# LONELINESS AND RECALL AND CURRENT PERCEPTION OF FAMILY AND SOCIAL RELATIONSHIPS, PERSONALITY CHARACTERISTICS, AND LINEAGE TRANSMISSION.

by

Judith F. Lobdell

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

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ABSTRACT

This study was intended to examine a system of interrelated family, social interaction and personality variables for their relationship to amount of loneliness experienced. Several issues were addressed. First, to what extent are persons' perceptions of the quality of their relationship with parents, when they were children and currently, associated with loneliness, and how these perceptions are differentiated for mothers and fathers. Second, to what extent are the perceptions of the quality of early peer interactions related to loneliness, and what association is there between what is reported about peer relationships and the relationship with parents. Third, the study examined the possibility of a lineage transmission of loneliness, in other words, whether lonely parents have children for whom loneliness is also an experience of adult life. Fourth, since aspects of the individual's current life may serve to attenuate or accentuate the experiencing of loneliness, the study also examined how personality characteristics, such as social skills, self-esteem, and depression, and perceptions of current friendships are related to loneliness.

The sample used for the study comprised 130 triads of female students, their mothers, and their fathers. To qualify

for the study, students were to be between the ages of 17 and 24 years, unmarried, and living at home with their biological parents. Female students were chosen in order to limit the sources of variability that would be present if male students were also included, and to allow a more intensive study of a specified group.

Students and their parents commonly completed measures of loneliness, social skills, self-esteem, depression, quality of current friendship relationships, and responded to two social comparison questions regarding the number and the quality of their friendships compared to others. In addition students gave retrospective reports of parental behaviours and their attitudes to parents when they were children, retrospective reports of their early relationships with peers, and reports of current closeness to parents. Recognition was given to the limitations of retrospective reports, but there is support that in them may be contained an element of the actual nature of early sensory and perceptual data.

The data were subjected to multivariate analysis procedures to determine the variables that have the strongest relationships with student loneliness. Seven specific hypotheses were tested through the use of various statistical procedures including simple correlation, regression analysis, analysis of variance, and canonical correlation.

Results show that reported early parent-child relationship has the strongest relationship with loneliness, followed by student personality characteristics, student perception of number of friends compared to others, and student perception of quality of friendships compared to others, in that order. Other findings may be summarised as follows: While social skills, self-esteem, and depression are individually significantly related to student loneliness, depression tends to neutralize the effects of social skills and self-esteem, so that even if students are high on these qualities they will be more lonely if they are depressed. Students who report a more positive relationship with parents are less lonely, but the level of parents' adjustment as measured by their social skills, self-esteem, depression, and loneliness, had limited effect on how positively students remember their relationship with them. Marital satisfaction, as reported by both parents, had the best relationship with how positively students report the parent-child relationship. The linkage between how positively students recall their relationship with parents and the reported extent of their early peer relationships was established, but the hypothesis of a relationship between early peer relationships and later loneliness was not supported. The strongest relationship was found between loneliness and how students recall their early relationship with parents, with most of weight of this relationship being attributable to what students recall about their relationship with their

mothers, as opposed to fathers. This differentiation was seen also in the finding regarding the lineage transmission of loneliness, where it was found that students were more lonely if their mothers were also more lonely, and that this occurred where students reported a more positive relationship with them. This was not found in the case of fathers.

The study supports the view of the importance of the family as the context in which the individual's positive orientation to others is established, and which sets into motion the mechanisms for the development of the abilities needed for the individual to seek and maintain satisfying social relationships outside the family.

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# INTRODUCTION

Loneliness, as a phenomenon in the lives of individuals, has become increasingly recognised as a psychological and clinical problem. The concern of researchers and clinicians is not as much with the pervasive loneliness which seems to be an inevitable aspect of human existence, referred to as existential loneliness (Moustakas, 1961), as with the distinctive type of loneliness that could be regarded as a threat to mental health. Many writers on the subject have made this distinction between the normal aspects of loneliness and pathological loneliness (e.g., Fromm-Reichmann, 1959; Zilboorg, 1938), and additionally, have sought conceptual clarification of loneliness to distinguish it from related phenomena, such as physical aloneness, isolation,and solitude (Mijuskovic, 1977b; Sadler, 1978).

