54 (5.02) *
	2 - 3	1,200	8.27 (5.02) *
IAS	1 - 2	1,90	.01 (5.15)
	1 - 3	1,133	4.77 (5.02)
	2 - 3	1,83	2.11 (5.15)
<u>MOTHERS</u>			
(CASTM)			
FOS	1 - 2	1,43	4.47 (5.42)
	1 - 3	1,52	9.49 (5.29) *
	2 - 3	1,90	1.74 (5.15)

Note	CAST Scores	Comparison Group
	0 - 1	1
	2 - 5	2
	6 or >	3

Note * critical values are obtained for a .0167 level of significance.

Predicting Intimacy Attitudes

Correlational Analysis

The correlations between personality, environment and intimacy variables are provided in Table 9. There is a moderate to high negative correlation ($r = -.54$) between family adaptability and cohesion (FACES) and intimacy in the family of origin (FOS). As expected, when subjects' FACES scores increased - that is when they moved away from centre or healthy family functioning - their perceptions of intimacy in the family of origin decreased.

When predictor variables are correlated (collinear) parameter estimates may be unreliable measures of the effects of their associated predictors (Younger, 1985). Unreliable or unstable regression coefficients not only measure the effect of their associated predictor but are confounded with the effects of other predictors related to them. Thus, a collinearity analysis was undertaken. The approach used was that of Belsley, Kuh and Welsch (1980). In their recommended analysis it is necessary to determine whether the correlations between predictor variables would negatively affect the least squares regression solution. According to the criteria provided by these authors, the correlations are not of a magnitude that would deleteriously affect the regression results. It may therefore be concluded that these parameter estimates would not be affected by collinearity.

The remaining correlations between predictor variables were mostly weak, however collinearity checks were carried out on those variables which significantly contributed to the prediction of intimacy attitudes. The analysis indicated that the correlations between the predictor variables would not deleteriously affect the regression results.

Table 9

Pearson Correlations Between Personality, Family Functioning,
and Intimacy Variables

	VANDO	CASTF	CASTM	FACES	FOS	IAS
VANDO		-0.04	-0.07	0.11*	0.06	0.11*
CASTF			0.30**	0.18**	-0.36**	-0.14**
CASTM				0.06	-0.24**	-0.06
FACES					-0.54**	-0.13*
FOS						0.34**
IAS						

Note * $p < .05$

** $p < .01$

N = 542

Regression Analyses

It was hypothesised that parental alcohol abuse (CASTF/CASTM), family environment and personality were significant predictors of current intimacy attitudes. In order to examine the relative contributions of the set of personality and family background variables in predicting 1) family functioning 2) family intimacy and 3) intimacy attitudes, and to determine the overall amount of variance in attitudes which could be predicted, a series of regression analyses was performed. These procedures were carried out with a stepwise algorithm until a final model was developed.

The predictors that were included in these analyses and the results that were obtained are presented in Tables 10 to 13. The predictor variables which were used in the regression analysis were: 1) fathers' drinking (CASTF) 2) mothers' drinking (CASTM) 3) stimulus intensity modulation (VANDO) 4) family adaptability and cohesion (FACES) 5) family intimacy (FOS) 6) sex of subject 7) marital status 8) volunteer status. The demographic variables which were used as predictors i.e., sex of subject, marital status and volunteer status, were coded prior to their inclusion as follows: sex of subject (1 = female, 2 = male), marital status (1 = single, 2 = married, 3 = sep/divorced),

volunteer status (1 = no, 2 = yes). In reporting the stepwise regression procedures the variable entry and deletion significance levels were set at .05.

Tests for aptness of the final models were performed. The Univariate Procedure (SAS, 1987), as previously discussed, suggested that variables were normally distributed with the exception of CASTF and CASTM (see p. 63 for discussion of non-normality) The normal probability plots are included in Appendix B. The computer printouts of the scatter diagrams and residual plots are available from the author.

Intimacy in the Family of Origin.

The regression model for predicting family intimacy was as follows:

$$\text{Family Intimacy} = B_0 + B_1(\text{CASTF}) + B_2(\text{CASTM}) + B_3(\text{VANDO}) + B_4(\text{sex of subject}) + B_5(\text{marital status}) + B_6(\text{volunteer status}) + \text{error}.$$

The results are shown in Table 10. As expected, subjects perceived their families of origin as being less intimate if they had experienced alcohol abuse in either fathers [F(3,537) = 79.62, p < .001] or mothers [F(3,537) = 12.30, p, < .001]. Given the set of predictor variables with which fathers' drinking (CASTF) is

associated, it is more closely related to family intimacy than mothers' drinking (CASTM), accounting for 13% of the variance in family intimacy as opposed to only 2% in the case of mothers' drinking.

In comparison to female subjects, males' perceptions of family intimacy are somewhat more negative [$F(3,537) = 4.30$, $p < .03$].

Table 10

Stepwise Regression Predicting Intimacy
in the Family of Origin

Statistics for entry into the model: df = 1,539

Variable	Model R Square	F	Prob > F
CASTF	.13	79.62	.00
CASTM	.06	33.98	.00
VANDO	.00	2.10	.14
Sex of Subject	.00	2.62	.10
Marital Status	.00	1.46	.22
Volunteer Status	.00	1.78	.18

Step 1: Variable CASTF entered, R Square = .12

Variable	Beta Weight	Standard Error	Type II SS	F	Prob > F
Intercept	145.77				
CASTF	-1.36	.15	46699.69	79.62	.00

Step 2: Variable CASTM entered, R Square = .14

Intercept	146.32				
CASTF	-1.19	.15	32244.39	56.13	.00
CASTM	-0.79	.22	7064.72	12.30	.00

Table 10 contd.

Step 3: Variable Sex of Subject entered, R Square = .15

Variable	Beta Weight	Standard Error	Type II SS	F	Prob > F
Intercept	152.43				
CASTF	-1.20	.15	32491.27	56.90	.00
CASTM	-0.80	.22	7293.24	12.77	.00
Sex of Subject	-4.38	2.11	2453.47	4.30	.03

Summary of Stepwise Procedure for Intimacy in the Family of Origin

Step	Variable	Partial R Square	F	Prob > F
1	CASTF	.13	79.62	.00
2	CASTM	.02	12.30	.00
3	Sex of Subject	.01	4.30	.03

Note: No other variables met the .05 significance level for entry into the model.

Family Adaptability and Cohesion (FACES).

The regression model for predicting FACES was as follows:

$$\text{FACES} = B_0 + B_1(\text{CASTF}) + B_2(\text{CASTM}) + B_3(\text{VANDO}) + B_4(\text{sex of subject}) + B_5(\text{marital status}) + B_6(\text{volunteer status}) + \text{error.}$$

The results are shown in Table 11. Family adaptability and cohesion is a measure of current family functioning along these two central dimensions (Olson et al, 1980). In examining the regression results in Table 11 it must be borne in mind that FACES scores represent distance from centre scores. These scores indicate the distance of individuals' adaptability and cohesion scores from the centre or optimum region of the Circumplex Model (Olson, Russell & Sprenkle, 1979). The higher the FACES score, the less effectively the family is believed to function along the two critical dimensions of adaptability and cohesion.

From the results shown in Table 11 it is apparent that fathers' drinking is significantly related to family adaptability and cohesion [$F(2,532) = 17.95, p < .001$], accounting for 3% of the variance. The personality variable - stimulus intensity modulation - is also a significant predictor with stimulus augmenters reporting somewhat more optimal levels of family adaptability and cohesion (Olson, Russell & Sprenkle, 1979) than reducers

[$F(2,532) = 9.08$ $p, < .005$]. Stimulus intensity modulation accounts for 2% of the variance in family adaptability and cohesion.

Table 11

Stepwise Regression Predicting Family
Adaptability and Cohesion

Statistics for Entry Into the Model: df = 1,533

Variable	Model R Square	F	Prob > F
CASTF	.03	17.95	.00
CASTM	.00	2.01	.15
VANDO	.01	7.75	.00
Sex of Subject	.00	.29	.58
Marital Status	.00	.19	.65
Volunteer Status	.00	.55	.45

Step 1: Variable CASTF entered, R Square = .03

Variable	Beta Weight	Standard Error	Type II SS	F	Prob > F
Intercept	9.89				
CASTF	.15	.03	616.71	17.95	.00

Step 2: Variable VANDO entered, R Square = .05

Variable	Beta Weight	Standard Error	Type II SS	F	Prob > F
Intercept	6.75				
CASTF	.16	.03	652.83	19.30	.00
VANDO	.10	.03	307.65	9.09	.00

Table 11 contd.

Summary of Stepwise Procedure for Family Adaptability and Cohesion

Step	Variable	Partial R Square	F	Prob > F
1	CASTF	.03	17.95	.00
2	VANDO	.02	9.08	.00

Note: No other variables met the .05 significance level for entry into the model

Intimacy Attitudes.

It was hypothesised that parental alcohol abuse (CASTF/CASTM) was a significant predictor of intimacy attitudes. To test this hypothesis, the same set of variables which had been used to predict family intimacy and family adaptability and cohesion was regressed on intimacy attitudes. The results provided in Table 12 indicate that fathers' drinking was a significant predictor of intimacy attitudes [$F(3,537) = 11.62, p < .001$], accounting for 2% of the variance. Mothers' drinking on the other hand was not a significant predictor. Sex of subject also contributed to the prediction of intimacy attitudes [$F(3,537) = 8.36, p < .005$] accounting for 2% of the variance. The remaining variable significant in the prediction of intimacy attitudes was stimulus intensity modulation. Reducers had more positive attitudes towards intimacy than either augmenters or moderates [$F(3,537) = 8.53, p < .005$]. This variable also accounted for 2% of the variance in intimacy attitudes.

Table 12

Stepwise Regression Predicting Intimacy
Attitudes From Family Background

Statistics for Entry Into the Model: df = 1,539

Variable	Model R Square	F	Prob > F
CASTF	.02	11.63	.00
CASTM	.00	2.18	.14
VANDO	.01	7.03	.00
Sex of Subject	.00	.87	.35
Marital Status	.00	.00	.93
Volunteer Status	.01	6.91	.00

Step 1: Variable CASTF entered, R Square = .02

Variable	Beta Weight	Standard Error	Type II SS	F	Prob > F
Intercept	170.85				
CASTF	-0.34	.10	2940.82	11.63	.00

Step 2: Variable Sex of Subject entered, R Square = .04

Variable	Beta Weight	Standard Error	Type II SS	F	Prob > F
Intercept	165.40				
CASTF	-0.36	.10	3263.99	13.08	.00
Sex of Subject	4.17	1.44	2087.19	8.37	.00

Table 12 contd.

Step 3: Variable VANDO entered, R Square = .06

Variable	Beta Weight	Standard Error	Type II SS	F	Prob > F
Intercept	156.54				
CASTF	-0.35	.09	3070.26	12.48	.00
VANDO	.26	.09	2098.64	8.53	.00
Sex of Subject	4.68	1.44	2585.98	10.51	.00

Summary of Stepwise Procedure for Intimacy Attitudes

Step	Variable	Partial R Square	F	Prob > F
1	CASTF	.02	11.62	.00
2	Sex of Subject	.02	8.36	.00
3	VANDO	.02	8.53	.00

Note: No other variables met the .05 significance level for entry into the model.

When family adaptability and cohesion and family intimacy were added to the background variables to predict intimacy attitudes the results were quite different. This model also contained interactions which were derived from a conceptual standpoint. Alcoholic parents are believed to have a significant impact upon family functioning (Black, 1979; Black, Bucky & Wilder-Padilla, 1986; Wilson & Orford, 1978) and upon the personality of offspring (Hennecke, 1983). Plausibly, the interactions of these variables may be related to intimacy attitudes. The regression model for predicting intimacy attitudes from background and family environment variables was as follows:

$$\begin{aligned} \text{IAS} = & B_0 + B_1(\text{CASTF}) + B_2(\text{CASTM}) + B_3(\text{VANDO}) + B_4(\text{FACES}) \\ & + B_5(\text{FOS}) + B_6(\text{sex of subject}) + B_7(\text{marital status}) + \\ & B_8(\text{volunteer status}) + B_9(\text{FOS} \times \text{VANDO}) + B_{10}(\text{FACES} \times \text{VANDO}) \\ & + \text{error.} \end{aligned}$$

In the final model shown in Table 13 fathers drinking is no longer a significant predictor of intimacy attitudes. Intimacy in the family of origin is clearly the most important predictor of intimacy attitudes [F(3,531) = 76.51, p < .001] accounting for 13% of the variance.

From Shachter's (1964) two component theory of emotion, it was hypothesised that intimacy was arousing and that

reducers - individuals who seek stimulation - would consequently report more positive attitudes towards it. Results provided in Tables 13 are supportive of this hypothesis although the effect is small. Subjects whose stimulus intensity modulation scores were at the reducing end of the continuum had more positive intimacy attitudes [$F(3,531) = 8.13, p < .005$]. This variable accounted for 1% of the variance.

Volunteer versus non-volunteer status played a small but significant role in predicting intimacy attitudes. Results show that volunteers, i.e. students who were not recruited from the Introductory Psychology Subject Pool, had somewhat more positive attitudes towards intimacy than non-volunteers, [$F(3,531) = 10.30, p < .001$] accounting for 2% of the variance in intimacy attitudes.

Table 13

Stepwise Regression Predicting Intimacy Attitudes from
Family Environment and Family Background

Statistics for entry into the model: df 1,533

Variable	Model R Square	F	Prob > F
FACES	.01	9.98	.00
FOS	.12	76.50	.00
CASTF	.02	11.83	.00
CASTM	.00	2.25	.13
VANDO	.01	7.52	.00
Sex of Subject	.00	.78	.37
Marital Status	.00	.00	.95
Volunteer Status	.01	6.09	.01
FOS * VANDO	.08	51.48	.00
FACES * VANDO	.00	4.37	.04

Step1: Variable FOS entered, R Square = .13

Variable	Beta Weight	Standard Error	Type II SS	F	Prob > F
Intercept	138.78				
FOS	.21	.02	17242.03	76.51	.00

Table 13 contd.

Step 2: Variable Sex of Subject entered, R Square = .14

Variable	Beta Weight	Standard Error	Type II SS	F	Prob > F
Intercept	132.26				
FOS	.22	.02	17972.28	81.14	.00
Volunteer Status	4.40	1.37	2282.16	10.30	.00

Step 3: Variable VANDO entered, R Square = .16

Intercept	124.60				
FOS	.22	.02	17370.57	79.48	.00
VANDO	.24	.08	1777.60	8.13	.00
Volunteer Status	4.86	1.37	2739.13	12.53	.00

Summary of Stepwise Procedure for Intimacy Attitudes

Step	Variable	Partial R Square	F	Prob > F
1	FOS	.13	76.51	.00
2	Volunteer Status	.02	10.30	.00
3	VANDO	.01	8.13	.00

Note: No other variables met the .05 significance level for entry into the model.

DISCUSSION

Summary

The major purpose of this investigation was to determine empirically whether parental alcohol abuse was significantly related to the intimacy attitudes of adult offspring. Previous research had revealed a higher incidence of divorce in the children of alcoholics and had variously attributed this to genetic predisposition (Goodwin et al, 1973), lack of appropriate role modelling (Woititz, 1985), and to poor socialisation in an alcoholic family (Black, 1979).

It seemed reasonable to assume that positive attitudes towards intimacy and intimate behaviours would be amongst the necessary antecedents of satisfactory interpersonal relationships, including of course, marriage. At the time of data collection however, no previous attempts had been made to measure these intimacy orientations of individuals who had experienced parental alcohol abuse, consequently the widely held view that children of alcoholics find intimacy aversive, was largely an assumption. In an attempt to better understand the factors which may, in time contribute to the high divorce rate in this group, an examination of intimacy attitudes was undertaken.

Examination of results from the present study will show that many of the variables used in prediction are significant but account for very small proportions of the variance in their associated criterion measures. Inclusion of these variables in future research may or may not prove fruitful in the understanding of the impact of parental alcohol abuse upon children. Before commenting upon these results, it is appropriate to consider the ongoing debate in the behavioural sciences regarding effect sizes and their implications.

Hays (1981) repeatedly warns that researchers pay far too much attention to the significance test and far too little to the degree of association which the finding represents. Concluding that an association exists reveals nothing about the degree of prediction afforded by that association. It is the latter according to Hays (1981) and not the former which should engage the energies of the serious scientist.

Despite the growing awareness of the importance of estimating the meaning of effect size, it is extremely difficult to evaluate effect size from the point of view of practical utility (Rosenthal, 1984). The question remains as to what magnitude effect size estimators must attain before they can be described as making a significant contribution to prediction. With a good deal of hesitation Cohen and Cohen (1975) proposed broad guidelines regarding

effect sizes describing R^2 as being small at .02, medium at .15, and large at .35. They cautioned however that what may be a large effect for a personality psychologist may be unacceptably small for a sociologist. Implicit in this caution is that the meaning attributed to effect size is peculiar to the topic under investigation. Interestingly, two years later, Cohen (1977) described an effect size as large when it accounted for 14% of the variance. In a meta-analysis of psychotherapy outcome studies, Smith and Glass (1977) found that therapy accounted for 10% of the variance in outcome, a finding which according to Rimland (1979) sounded the deathknell for psychotherapy.

Rosenthal and Rubin (1984) found that neither experienced behavioural researchers nor experienced statisticians had a good intuitive feel for the practical meaning of such common effect size estimators as R^2 and w^2 . They argue that the practical import of small effects can be immense. For example, on October 29th. 1981 the National Heart, Lung and Blood Institute discontinued its placebo - controlled study of the beta blocker, Propranolol, because the results were so favourable to the treatment that it was considered unethical to withhold the drug from the placebo control group. The two year data for this study was based on a sample of 2108 male and female adults. The effect size that led to the discontinuation of the study was $R^2 = .002$. In

other words, Propranolol accounted for one fifth of one per cent of the variance. As Rosenthal and Rubin (1984) point out, behavioural researchers are not used to thinking of an R^2 of .002 as an effect size of any practical significance. This argument mirrors Cohen and Cohen's (1975) in that both agree that the practical import of effect sizes will vary in accordance with the topic under investigation.

In an area of psychology which is lacking in empiricism it is important to identify variables which contribute to prediction; however, recognising those variables which contribute little is also enlightening. Such is the case with the children of alcoholics literature. What may be most useful in reviewing the present results is to compare the relative strength of the variables in relation to their predictive capacity. At this point of the research endeavour in assessing the relationship between parental alcohol abuse and the intimacy attitudes of offspring, it is extremely difficult to evaluate the practical import of these effect sizes.

It must also be remembered that discussion of the results of this study is constrained in view of the fact that a best subset search algorithm was used for regression analysis. In the discussion which follows, the shortcomings of this procedure have been taken into account. Best subset search algorithms do not necessarily find the subset that maximises

the correlation between the set of predictors and the criterion variable. Furthermore, relative importance can not be attributed to selected predictors based upon their stage of entry (Keselman, 1988). Also, in view of the correlation between predictors, it can not be inferred that any single predictor accounts for a unique proportion of variance; only if the correlations between predictors were zero could this be true (Younger, 1985). The partial R values are based, not only upon the variable with which they are directly associated, but on all other variables in the predictor set. The comparative statements which are to be found in the following discussion can be interpreted only in relation to the exact predictor set of which they are a part.

As a final caution to the reader, the sample used in this study has obvious limitations as well as some strengths, when compared to samples used in existing research. First, a university population was used which, while not as representative of the general population as one might want, is less biased than the clinical samples so often used in the children of alcoholics research. A further selection bias which may affect results is that the Introductory Subject Pool is comprised exclusively of subjects enrolled in Psychology courses. Volunteers were also used in this study, and as mentioned previously, they have been found to show a tendency towards sensation-seeking; sensation-seeking

has also been found to be associated with stimulus reducing. In terms of the reports of parental alcohol abuse, this sample appears to be in line with the most recent epidemiological survey of the lifetime prevalence rates of alcoholism (Helzer, 1987).