Surprisingly, until recently, very little study has been made of loneliness, despite its recognised widespread and frequent occurence and its potential for causing human distress. But what treatment there has been of the subject, so far, seems to fall into fairly distinctive stages. The earliest explication of loneliness seems to have occurred within the provinces of literature, philosophy, and religion, which offered unambiguous descriptions of the feelings of

loneliness (Mijuscovic, 1977a). An early Freudian analysis was offered by Zilboorg (1938) and incidental references were made to loneliness by Sullivan (1953), but a concern with the condition was more explicitly brought into the arena of clinicians by Fromm-Reichnmann (1959), who remarked at the reluctance of her professional colleagues to seek scientific clarification of the subject. Works, such as those by Moustakas (1961), Slater (1970), and Weiss (1973), stimulated awareness of loneliness as an entrenched problem of human existance, its prevalence and possible reasons for its existence. These seemed to have opened the field to interests with more of a research orientation. Research subjects gave self-reports of their loneliness, and scales were developed to measure the phenomenon as a prerequisite for a more scientific treatment, notably by Belcher (1973), Russell, Peplau, and Ferguson (1978), and Russell, Peplau, and Cutrona (1980). Using correlational studies primarily, researchers sought to establish relationships between loneliness and other personality characteristics (e.g., Gerson & Perlman, 1979; Jones, Freemon, & Goswick, 1981; Moore & Sermat, 1974), on the one hand, and discriminant analysis techniques to distinguish loneliness from its possible cognates, on the other (Weeks, Michela, Peplau, & Bragg, 1980). Recently, attempts to develop approaches and strategies for the alleviation of loneliness have been made, notably by Young (1982). Effective intervention, however should be developed from a background understanding of possible influences on the development of the problem.

To date, serious and extensive consideration of the etiology of loneliness has not been undertaken. There are suggestions in the literature that the proneness and predisposing orientations to loneliness are acquired during early life, but the developmental processes and early influences that culminate into the lonely person are not yet close to being definitively identified. While theorerical explanations, using primarily psychodynamic theory have been offered (for e.g.,by Applebaum, 1978; Fromm-Reichmann, 1959; Greene & Kaplan, 1978; Hammer, 1972; Hobson, 1974; Leiderman, 1969; Peplau, 1955; Zilboorg, 1938), there have been few empirical studies emphasising the developmental aspects of loneliness.

To study this question the preferred approach would be a longitudinal study, but the inherent problems seem to have prohibited the use of this approach. The alternative has been to use a retrospective approach by examining the relationships between present characteristics and subjects retrospective reports of earlier events which cannot be objectively measured. Recent research by Bergenstal (1981), Hojat (1982), and Rubenstein and Shaver (1980), attempt to address early parent-child relationships and later loneliness using this approach.

These studies have produced the general finding that individuals who report more positive relationships with parents and with peers tend to report less loneliness. These

investigators have all used the framework of attachment theory in which to understand the relationship between parent-child interactions and later loneliness, and infer that their results are indicative of the degree of early attachment between parent and child. It is probably not inaccurate to say that, because of the type of measures used of parent-child relationships, it is misleading to infer degree of early attachment. What may be concluded is that the subjective histories and perceptions lonely individuals have of parent-child relationships differ from those of non-lonely individuals. These studies are useful, however, in generating hypotheses about parent- child relationships and loneliness which could be tested more directly.

In this aspect, this study is similar, and adapts Schaefer's (1965) proposition that "a child's perception of his parents behaviour may be more related to his adjustment than is the actual behaviour of his parents". Consequently, this study will, in part, examine some aspects of early childhood development as they are recalled by individuals experiencing different degrees of loneliness. The importance of the role of parents and of peers in the psychological development of the individual is underlined in this study. The nature of the relationship which parents have between them, the relationship between parent and child, and additionally, the relationship with others outside the family, are all considered important interrelated factors in the social

development of the child. Aspects of parents' personalities, includng parents' own degree of loneliness, levels of social skills, and self-esteem, are also viewed as likely to have influential impact on the development of children's loneliness. Experiences within the family are likely to influence how much and what kinds of peer relationships the individual forms, which themselves are major determinants of later social competence.