Children of Alcoholics Screening Test

Data from the Children of Alcoholics Screening Test for fathers (CASTF) and mothers (CASTM) revealed that despite the obvious limitations of the sample of university students used in this study, the prevalence rates of parental alcohol abuse approximated rates in the general population (Helzer, 1987). Rates of alcohol abuse and dependence have been obtained by the Epidemiological Catchment Area Survey (ECA) currently in progress in the United States (Helzer, 1987). The ECA survey is the largest comprehensive epidemiological survey ever done in the field of mental health. The estimates for lifetime prevalence of alcoholism range from 19.1% to 28.9% for males and from 5.3% to 5.8% for women. In the present sample the alcoholism rate for fathers as defined by childrens' reports on the CASTF was 23.9% and for mothers, as defined by childrens' reports on the CASTM was 7.9%.

Results from the Welch (1951) omnibus test (Table 7), indicate that overall, fathers' drinking is significantly

related to family environment along the dimensions of family adaptability and cohesion and family intimacy. The strength of association test indicates that fathers' drinking is more closely associated with family intimacy ($\hat{w}^2 = .20$) than it is with either family adaptability and cohesion ($\hat{w}^2 = .06$) or intimacy attitudes ($\hat{w}^2 = .05$). Mothers' drinking, on the other hand, is only significantly associated with family intimacy ($\hat{w}^2 = .27$).

These associations were probed further to determine the level at which parental drinking was significantly related to family environment and intimacy attitudes. In the case of fathers' drinking its effect upon family adaptability and cohesion and intimacy attitudes of offspring was only significant between extremes of the alcohol use/abuse continuum (i.e., Jones' (1982) categories 1 and 3). By contrast, family intimacy was susceptible to the effects of both mothers' and fathers' drinking at all levels of alcohol use. These results suggest that when environmental outcomes of the alcoholic home are considered, the one which is most likely to be affected by parental alcohol abuse is family intimacy.

Family Environment

A series of regression analyses was carried out in an attempt to build an image of the alcoholic family environment and to identify those variables from within that environment which were significantly related to the intimacy attitudes of offspring. Family adaptability and cohesion (FACES) and family intimacy (FOS) were included in the category of family environment. Each was examined separately as a criterion variable with the aim of predicting family environment from family background. Family background predictors included demographic factors such as sex of subject and marital status, parental alcohol abuse and the personality variable, stimulus intensity modulation. Ultimately, family background and family environment variables were combined into one set which was used in the prediction of intimacy attitudes.

The hypotheses that parental alcohol abuse would negatively relate to family adaptability and cohesion and family intimacy were only partially confirmed. Fathers' drinking is a significant predictor in both cases, however it accounts for only 3% of the variance in family adaptability and cohesion compared to 13% of the variance in family intimacy. Mothers' drinking accounts for only 2% of the variance in family intimacy; it contributes nothing to the prediction of family adaptability and cohesion. The

finding that fathers' drinking has a more pervasive and negative relationship with family functioning conforms to the observations of Wilson and Orford (1978). Their subjects reported that mothers' and fathers' drinking affected family functioning in different ways although adaptability and cohesion and family intimacy were not specifically measured. Fathers' drinking was generally more disruptive due to the fact that it was almost invariably accompanied by aggression. Mothers on the other hand, tended not to be aggressive as a function of drinking and children felt that mothers' alcohol abuse was less threatening to the family as a whole.

Interestingly, examination of results in the present study repeatedly reveals findings such as this, i.e. the differential relationship between mothers' and fathers' drinking and the family environment. This underscores the need for separate examination of maternal and paternal alcohol abuse, a recommendation previously made by Black et al (1986).

While the relationship between fathers' drinking and family adaptability and cohesion was significant, it was, as already noted comparatively weak. Should a larger R^2 have in fact existed, it could have been concealed by methodological factors. First, FACES III measuring adaptability and cohesion, assesses current family

functioning along both of these dimensions. If parental alcohol abuse really does negatively relate to family adaptability and cohesion, this relationship could be ameliorated for those subjects who live away from home. In the present investigation 41% of subjects lived away from home.

Second, data were not derived from subjects which could establish their ages at the onset of parental alcohol abuse. This must be an important consideration in future research. Obviously subjects' perception of parental drinking and its relationship to family functioning will differ as a function of degree of exposure to the drinking and the developmental stage of the child at the time of its inception.

Intimacy in the Family of Origin

It was hypothesised that as parental alcohol abuse increased, perceptions of intimacy in the family of origin would decrease and that positive perceptions of family intimacy would be predictive of positive intimacy attitudes. Consequently, the approach taken in analysis was to first examine the predictors of family intimacy and then to use family intimacy as a predictor variable in the prediction of current intimacy attitudes.

From the examination of results, it is clear that the alcoholic family environment is one in which intimacy and its precursor autonomy, may not be fostered. Both mothers' and fathers' drinking are negatively related to family intimacy; however, fathers' drinking once again accounts for a far greater proportion of the variance ($R^2 = .13$) in comparison to mothers' ($R^2 = .02$). From these results it may be concluded that fathers' drinking, in comparison to mothers drinking has a stronger association with family functioning.

Erikson (1950) believed that the developmental task of intimacy is founded on the earlier development of trust and autonomy. From this premise, the family intimacy paradigm of Hovestadt et al (1985) proposes that the healthy family develops autonomy by emphasising clarity of expression, personal responsibility, respect for other family members, and by dealing openly with separation and loss. Concurrently, the family develops intimacy by encouraging the expression of feelings, creating a warm atmosphere, dealing with conflicts without undue stress, promoting sensitivity in family members, and trusting in the goodness of human nature. It seems reasonable therefore, that parental alcohol abuse will be associated with these aspects of family functioning.

Previous research (Ackerman, 1983; Cork, 1969; Olson & Killorin, 1987; Wilson & Orford, 1978) has implied a negative effect of parental drinking on many of these aspects of family life but they have not previously been identified and examined as a conceptual unity in the form of family intimacy. Doubtless, there are other aspects of family functioning which are related to parental alcohol abuse, however at this point the identification of family intimacy as being so closely associated with parental drinking is enlightening..

As might be expected, males perceived their families as somewhat less intimate than females. It should be noted that this difference accounted for one per cent of the variance in family intimacy. In general it has been found that females tend toward greater overall levels of intimacy than males, particularly when measured by self-report (Davis, 1978). Additional research has demonstrated differing patterns of intimacy functioning in men and women. Peplau, Rubin and Hill (1977) suggested that women are generally viewed as the regulators of intimacy in interpersonal relationships. With particular reference to family intimacy, Lewis (1978) argued that the tendency for males to refrain from the expression of emotional intimacy is a function of societal stress upon competition, aversion to emotional vulnerability, homophobia, and lack of appropriate role models.

Intimacy Attitudes

The same set of variables used to predict family intimacy and family adaptability and cohesion was used to predict intimacy attitudes (Table 12). The expectation that parents' drinking would be negatively related to these attitudes was only partially confirmed. Once again the relationship between parental drinking and the criterion variable differs as a function of the sex of the parent. Fathers' drinking, not mothers' was negatively related to intimacy attitudes but its influence was far weaker ($R^2 = .02$) than that which it exerted upon family intimacy ($R^2 = .13$). As expected, positive attitudes towards intimacy were most likely to be reported by individuals who perceived their families of origin as having assisted them in the development of both autonomy and intimacy.

When family environment variables were combined with family background variables to predict intimacy attitudes (Table 13), parental alcohol abuse made no significant contribution to prediction. Family intimacy had by far, the strongest association with current intimacy attitudes to the exclusion of parents' alcohol abuse.

To reiterate, parental alcohol abuse, as expected, is negatively related to family intimacy and when the same set of predictors is used, fathers' drinking has a negative

although weaker relationship with intimacy attitudes. However, when family intimacy is grouped with family background variables to predict intimacy attitudes, parental alcohol abuse ceases to be important. What these results suggest is that the alcoholic family may be unable to foster intimacy in its environment. Of all the variables included in this study, it is family intimacy which is the most important predictor of intimacy attitudes ($R^2 = .13$). In the final regression model containing family background and family environment variables, family intimacy has a stronger relationship with intimacy attitudes than does parental drinking.

According to Bowen's (1978) theory of the intergenerational influences of behaviour, patterns of interaction in the family of origin are reflected and sustained in other relationships. Williamson (1978) has observed that,

relatively few people are aware of how they continue to be influenced and controlled in their behavior by the unachieved goals and the unresolved problems of parental and grandparental generations (p.94).

For the alcoholic family then, it appears that family intimacy is one aspect of its functioning which is seriously jeopardised. The level of intimacy in the family of origin

is the critical aspect of the alcoholic family environment in explaining the attitudes of offspring towards intimacy.

These results suggest that the contention found in the literature that children of alcoholics find intimacy aversive may be in need of some qualification. The two empirical studies which report this relationship are methodologically flawed. Belestis and Brown (1981) for example, reached their conclusion that the alcoholic family environment contributed to intimacy aversion in children, from the identification of themes extracted from their clinical material. Neither family environment nor intimacy were clearly defined.

Black et al (1986), in their mail survey simply asked subjects to answer "yes" or "no" to the question "Intimacy problems?". In view of the well documented difficulties in defining and describing intimacy (Dahms, 1972; Schaeffer & Olson, 1981; Treadwell, 1981) it may be argued that both Belestis and Brown (1981) and Black et al (1986) conducted very non-specific evaluations of this construct. It can not be deduced from either study how intimacy was defined and which aspect or aspects of it subjects had difficulty with. Consequently, it is not at all clear as to what the relationship was between family functioning and the intimacy issues confronting the adult children in these investigations. It is surprising that from these

underpinnings, these researchers concluded that children of alcoholics find intimacy aversive. The present study, on the other hand, probed the question of "intimacy aversion" with a greater degree of specificity, by defining the aspect of intimacy under examination - namely attitudes - and by using an instrument of measurement which reflected the most precise definition available.

Personality

In investigating the relationship between parental alcohol abuse and stimulus intensity modulation, Hennecke (1984) found that children of alcoholics were predominantly augmenters. Contrary to expectation, results of this study did not reveal the same tendency. Differences in the style of stimulus intensity modulation were not related to either mothers' or fathers' drinking. This difference may be due, in large part, to the markedly different sample characteristics evident in the two studies. Hennecke's (1984) subjects were school children in the 10 to 12 years age range compared to the university students in this study whose approximate age range was 18 to 35. Hennecke (1984) does in fact imply that differences in stimulus intensity modulation across the life span may be expected. Obviously this will not be found in studies such as the present one in which the age range of the sample is limited. Hennecke

(1984) also established that parental alcohol abuse had begun when her subjects were very young, a factor which was not assessed in the present investigation. A final consideration regarding these disparate results is that Hennecke (1984) measured the reducer-augmenter dimension with the Kinesthetic Figural Aftereffect technique as opposed to the Vando pencil and paper measure used in the present study.

Perceptions of adaptability and cohesion were found to vary in accordance with this stimulus intensity modulation. Personality accounted for two per cent of the variance in this aspect of family functioning. Augmenters - individuals who are sensitive to sensory stimulation - perceived their families as being more adaptive and cohesive than either moderates or reducers. From Petrie's (1967) description of the augmenting style of sensory modulation there are two possible explanations for this finding. One is that the augmenters preference for a peaceful environment may encourage these individuals to behave within the family unit, in such a way as to promote harmony among members. The dimensions of adaptability and cohesion, as previously discussed, reflect at their optimal level co-operation and concordance, both of which are more conducive to an augmenting as opposed to a reducing style.

An alternative explanation is that the augmentser's perceptions of of the environment, including family behaviour, may be a function of their style of sensory modulation. It may indeed be more comforting for the augmentser to perceive his/her family as a more co-operative and concordant unit, a perception which is less arousing than the perception of the family as chaotic and unpredictable.

From Schachter's (1964) two component theory of emotion, it was hypothesised that augmentsers and reducers could be differentiated on the basis of their intimacy attitudes. Implicit in this theory is the notion that the affiliative process involves both physical and cognitive arousal. The speculation therefore was that augmentsers - individuals who are sensitive to arousal - would find intimacy more aversive than either reducers or augmentsers. This hypothesis was confirmed in that reducers did have more positive intimacy attitudes than either moderates or augmentsers. Stimulus intensity modulation accounted for one per cent of the variance in intimacy attitudes. This finding is also congruent with Petrie's (1967) suggestion that the desire to be alone characterises the augmenting end of the perceptual reactance continuum, the reverse being true at the reducing end. In the present study, the desire to spend time with others was an important factor in the measurement of

positive intimacy attitudes. Personality is an important consideration in our understanding of interpersonal relationships and the present investigation has clarified one aspect of such relationships, namely intimacy attitudes, which were found to vary with perceptual style.

In conclusion, it should be noted that while personality is a significant predictor of intimacy attitudes it is far less closely associated with these attitudes than family intimacy.

The decision to identify volunteers in this investigation was prudent as it was found that volunteers and non-volunteers could be distinguished according to their intimacy attitudes. The intimacy attitudes of volunteers were distinctly more positive than those of non-volunteers, a finding which can best be explained by stimulus intensity modulation theory. Numerous studies have suggested that persons high in arousal or sensation-seeking are predisposed to volunteer for behavioural research (Kohn, Hunt, Cowles & Davis, 1982; Zuckerman, Schultz & Hopkins, 1967). Other investigators (Barnes, 1985; Barnes & Hoffman, 1975) have found a strong association between sensation-seeking and a reducing style of stimulus intensity modulation. Hence, as would be expected, volunteers and reducers had similar positive attitudes towards intimacy.

Conclusion

This research followed from an investigation by Goodwin et al (1973) in which it was found that adult children of alcoholics were three times more likely to be divorced than the children of non-alcoholics. In the last decade, especially in North America where the incidence of alcoholism has risen dramatically, interest in the offspring of alcoholic parents has grown. A popular notion found in the children of alcoholics literature is that these individuals find intimacy aversive. This assumption generally lacks empirical support. In the research which has been carried out, sampling biases are evident, control groups are absent, and the major construct, intimacy, is inadequately defined and operationalised.

Having addressed these methodological flaws, the conclusion of the present investigation is that parental alcohol abuse poses a major threat to family functioning due to its relationship with family intimacy. While there is a negative relationship between family intimacy and intimacy attitudes, parental drinking per se appears not to be directly related to intimacy attitudes of offspring. Instead, it seems to be related indirectly by its association with intimacy in the family of origin. Therefore, while support has been found for a relationship between parental drinking and intimacy attitudes, this

relationship is indirect. Family intimacy is critical in that when parental drinking and family intimacy are negatively associated, then and only then will intimacy attitudes of offspring be negatively related to parental drinking.

In summary, the widely reported observation that children of alcoholics find intimacy aversive (Ackerman, 1983; Belestis & Brown, 1981; Black, 1979; Black, Bucky & Wilder-Padilla, 1986 1983; Woititz, 1985) is in need of modification. This research has found very little evidence in support of this relationship. First, the correlation between fathers' drinking and intimacy attitudes though significant, is weak ($r = .14$). Mothers' drinking is not significantly correlated with intimacy attitudes. Second, there are no pairwise differences between mean intimacy attitude scores as levels of fathers' drinking increase. Finally, given the set of predictor variables with which it has been associated in this study, parental alcohol abuse does not predict intimacy attitudes. It would however, be quite misleading to suggest that parental alcohol abuse and intimacy attitudes of offspring were in no way related. The results of this study suggest that the relationship exists but that it may be indirect. Parental alcohol abuse is inversely related to family intimacy; family intimacy in turn, is related to intimacy attitudes; differences between

mean intimacy attitude scores are significantly and largely different as levels of family intimacy decrease and family intimacy is the best predictor of intimacy attitudes in this sample. The most important association which has been found is between family intimacy and intimacy attitudes, a relationship which would be predicted by Bowen's (1978) intergenerational model.

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FOOTNOTES

- 1) In consideration of perceptual reduction and augmentation, Petrie (1967), demonstrated that an individual's experience of the size of an object held between the fingers gradually changes; the reducer's perception is that the object's size has been decreased while the augmentser's perception is that it has been increased. The Kinesthetic Figural Aftereffects Task (KFA) is the original measure designed by Petrie (1967), to assess stimulus intensity modulation. The task is time consuming and intricate. Subjects are occupied for 45 minutes without using their hands. This interval was considered essential to allow previous manual stimulation to wear off. The subject is then blindfolded and feels the width of a measuring block with the thumb and forefinger of the right hand. With the thumb and forefinger of the left hand, the subject then feels a long tapered bar and indicates the place on the bar which best corresponds with the width of the measuring block. A stimulation block is then given to the subject to rub with the right thumb and forefinger for 90 seconds. The original measuring block and tapered bar are then given back to the subject and four

separate estimates are made. Measurements are repeated at 15 minute and 48 hour intervals. Petrie (1967), found that at the end of the period of rubbing, the same measuring block was perceived by the extreme augmentser as approximately 50% increased in size and by the extreme reducer as approximately 50% decreased in size. Given identical stimulation therefore, augmentsers magnify it while reducers diminish it. Augmenters will be more highly sensitive to stimulation and more aroused by it. Reducers, on the other hand will be less sensitive to stimulation and less aroused by it. The reducer thus seeks stronger stimulation and the augmentser, weaker stimulation, representing the behavioural attempts to maintain an optimal comfort range in sensory perception.

According to Barnes (1976) the test re-test reliabilities for the KFA have been found to vary quite markedly, from high (.98) to low (.60). The task is complex and susceptible to very subtle subject - experimenter differences from test to test, such as attention span, extraneous noise and exposure to most types of drugs including alcohol and aspirin.

The Average Evoked Response (AER) technique (Buchsbbaum & Silverman, 1968), was developed to reduce the complexity of stimulus intensity modulation

measurement and thereby increase its reliability. The AER utilises neurological readings of evoked responses to visual and auditory stimulation. Although less intricate, the AER is still cumbersome and time consuming and requires the use of some very costly equipment.

Vando (1969), developed a simple pencil and paper test of the reducer- augments dimension which has now been used in various studies (e.g. Kohn & Coulas, 1985) The reliability and validity of the Vando test are well established (Barnes, 1983; Vando, 1974).

- 2) The practical convenience of split-half procedures has no doubt led to their extensive use, however some caution should be exercised when interpreting reliabilities derived in this way as they suffer from a number of limitations. Test scores, for example, represent one individual's response at one time only so that day to day variation in the subject can not be reflected in the reliability coefficient. Also, when the test includes items based on a single element, in this case parental drinking, a spurious resemblance between scores on the two halves may emerge. If correlation is to provide an appropriate estimate of reliability, then the two halves should be independent of each other.