However, the design of the study does not allow causal inferences or directions of influence to be asserted, so is limited to an examination of relationships between variables. Specifically, the study will consider four major issues. First, to what extent is the degree of loneliness experienced related to how individuals recall the early parent-child relationship, and to what extent factors such as the nature of parents' marital relationship and parents' own loneliness related to the type of interaction individuals report as having with their parents. Second, to what extent how individuals recall the quality of early peer relationships is related to loneliness. It is expected that the reported quality of the relationship with parents will be reflected in the reports about relationship with peers. Third, is a consideration of the question of whether lonely parents have children for whom loneliness is an experience of adult life. This may occur through children acquiring, through learning, the similar social behaviours that are

factors in their parents' own loneliness. Fourth, since aspects of the individual's current life may serve to attenuate or accentuate the experiencing of loneliness, additionally, the study will examine how factors such as social skills, self-esteem, depression, and perceptions of current relationships are related to the amount of loneliness felt. Although several relationships exist between these variables, this study is interested in investigating a proportion of these around which hypotheses are to be formulated. Figure 1 presents a schematic representation of the groups of variables and the network of relationships to be studied.

The contribution of this study to the loneliness literature is that it will constitute a major consideration of the memories of early experiences that might be pertinent to the experiencing of loneliness. It will compare these factors with others that have been related to loneliness with an aim of separating the relative significance of these factors for loneliness in adulthood.