3) The approach used for construct validation of the IASR was to select the following instruments which measured similar or related concepts of intimacy and correlate them with the IASR.

a) Intimacy Behaviour Scale (Treadwell, 1981). This was developed as a measure of intimacy behaviours. A moderate positive correlation between the behaviour scale and the IASR was expected and observed, $r = .33$, $p < .001$.

b) Eysenck Personality Inventory (EPI (Eysenck, 1973). The EPI was selected for its three subscales, extroversion, neuroticism and lie. Studies by Eysenck (1973), have revealed that extroversion is correlated with tough-mindedness, while introversion and neuroticism are correlated with tender-mindedness. A significant positive correlation was expected between extroversion and the IASR and a significant negative correlation anticipated between neuroticism and the IASR. A zero correlation was expected between the lie subscale and the IASR. The correlations were all in the expected direction, but none were significant.

c) Self-Disclosure Scale (Derlega & Chaikin, 1975). Derlega & Chaikin (1975), noted that although it is possible to relate to others without disclosing

personal information, it makes individual problem-solving very burdensome. Self-disclosure has been conceptualised as an important component of intimacy (e.g. Jourard, 1971). Therefore a significant positive correlation between self-disclosure and the IASR was expected. The correlation was low ($r = .17$), but significant.

d) Alienation Scale (Maddi, Kobasa & Hoover, 1979). The alienation scale was chosen for its subscales, many of which are believed to be strongly related to intimacy. The nine subscales include work, social institution, interpersonal relations (lack of intimacy), family interaction, self (aimlessness), powerlessness, apathy, nihilism and adventurousness (engaging in dangerous activities). In their use of the Alienation Scale, Derlega & Chaikin (1975), observed that alienated persons may suffer extreme loneliness, become isolated and depressed and that suicidal tendencies are not uncommon in this group. As expected, significant negative correlations were observed between the subscales of the Alienation Scale and the IASR.

This pattern of correlations indicates that the IASR has moderate validity in terms of its relationship with other scales involving interpersonal relationships.

Appendix A

C.A.S.T.

The statements below describe feelings, behaviours and experiences related to your father's alcohol use. Please answer all 29 questions as either true or false by shading the appropriate box on the I.B.M. sheet.

1. Have you ever thought that your father had a drinking problem?
2. Have you ever lost sleep because of your father's drinking?
3. Have you ever encouraged your father to stop drinking?
4. Have you ever felt alone, scared, nervous, angry or frustrated because your father was not able to stop drinking?
5. Have you ever argued or fought with your father when he was drinking?
6. Have you ever threatened to run away from home because of your father's drinking?

7. Has your father ever yelled at you or hit you or other family members when drinking?
8. Have you ever heard your parents fight when your father was drinking?
9. Have you ever protected another family member from your father when he was drinking?
10. Have you ever felt like hiding or emptying a parents' bottle of liquor?
11. Do many of your thoughts revolve around your father's drinking or difficulties that arise because of his drinking?
12. Have you ever wished that your father would stop drinking?
13. Have you ever felt responsible for your father's drinking?
14. Have you ever thought that your parents would get divorced due to your father's alcohol misuse?
15. Have you ever withdrawn from and avoided outside activities and friends because of embarrassment and shame over your father's drinking problem?

16. Have you ever felt caught in the middle of an argument between your problem-drinking father and your mother?
17. Have you ever felt that you made your father drink alcohol?
18. Have you ever felt that your father did not love you?
19. Have you ever resented your father's drinking?
20. Have you ever worried about your father's health because of his alcohol use?
21. Have you ever been blamed for your father's drinking?
22. Have you ever thought that your father was an alcoholic?
23. Have you ever wished that your home could be more like the homes of your friends who did not have a father with a drinking problem?
24. Has your father ever made promises to you that he was unable to keep because of drinking?
25. Have you ever wished that you could talk to someone who could understand and help your father's alcohol related problems?
26. Have you ever fought with your brothers and/or sisters about your father's drinking?

27. Did you ever stay away from home to avoid your father when he was drinking?
28. Have you ever felt sick, cried or had a 'knot' in your stomach after worrying about your father's drinking?
29. Have you ever taken over duties or chores at home that were usually done by your father before he developed a drinking problem?

C.A.S.T.

The statements below describe feelings, behaviours and experiences related to your mother's alcohol use. Please answer all 29 questions as either true or false by shading the appropriate box on the I.B.M. sheet.

1. Have you ever thought that your mother had a drinking problem?
2. Have you ever lost sleep because of your mother's drinking?
3. Have you ever encouraged your mother to stop drinking?
4. Have you ever felt alone, scared, nervous, angry or frustrated because your mother was not able to stop drinking?
5. Have you ever argued or fought with your mother when she was drinking?
6. Have you ever threatened to run away from home because of your mother's drinking?
7. Has your mother ever yelled at you or hit you or other family members when drinking?
8. Have you ever heard your parents fight when your mother was drinking?

9. Have you ever protected another family member from your mother when she was drinking?
10. Have you ever felt like hiding or emptying your mother's bottle of liquor?
11. Do many of your thoughts revolve around your mother's drinking or difficulties that arise because of her drinking?
12. Have you ever wished that your mother would stop drinking?
13. Have you ever felt responsible for your mother's drinking?
14. Have you ever thought that your parents would get divorced due to your mother's alcohol misuse?
15. Have you ever withdrawn from and avoided outside activities and friends because of embarrassment and shame over your mother's drinking problem?
16. Have you ever felt caught in the middle of an argument between your problem-drinking mother and your father?
17. Have you ever felt that you made your mother drink alcohol?
18. Have you ever felt that your mother did not love you?
19. Have you ever resented your mother's drinking?

20. Have you ever worried about your mother's health because of her alcohol use?
21. Have you ever been blamed for your mother's drinking?
22. Have you ever thought that your mother was an alcoholic?
23. Have you ever wished that your home could be more like the homes of your friends who did not have a mother with a drinking problem?
24. Has your mother ever made promises to you that she was unable to keep because of drinking?
25. Have you ever wished that you could talk to someone who could understand and help your mother's alcohol related problems?
26. Have you ever fought with your brothers and/or sisters about your mother's drinking?
27. Did you ever stay away from home to avoid your mother when she was drinking?
28. Have you ever felt sick, cried or had a 'knot' in your stomach after worrying about your mother's drinking?
29. Have you ever taken over duties or chores at home that were usually done by your mother before she developed a drinking problem?

VANDO REDUCER-AUGMENTER SCALE

Following you will find a series of paired statements which you are asked to regard as choices. In some cases you will dislike both choices. In other cases you will find the choices neutral. No matter how the items strike you, please choose between them. In each case, you are to decide which of the alternatives you prefer in comparison to the other alternative and then to indicate your selection by shading the appropriate box on the I.B.M. sheet. It is important to answer all items. Do not skip any. It is best to work as rapidly as possible.

- 31. a) see a war drama
b) see a situation comedy
- 32. a) play sports requiring endurance
b) play games with rest stops
- 33. a) raunchy blues
b) straight ballads
- 34. a) jazz combo
b) 1001 strings
- 35. a) stereo on too loud
b) stereo on too low
- 36. a) own a goldfish
b) own a turtle

37. a) conservatism
b) militantism
38. a) too much sleep
b) too little sleep
39. a) danger
b) domesticity
40. a) passenger car
b) sports car
41. a) have several pets
b) have one pet
42. a) be a shepherd
b) be a cowboy
43. a) motorcycle
b) motor scooter
44. a) see the movie
b) read the book
45. a) cocktail music
b) discotheque music
46. a) do research in the library
b) attend a classroom lecture
47. a) a hot drink
b) a warm drink

- 48. a) a drum solo
b) a string quartet
- 49. a) too much exercise
b) too little exercise
- 50. a) loud music
b) quiet music
- 51. a) prepare medications
b) dress wounds
- 52. a) a driving beat
b) a nice melody
- 53. a) hard rock music
b) regular popular music
- 54. a) like athletics
b) dislike athletics
- 55. a) unamplified music
b) electrically amplified music
- 56. a) smooth-textured foods
b) crunchy foods
- 57. a) wake-up pill ("upper")
b) sleeping pill ("downer")
- 58. a) speed
b) safety

- 59. a) rock music
b) ballads
- 60. a) soccer
b) golf
- 61. a) excitement
b) calm
- 62. a) a family of six
b) a family of three
- 63. a) thrills
b) tranquility
- 64. a) play contact sports
b) non-contact sports
- 65. a) live in a crowded home
b) live alone
- 66. a) share intimacy
b) share affections
- 67. a) games emphasising speed
b) games paced slowly
- 68. a) thinking
b) doing
- 69. a) competitive sports
b) non-competitive sports

70. a) emotionally expressive, somewhat unstable people
b) calm, even-tempered people
71. a) be a nurse on an acute care ward
b) be a nursing home operator
72. a) be a NASA scientist
b) be an astronaut
73. a) be a stuntman
b) be a propman
74. a) a job which requires a lot of travel
b) a job which keeps you in one place
75. a) climb a mountain
b) read about a dangerous adventure
76. a) body odors are disgusting
b) body odors are appealing
77. a) keep on the move
b) spend time relaxing
78. a) have a cold drink
b) have a hot drink
79. a) being confined alone in a room
b) being free in the desert
80. a) security
b) excitement

- 81. a) continuous anesthesia
b) continuous hallucinations

- 82. a) water skiing
b) boat rowing

- 83. a) hostility
b) conformity

- 84. a) traditional art (e.g. Renoir)
b) abstract art (e.g. Picasso)

FACES III

Following you will find a series of statements which describe family behaviours. Use the scale to identify the response which most closely describes your family now. Remember, there are no right or wrong answers. What is important is that you answer as honestly as you can.

- a) almost never
- b) once in a while
- c) sometimes
- d) frequently
- e) never

- 86. Family members ask each other for help.
- 87. In solving problems, the children's suggestions are followed.
- 88. We approve of each others friends.
- 89. Children have a say in their discipline.
- 90. We like to do things with just our immediate family.
- 91. Different persons act as leaders in our family.
- 92. Family members feel closer to other family members than to people outside the family.
- 93. Our family changes its way of handling tasks.
- 94. Family members like to spend free time with each other.

95. Parent(s) and children discuss punishment together.
96. Family members feel very close to each other.
97. the children make the decisions in our family.
98. When our family gets together for activities, everybody is present.
99. Rules change in our family.
100. We can easily think of things to do together as a family.
101. We shift household responsibilities from person to person.
102. Family members consult other family members on their decisions.
103. It is hard to identify the leader(s) in our family.
104. Family togetherness is very important.
105. It is hard to tell who does which household chores.