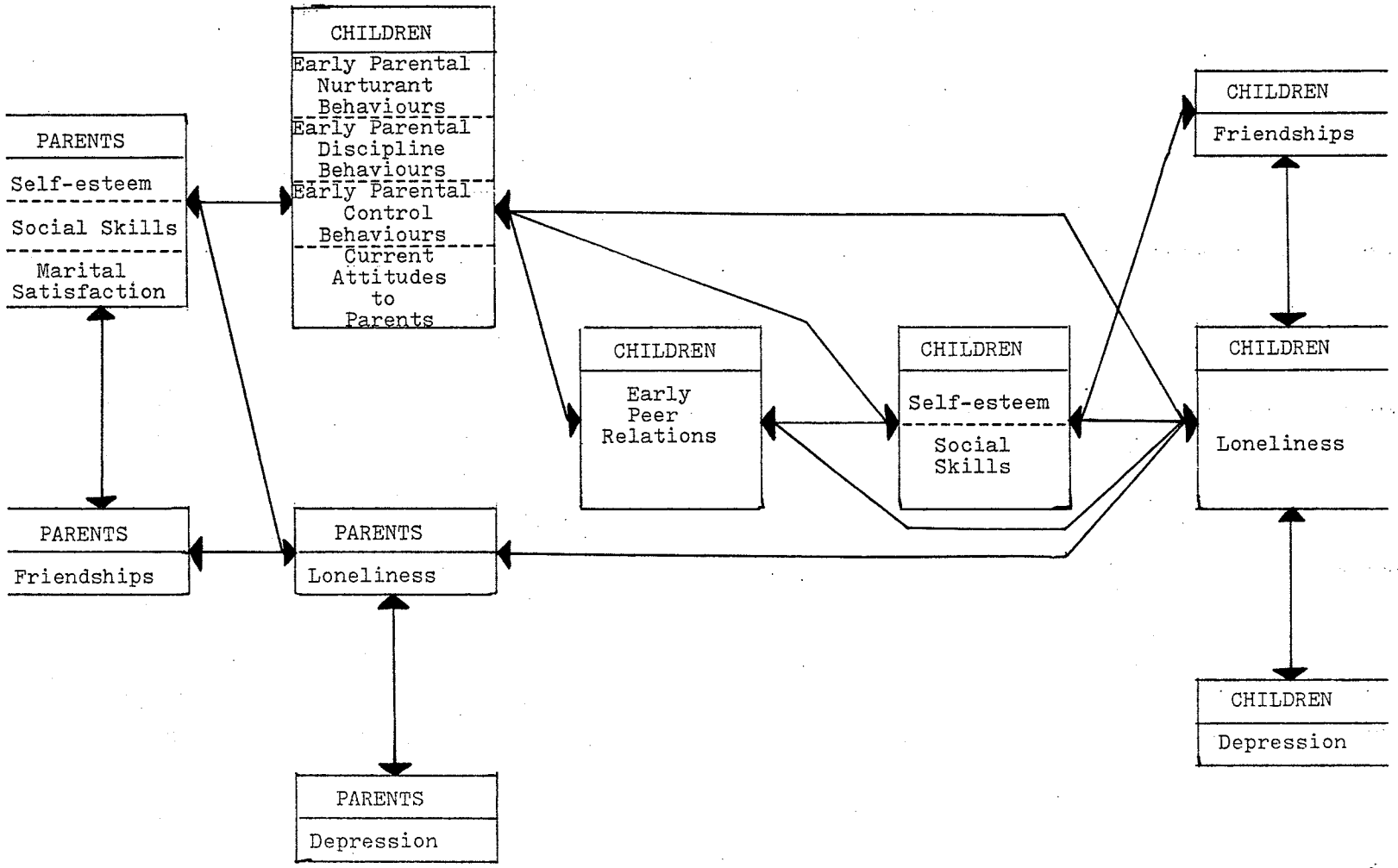



Fig. 1. Schematic representation of variables and their hypothesised relationships.

## Definitions of Loneliness

Attempts to define loneliness are numerous, reflecting differing theoretical orientations (Peplau & Perlman, 1982b), but whatever definition one adapts, the general conception is of a condition that is painful and results in emotional distress to the individual with this experience.

The task of defining loneliness is complicated by several factors. First, it has to be distinguished from several commonly related phenomena, such as aloneness, isolation, and solitude (Fischer & Phillips, 1982; Mijuskovic, 1977b; Sadler, 1978). Second, loneliness has substantial overlap with other forms of psychological distress, such as anxiety and depression. However, a discriminant analysis of loneliness and its possible cognates carried out by Weeks, Michela, Peplau, and Bragg (1980), has shown loneliness to be a distinct and separate construct. Third, it is not a unitary phenomenon (Rook & Peplau, 1982). Loneliness may occur consequent to inevitable life changes, such as death of a spouse or children leaving home (Cutrona, 1982; Weiss, 1973), and through events such as divorce which raise questions for the individual about interpersonal inadequacy. Or loneliness may not be precipitated by such losses of relationships, but is experienced because of stable personality characteristics such as shyness (Jones, Freemon, & Goswick, 1981), which keep the individual socially isolated. Fourth, loneliness is historically an entrenched popular construct

of everyday language seeking to become a theoretical construct. Confounding meanings from common usage have to be eliminated to give the term a scientific quality with testability and measurability.

There are definitions which seem to emphasise the qualitative aspect of the condition, adapted by those writers who give psychodynamic explanations of loneliness, and definitions which view loneliness as a perception of one's social world. Yearning, longing, and a sense of apartness from others are identified qualities of the lonely state, reflecting an inability to form close relationships, to love others, or to feel loved by others. There is a chronic sense of disconnectedness and an inability to relate satisfactorily with others, thus the lack of meaningful relationships.

Greene and Kaplan (1978), for example, describe loneliness as the experiencing of a sense of apartness and distance from others regardless of the reality of being alone or not. For Hammer (1972) loneliness represents an underlying fear that one's self-perception will not be recognised or affirmed by significant others, an inner ache or hollow feeling, and a deep yearning to be loved. There is a sense that the principal object used for self-affirmation is lost and there is a yearning for the object's return. Chronic loneliness appears almost "constitutional" (Zilboorg, 1938), marked by sadness, hopelessness, and what is described as a

"sense of egotistic desolation". Leiderman (1969) refers to loneliness as "an affective state in which the individual is aware of the feeling of being apart from others, along with the experience of a vague need for other individuals" (p. 156). Ellison (1978) believes there is an underlying anxiety, a fear of loosing or not acquiring a desired relationship and an ideational content of missing and wishing the return of a lost object.