THE FAMILY OF ORIGIN SCALE

The family of origin is the family in which you spent most or all of your childhood years. This scale is designed to help you recall how your family of origin functioned. Each family is unique and has its own way of doing things, thus there are no right or wrong choices in this scale. What is important is that you respond as honestly as you can. In reading the following statements, apply them to your family of origin as you remember it. Using the following scale, choose the response which best describes your family of origin and shade the appropriate box on the I.B.M. sheet.

- a) strongly disagree
- b) disagree
- c) neutral
- d) agree
- e) strongly agree

107. In my family it was normal to show both positive and negative feelings.
108. The atmosphere in my family usually was unpleasant.
109. In my family we encouraged one another to develop new friendships.
110. Differences of opinion in my family were discouraged.

111. People in my family often made excuses for their mistakes.
112. My parents encouraged family members to listen to one another.
113. Conflicts in my family never got resolved.
114. My family taught me that people were basically good.
115. I found it difficult to understand what other family members said and how they felt.
116. We talked about our sadness when a relative or family friend died.
117. My parents openly admitted it when they were wrong.
118. In my family, I expressed just about any feeling I had.
119. Resolving conflicts in my family was a very stressful experience.
120. My family was receptive to the different ways various family members viewed life.
121. My parents encouraged me to express my views openly.
122. I often had to guess at what other family members thought or how they felt.

123. My attitudes and feelings frequently were ignored or criticised in my family.
124. My family members rarely expressed responsibility for their actions.
125. In my family, I felt free to express my own opinions.
126. We never talked about our grief when a relative or family friend died.
127. Sometimes in my family, I didn't have to say anything, but I felt understood.
128. The atmosphere in my family was cold and negative.
129. The members of my family were not very receptive to one another's views.
130. I found it easy to understand what other family members said and how they felt.
131. If a family friend moved away, we never discussed our feelings of sadness.
132. In my family, I learned to be suspicious of others.
133. In my family, I felt that I could talk things out and settle conflicts.

134. I found it difficult to express my own opinions in my family.
135. Mealtimes in my home usually were friendly and pleasant.
136. In my family, no one cared about the feelings of other family members.
137. We usually were able to work out conflicts in my family.
138. In my family, certain feelings were not allowed to be expressed.
139. My family believed that people usually took advantage of you.
140. I found it easy in my family to express how I thought and how I felt.
141. My family members usually were sensitive to one another's feelings.
142. When someone important to us moved away, our family discussed our feelings of loss.
143. My parents discouraged us from expressing views different from theirs.

144. In my family, people took responsibility for what they did.

145. My family had an unwritten rule; 'don't express your feelings'.

146. I remember my family as being warm and supportive.

INTIMACY ATTITUDE SCALE (REVISED)

The following items reflect feelings and attitudes that people have toward others and relationships with others. Again, there are no right or wrong answers. Please answer as honestly as you can. From the scale provided, select the response which best describes your own feelings and attitudes and shade the appropriate box on the I.B.M. sheet.

- a) strongly disagree
- b) disagree
- c) neutral
- d) agree
- e) strongly agree

148. I like to share my feelings with others.
149. I like to feel close to other people.
150. I like to listen to other people talk about their feelings.
151. I am concerned with rejection in my expression of feelings to others.
152. I'm often anxious about my own acceptance in a close relationship.
153. I'm concerned that I trust other people too much.

154. Expression of emotion makes me feel close to another person.
155. I would not want to express my feelings if they would hurt another person.
156. I am overly critical of people in a close relationship.
157. I want to feel close to the people I am attracted to.
158. I tend to reveal my deepest feelings to other people.
159. I'm afraid to talk about my sexual feelings with a person in whom I'm very interested.
160. I want to be close to a person who is attracted to me.
161. I would not become too close because it involves conflicts.
162. I seek out close relationships with people to whom I am attracted.
163. When people become close, they tend not to listen to each other.
164. Intimate relationships bring me great satisfaction.
165. I search for close, intimate relationships.
166. It is important to me to form close relationships.

167. I do not need to share my feelings and thoughts with others.
168. When I become very close to another, I am likely to see things that are hard for me to accept.
169. I tend to accept most things about people with whom I share a close relationship.
170. I defend my personal space so that others do not come too close.
171. I tend to distrust people who are concerned with closeness and intimacy.
172. I have concerns about losing my individuality in close relationships.
173. I have concerns about giving up control if I enter into a really intimate relationship.
174. Being honest and open with another person makes me feel close to that person.
175. If I were another person, I would be interested in getting to know me.
176. I only come close to people with whom I share common interests.

177. Revealing secrets about my sex life makes me feel close to others.
178. Generally, I can feel just as close to a woman as I can to a man.
179. When another person is physically attracted to me, I usually want to become more intimate.
180. I have difficulty being intimate with more than one person.
181. Being open and intimate with another person usually makes me feel good.
183. I usually can see another person's point of view.
184. I want to be sure that I am in good control of myself before I attempt to become intimate with another person.
185. I resist intimacy.
186. Stories of interpersonal relationships tend to affect me.
187. undressing with members of a group increases my feeling of intimacy.
188. I try to trust and be close to others.

189. I think that people who want to become intimate have hidden reasons for wanting closeness.
190. When I become intimate with another person, the possibility of my being manipulated is increased.
191. I am generally a secretive person.
192. I feel that sex and intimacy are the same and that one can not exist without the other.
193. I can only be intimate in a physical, sexual relationship.
194. The demands placed on me by those with whom I have intimate relationships often inhibit my own need satisfaction.
195. I would compromise to maintain an intimate relationship.
196. When I am physically attracted to another person, I usually want to become intimate with that person.
197. I understand and accept that intimacy leads to bad feelings as well as good feelings.

INTIMACY BEHAVIOUR SCALE REVISED

The following items reflect behaviours in intimate relationships with others. Please answer all 43 questions as either true or false by shading the appropriate box on your I.B.M. sheet. Remember, there are no right or wrong answers, but it is important that you answer as honestly as you can.

- a) true
- b) false

1. I spend enough time with the person I feel closest to.
2. I touch the people I am close with.
3. The people I am closest to have experienced my different moods.
4. I have expressed anger to someone I am close to.
5. I often enjoy flirting with people.
6. I am pleasant to be with.
7. I do not fight over things in my close relationships.
8. I fantasise or dream about my intimate relationships.
9. I easily reveal past intimate experiences in close relationships.
10. My vulnerable areas are known to my close friends.

11. I have expressed my future goals and wishes to close friends.
12. I often express my feelings with the intensity I wish.
13. When I am upset, I communicate non-verbally or in some other non-direct way.
14. If I could not get to see a friend, I would call them on the phone.
15. I do not discuss sex in intimate relationships.
16. I easily give compliments to people I like.
17. While talking with someone, I find it difficult to make eye contact.
18. I often spend time alone.
19. I tend to interrupt often during conversations in close relationships.
20. When I feel a friend is becoming distant, I take the initiative to enquire.
21. When I am not sure of what someone close says, I ask for clarification.
22. Close friends have cried in my presence.

23. In conversation, if I sense that my close friend is uncomfortable about the subject, I tend to change the subject.
24. When I strongly feel attracted to a person, I tend to avoid them.
25. When in conflict with someone close, I express how I feel.
26. I mention uncomfortable feelings to close friends as they occur.
27. I do not generally cry for sympathy in close relationships.
28. I am attracted to people who focus on discussing our relationship rather than talking about their own lives.
29. I make efforts to seek intimate relationships.
30. I lose sleep over problems in close relationships.
31. I generally hug a person with whom I am close.
32. I often get bored when I am with people.
33. There have been events in my life which I have not shared with anyone.
34. I trust people.

35. I would risk a compromise to maintain or enhance a relationship.
36. I am easy to relate to.
37. When I start to feel uncomfortable in conversation, I change the subject.
38. When I am really interested in developing a relationship with someone, I keep the negative feelings to myself.
39. I find it difficult to say no to people I am close to.
40. Developing close relationships has been difficult for me.
41. I generally give and take freely to establish relationships.
42. I am sensitive to other people's needs.
43. I prefer sexual relationships with no strings attached.

DEMOGRAPHIC QUESTIONNAIRE

Following are questions related to your personal background. Please choose one answer for each question and shade the appropriate box on the I.B.M. sheet.

199. What is your gender?

- a) female
- b) male

200. What is your marital status?

- a) single - never married
- b) married or equivalent
- c) separated or divorced

201. Do you have,

- a) brothers
- b) sisters
- c) both

202. Are you,

- a) the youngest child
in your family?
- b) a middle child
in your family?
- c) the eldest child
in your family?

203. Are you presently,

- a) living with your parents

- b) living with relatives other than
your parents
- c) living with friends
- d) living in residence
- e) living alone

204. When you were growing up was your father employed?

- a) always
- b) sometimes
- c) never

205. When you were growing up was your mother employed?

- a) always
- b) sometimes
- c) never

206. When you were growing up did your parents,

- a) own a home
- b) rent a home or apartment

207. When you were growing up, was there an automobile available for family use?

- a) yes
- b) no

208. Did you grow up in

- a) a city
- b) a town

c) a rural area

209. When you were growing up was your mother in good health?

a) most of the time

b) some of the time

c) rarely

d) never

210. When you were growing up, was your father in good health,

a) most of the time

b) some of the time

c) rarely

d) never

211. When you were growing up, did your parents quarrel,

a) frequently

b) rarely

c) never

212. Is English your first language?

a) yes

b) no

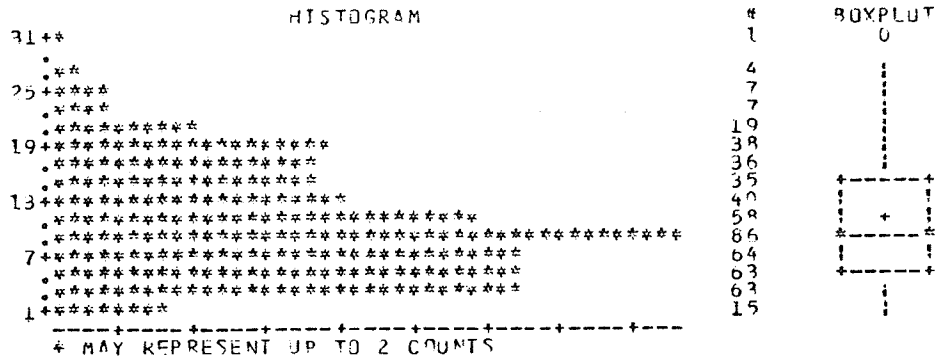
Appendix B

Normal Probability Plots

VARIABLE= FACES

MOMENTS

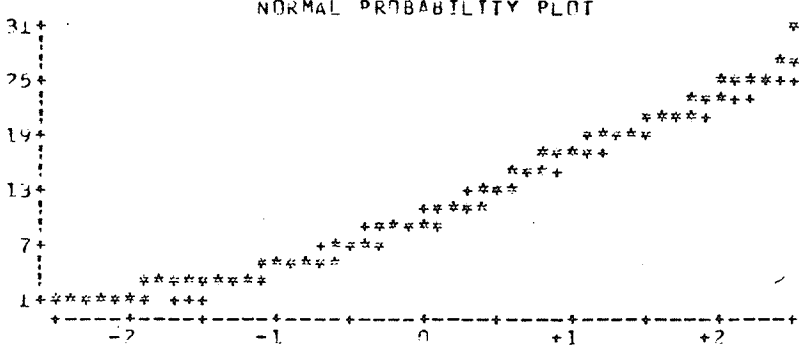
N	536	SUM WGTs	536
MEAN	10.5150	SUM	5630.52
STD DEV	5.94875	VARIANCE	35.3876
SKEWNESS	0.595077	KURTOSIS	-0.305650
USS	78205.4	CSS	18937.4
CV	56.5691	STD MEAN	0.250947
T-MEAN=0	40.9263	PROB>T!	0.0001
SGN RANK	71958	PROB>S!	0.0001
NUM ^=0	536		
D=NORMAL	0.0872280	PRRBD	<.01



QUANTILES (DIFF=4)				EXTREMES	
100% MAX	30.4179	99%	25.8465	LOWEST	HIGHEST
75% Q3	14.8408	95%	21.0345	0.223607	26.0893
50% MEAN	9.29782	90%	19.2410	0.806226	27.1118
25% Q1	5.74883	10%	3.3650	0.805226	27.2360
0% MIN	0.723607	5%	2.35751	0.806226	27.9508
		1%	1.1490	1.11803	30.4179

RANGE	30.1943
Q3-Q1	9.09199
MODE	3.90512

MISSING VALUE
COUNT 6
% COUNT/NORS 1.11

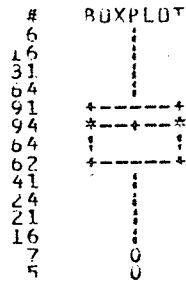
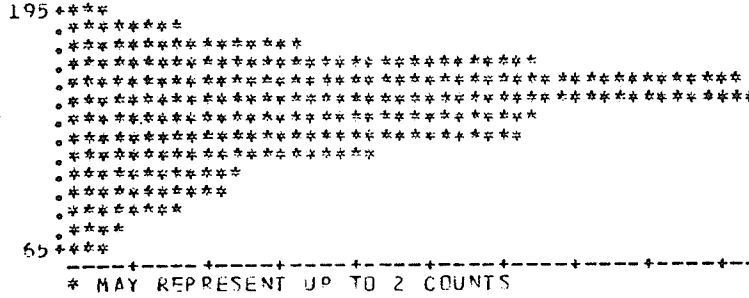


VARIABLE=FOS

MOMENTS

N	542	SUM WGTs	542
MEAN	140.275	SUM	76029
STD DEV	25.9916	VARIANCE	675.564
SKEWNESS	-0.554307	KURTOSIS	.000477602
USS	11030441	CS	365480
CV	18.5291	STD MEAN	1.11644
T:MEAN=0	125.645	PROB>T!	0.0001
SGN RANK	73576.5	PROB>S!	0.0001
NUM ^=0	542		
D:NORMAL	0.0841874	PROB>D	<.01

HISTOGRAM



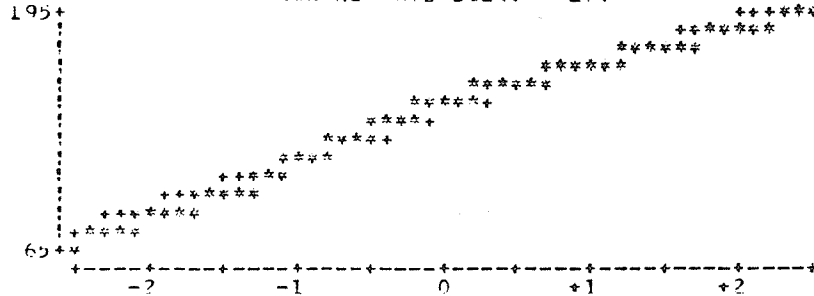
QUANTILES (DF=4)

100% MAX	199	90%	191
75% Q3	159	95%	177.85
50% MED	145	90%	170
25% Q1	124	10%	107
0% MIN	61	5%	90
		1%	71.29
RANGE	138		
Q3-Q1	35		
MODE	150		

EXTREMES

LOWEST	HIGHEST
61	191
65	192
66	193
67	193
70	190

NORMAL PROBABILITY PLOT

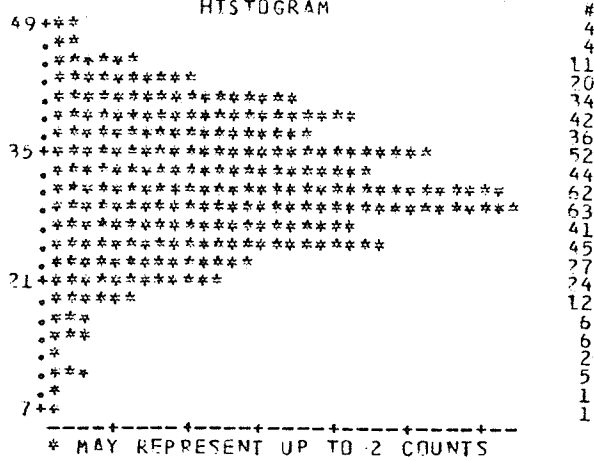


VARIABLE=VAND0

MOMENTS

N	542	SUM WGT5	542
MEAN	30.8635	SUM	16722.8
STD DEV	7.52026	VARIANCE	56.5543
SKEWNESS	-0.205918	KURTOSIS	-0.112039
USS	546880	CSS	30595.0
CV	24.3662	STD MEAN	0.373023
T=MEAN=0	95.5458	PROB>T!	0.0001
SGN RANK	73576.5	PROB>S!	0.0001
NUM ^=0	542		
D=NORMAL	0.0483419	PROB>D	<.01

HISTOGRAM



QUANTILES (DEF=4)

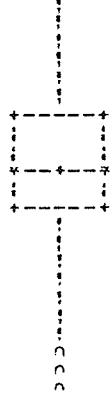
100% MAX	49
75% Q3	36.25
50% MED	31
25% Q1	26
0% MIN	7
RANGE	42
Q3-Q1	10.25
MUDE	28

90%	47
45%	42.85
40%	41
10%	21
5%	19
1%	11

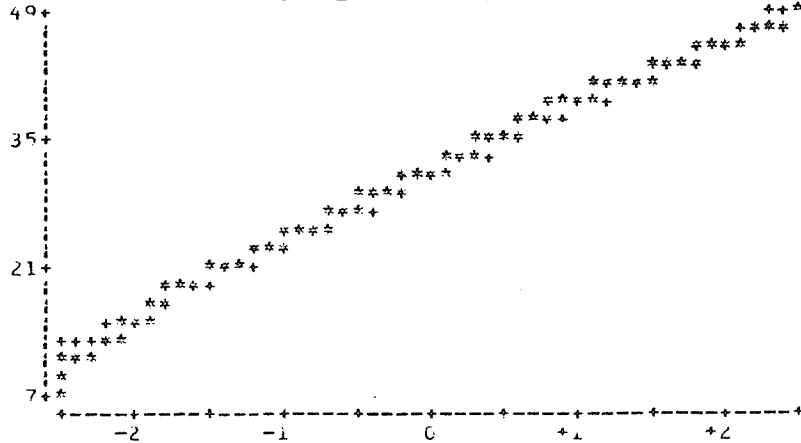
EXTREMES

LOWEST	HIGHEST
7	47
8	48
10	48
10	49
11	49

BOXPLOT



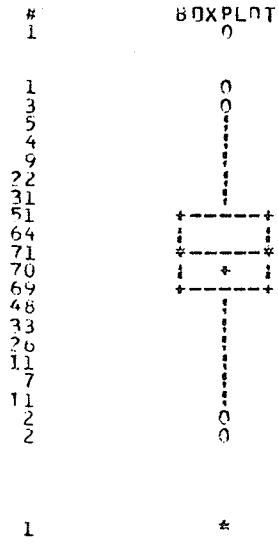
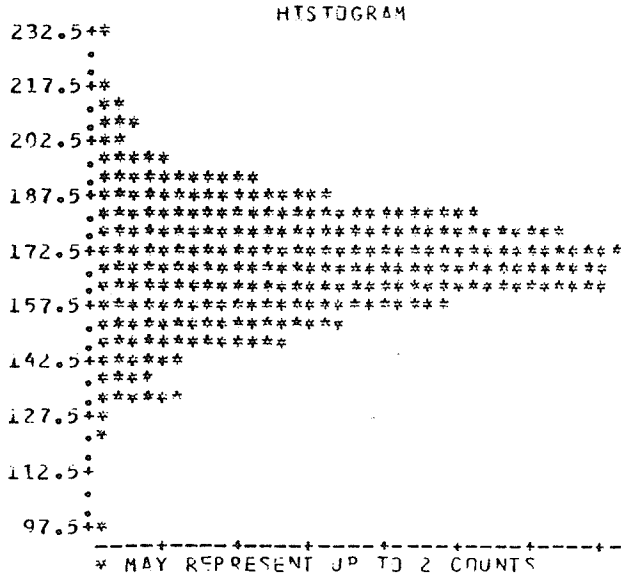
NORMAL PROBABILITY PLOT