This subjectively interpreted loss and the inability to experience a positive sense of connectedness with others is at the core of the experiencing of loneliness. These are aspects of the individual and are not affected by social reality. As Zilboorg states, the feelings persist despite what appears to be the social and economic success of the individual. Thus, loneliness essentially becomes a state of mind and a quality of life, giving rise to unpleasant affects.

Such characterisations of loneliness are heavily influenced by psychoanalytic theory which, though rationally argued, employs the use of concepts which lack the ability for quantification. A more recently accepted definition is based on a discrepancy theory, that loneliness arises from the perceived lag between one's desired level of social relations and that which is achieved (de Jong-Gierveld, 1978; Peplau & Perlman, 1979; Peplau, Russell, & Heim, 1979). The value of the discrepancy approach is that it moves the focus

from mere low levels of social contact that people experience, which of itself, without reference to a desired level, might not produce the subjective sense of loneliness, and that it also recognises cognitive factors mediating between interpersonal deficiency and emotional response (Perlman & Peplau, 1981). This is unlike the previous types of definitions discussed which implies absence of cognition and that the sources of the manifest emotional and affective responses are to be found in the unconscious. Even more importantly, this definition allows an objective measure of the concept.

However, all conceptualizations of loneliness imply relational deficits although they diverge in how the deficit is conceived. Such qualities as the sense of disconnectedness and the inability to love or be loved are characteristic deficits of the individual, but the discrepancy definition by implication suggests that the gratification of a positively experienced intimacy with even one other particular person, if this is the desired level of social relations, could eliminate relational deficits and significantly attenuate the sense of loneliness.

# LITERATURE REVIEW

## Loneliness and Parent-Child Relationships

Theories of the importance of the family, and in particular the parent-child relationship, as a formative influence on the child's personality have become increasingly influential in trying to determine what sort of upbringing a child needs for healthy adjustment in adulthood.

The proposition that individuals who did not experience warm, positive relationships with their parents are predisposed to loneliness is the focus of studies by Bergenstal (1981), Hojat (1982), and Rubenstein and Shaver (1980). These researchers considered their results as supporting Bowlby's attachment theory (Bowlby, 1952, 1969, 1973a, 1973b, 1975, 1977), that early experiences of unsatisfactory parent-child relationships, and those that result in chronic "separation anxiety", leave the individual vulnerable to problems of personality functioning and adjustment, possibly including loneliness. The least vulnerable individuals to loneliness would be those who grew up with warm, supportive, and available parents.

Bowlby (1977) states that attachment theory is:

> a way of conceptualising the propensity of human beings to make strong affectional bonds to particular others and of explaining the many forms of emotional distress and person-

> ality disturbance, including anxiety, anger, depression and emotional detachment, to which unwilling separation and loss give rise. (p. 201)

The theory suggests that the nature of attachment between parent and child in early childhood establishes in the child a type of orientation to others which determines the ability to form emotional relationships in later life. This means that individuals tend to interpret and have perspectives of later social relationships in the light of their early experiences with parents. Generalised expectations of the positive or negative reinforcing qualities of others are hypothesised to develop through recurrent childhood experiences with significant others. So, if the child's experiences with parents are primarliy positive and gratifying, the expectation of later relationships will be primarily positive. Conversely, generalised negative expectations of others is associated with early negative interpersonal relationships. If basic intimacy needs of childhood are not met through the attachment between the child and a parenting figure, the proposition is that the individual is likely to have problems of adjustment, and possibly experience loneliness, in later life.