VARIABLE=JAS

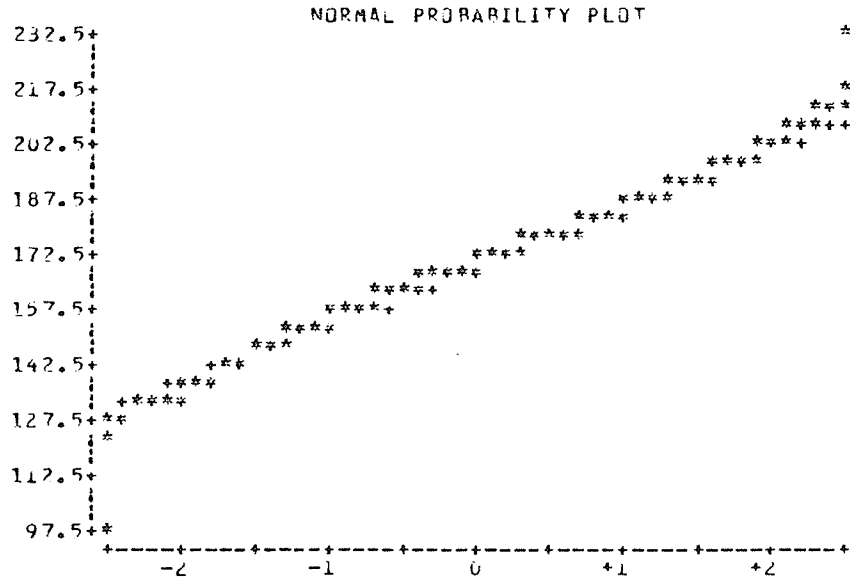
MOMENTS

N	542	SUM WGT	542
MEAN	169.504	SUM	91871
STD DEV	16.0442	VARIANCE	257.415
SKEWNESS	-0.135012	KURTOSIS	1.14362
USS	15711735	CSS	139261
CV	9.46537	STD MEAN	0.689156
T=MEAN=0	245.959	PROR>IT!	0.0001
SGN RANK	73576.5	PROR>IS!	0.0001
NUM A=0	542		
D=NORMAL	0.0533873	PROR>D	<.01



VARIABLE=IAS contd.

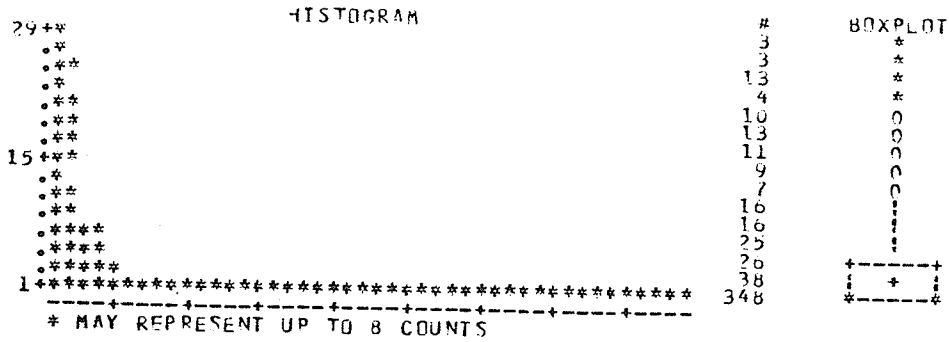
QUANTILES (DEF=4)				EXTREMES	
100% MAX	232	99%	211.71	LOWEST	HIGHEST
75% Q3	180	95%	195	97	213
50% MED	170	90%	180	122	215
25% Q1	160	10%	150	125	217
0% MIN	97	5%	143	126	217
		1%	129.15	127	237
RANGE	135				
Q3-Q1	20				
MUDE	171				



VARIABLE=CASTF

MOMENTS

N	542	SUM WGT5	542	100% MAX	
MEAN	3.07417	SUM	2154	75% Q3	
STD DEV	6.81599	VARIANCE	46.4577	50% MED	
SKEWNESS	1.89146	KURTOSIS	2.56684	25% Q1	
USS	33694	CSS	25133.6	0% MIN	
CV	171.507	STD MEAN	0.292772	RANGE	29
T:MEAN=0	13.5743	PROB>IT!	0.0001	Q3-Q1	20
SGN RANK	16065	PROB>IS!	0.0001	MODE	0
NUM ^ = 0	260				
D:NORMAL	0.310776	PROB>D	<.01		

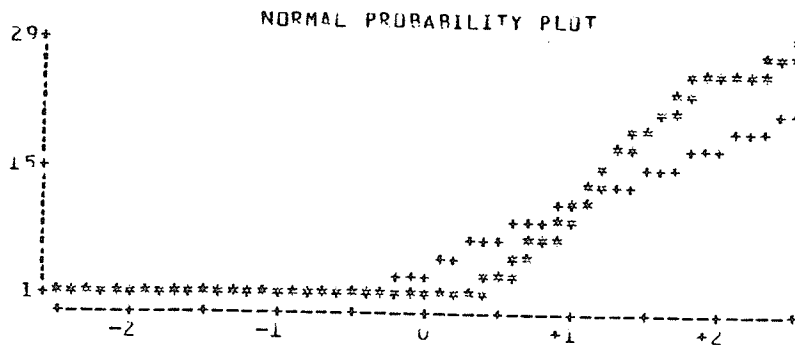


QUANTILES (DEF=4)

29	99%	26.57
5	95%	20.85
0	90%	16
0	10%	0
0	5%	0
0	1%	0

EXTREMES

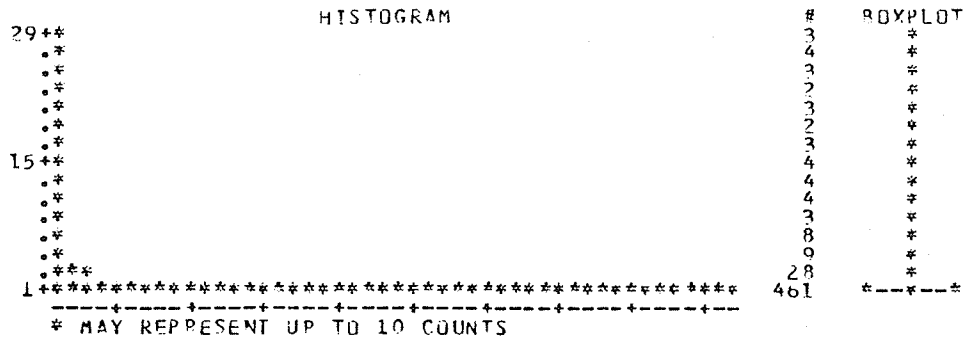
LOWEST	HIGHEST
U	27
U	27
U	28
U	28
U	29



VARIABLE=CASTM

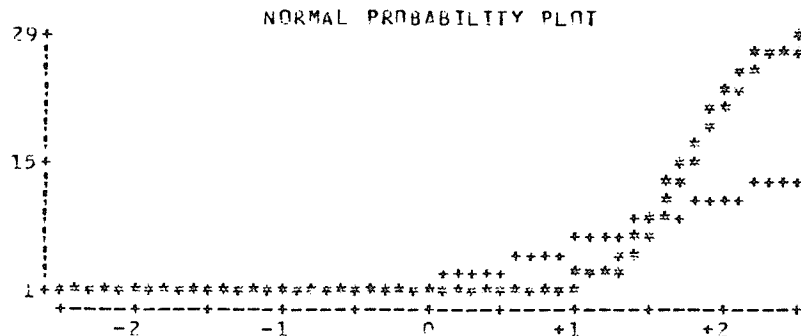
MOMENTS

N	541	SUM WGT5	541
MEAN	1.55638	SUM	842
STD DEV	4.78956	VARTANCE	22.9399
SKEWNESS	3.96426	KURTOSIS	15.863
USS	13698	CSS	12387.5
CV	307.738	STD MEAN	0.205919
T:MEAN=0	7.55819	PROB>T!	0.0001
SGN RANK	4192.5	PROB>S!	0.0001
NUM ^=0	120		
D:NORMAL	0.398365	PROB>D	<.01



QUANTILES (DEF=4)				EXTREMES	
				LOWEST	HIGHEST
100% MAX	29	99%	26.58	U	27
75% Q3	U	95%	12.9	U	27
50% MED	U	90%	3	U	28
25% Q1	U	10%	0	U	28
0% MIN	U	5%	0	U	28
		1%	0	U	29
RANGE	29				
Q3-Q1	U				
MODE	U				

MISSING VALUE
COUNT 1
% COUNT/NORS 0.18



Appendix C

Statistical Tests

WELCH OMNIBUS TEST (WELCH, 1951).

$$F = \frac{\sum w_k (\bar{X}_k - \bar{X}'_{.})^2}{k - 1} \bigg/ 1 + \frac{2(k - 2)}{k^2 - 1} \sum \left(\frac{1}{n_k - 1} \right) \left(1 - \frac{w_k}{\sum w_k} \right)^2$$

where

$$w_k = \frac{n_k}{s_k^2} \quad \text{and} \quad \bar{X}'_{.} = \frac{\sum w_k \bar{X}_k}{\sum w_k}$$

This statistic (F) is approximately distributed as F on $k - 1$ and df degrees of freedom, where

$$df = \frac{k^2 - 1}{3 \sum \left(\frac{1}{n_k - 1} \right) \left(1 - \frac{w_k}{\sum w_k} \right)^2}$$

OMEGA SQUARED MEASURE OF ASSOCIATION

(Maxwell, Camp & Arvey, 1981)

$$\hat{\omega}_w^2 = \frac{SS_B - (k - 1) MS_W}{SS_T + MS_W}$$