Many of the studies that have examined the effects of disturbed attachment have done so in relation to depression and parental loss through death or divorce. Generally, they have arrived at conclusions of direct causative effects on the development of pathology. For example, Brill and Liston

(1966) found the loss of parents through separation or divorce occurred with significantly greater frequency in both inpatient and outpatient psychiatric polulations, and Wallerstein and Kelly (1980) concluded that there are negative outcomes in adulthood associated with the experience of children having to live through the divorce of their parents.

However, disturbed attachment need not be typified by an actual separation of parent from child, but may be a function of the inadequate quality of the parent-child relationship. A study by Raskin, Boothe, Reatig, and Schulterbrandt (1971) found that a depressed patient sample rated their parents lower on behaviours of positive involvement with them, expressions of love and affection, and acceptance of independence and individuation on their part when they were children than did a normal sample. Again, Crook, Raskin, and Eliot (1981) studied the possible effects of faulty parental care by comparing depressed and non-depressed subjects on aspects of early parent-child relationships. They found results similar in trend as in studies before theirs (Abrahams & Whitlock, 1969; Jacobson, Fasman, & DiMascio, 1975; Munroe, 1966), that depressed subjects clearly differed from their non-depressed counterparts in their reports of parental behaviours toward them in early childhood. Rejection, negative evaluation, derison, debasement, withdrawal of affection, and manipulation through guilt and anxiety

are some of the parental behaviours more frequently reported by the depressed. They suggest that "thoughts of personal worthlessness and inferiority seen in depression ... may have their origin in early parent-child relationships" (p. 950).

These studies suggest that the effects of disturbances of attachment have some validity. Several classifications of psychological problems have been identified as possible effects and, recently, loneliness has been suggested as a possible outcome of disruptions of attachment. It appears that the approach to studying other problems, in particular depression, has served as an analogue for the study of loneliness.

Attachment Theory as an Explanation for Loneliness

Bowlby's views have generated a remarkable amount of research and have been very influential in psychological theorizing. Recently, attempts have been made to empirically support the possible relationship between attachment factors and later loneliness. This, however, was preceded by theoretical explications of the link between loneliness and attachment.

Several writers have considered loneliness from the perspective of attachment theory (e.g., Ellison, 1978; Weiss, 1973, 1982), but the boldest, most overt attempts to explain loneliness in these terms have been by Rubenstein and Shaver

(1980) who state, that if Bowlby's theories are accepted, it is "likely that chronic adult loneliness can be traced back to childhood experiences of separation, loss or neglect" (p. 320), and by Shaver and Rubenstein (1980) whose explicit title "Childhood Attachment and Adult Loneliness" signals the attempt to link the two concepts in this review paper.

To consider the possible implications of attachment theory for adult loneliness, Shaver and Rubenstein begin with a review and acceptance of Bowlby's arguments regarding the importance of attachment both as an instinctual and social need; a description of the separation-individuation process as an aspect of the healthy development of the child and the ideal behaviours of parents which facilitate this process; the short and long-term effects of separation and loss; and the development of secure versus insecure or anxious attachment. They make the link between attachment and loneliness, first, by reasserting Bowlby's hypothesis that insecure attachment produces chronic anxiety and secondly, the hypothesis that adolescents and adults who had attachment problems during early childhood would exhibit more stress symptoms. Then, drawing on evidence from a survey of adult loneliness (Rubenstein & Shaver, 1980) in which a correlation of .60 between stress symptoms, as indicated by a list of nineteen psychological problems and psychosomatic symptoms, and scores on a loneliness scale, they infer a relationship between childhood attachment and adult loneliness. They conclude that:

> If children are not allowed to develop secure attachments, or if their attachments are threatened by separation from parents, the children may develop models of self and the social world which are detrimental to later self-esteem, health, and interpersonal relations. (p. 54)

This syllogistic approach might not be reliable or adequate to assert a relationship between disruptions of attachment and loneliness, but the Rubenstein and Shaver study attempts to provide more solid research evidence for this relationship. Responses to questions on parental loss through death and divorce, closeness to, and reliability of parents, and the extent to which subjects considered parents as trusted and secure bases of support, indicate that respondents who experienced no loss and who reported positive experiences with parents were less lonely. Parental absence produced the highest degree of loneliness, but the loss of a parent through divorce had a more detrimental effect than loss by death. This raises the question as to whether it is the familial disruptions typically associated with divorce which compound the effect of loss. An age effect was found, in that, respondents whose parents were divorced before they were eighteen years of age reported significantly more loneliness than those who went through the experience at a later age, or not at all. These results are also reported by Rubenstein, Shaver, and Peplau (1979).

The long-term reactions and adjustments to parental loss seems to produce conditions closely paralleling those identifiable among lonely individuals. Increased neediness, un-

happiness, helplessness, and diminished self-esteem are possible effects of divorce among preschoolers (Wallerstein & Kelly, 1975), and although these reactions may subside, in about half these children there remains a pervasive neediness for relationships as evidenced by clinging behaviours and a strong orientation to physical contact. Other possible effects are, feelings of rejection, deprivation and abandonment among early latency children, increased seeking of emotional support, the use of defense mechanisms of denial and avoidance, and explicit references to intense loneliness by nine and ten year old children (Wallerstein & Kelly, 1976). Feelings of sadness, anger, loss, shame, embarrassment, and a sense of betrayal by parents were also found among adolescents (Wallerstein & Kelly, 1974). Also in the Rubenstein and Shaver (1982) interviews, lonely adults mentioned feelings of sadness, boredom, self-pity, and a desire for a special relationship. Several of these reactions and feeling states have also been identified by the psychodynamicists as aspects of loneliness (e.g., Applebaum, 1978; Gaev, 1976; Hammer, 1972; Leiderman, 1969).

When young children's primary attachment figures are inaccessible or lost, the feelings are similar to those experienced in adult loneliness, when the addition of developed cognitive processes influence the feeling state. As Greene and Kaplan (1978) did in their psychodynamic explanation of loneliness, Shaver and Rubenstein (1980) make a case

for a consideration of cognition being a mediator between childhood events and adult loneliness. How the individual experiences and explains events depends on the level of cognitive development at the time these events occur. So, the age effect found in the relationship between parental divorce and loneliness could be due to the differential cognitive abilities among children experiencing this event.

From the psychodynamic point of view, cognition is so undeveloped in infancy that awareness of others is non-existent, but with maturation "cognitive processes are sufficiently developed for the infant to recognise mother as the person who gratifies and frustrates" (Greene & Kaplan, p. 323). If separation occurs, cognition functions to allow the child to remember the absent parent, and the experience of loneliness, inferred by a yearning or longing for a specific object, is experienced during these absences. Fear of abandonment is conditioned by negative feelings about self and actual loss or abandonment is attributed to personal qualities. This establishes a primary affective state (negative feeling about the self) which cognitive processes reactivate or maintain in adulthood,forming a possible precursor to loneliness. Cognitive appraisal of self and how events are attributed influence eventual assumptions about social competence and social relations. Reactions to rejection and separation, which almost inevitably occur among life experiences, are determined by these processes and may

be such as to create and maintain social isolation and loneliness.

Assessment of Current Research

Perhaps, the most recommended approach for assessing the effects of early disturbed parent-child relationships on loneliness is the longitudinal study, but the cost in time and money and the inherent problems of this method appears to have blocked its use. Reliance, then, has been on using retrospective reports of individuals about early parent-child relationships.

By this approach, Hojat (1982) confirmed his hypothesis that individuals who report not having had satisfactory relationships with their parents are likely to experience loneliness in adulthood. He has correctly limited his conclusions to the relationship between what individuals report about their satisfaction with early parent-child interactions and their level of loneliness without making inferences about causality, since this would require, at least, some objective measures of these relationships. However, the manner in which Rubenstein and Shaver (1980) report their findings is, in part, suggestive of an objectivity in the measurement of the parental variables which, in fact, is not present. They report that "respondents who had warm, helpful mothers and fathers were less likely to be lonely than those who had disagreeable, unhelpful parents" (p. 324).

They go on to report a significant relationship between respondents' trust of parents and degree of loneliness, in that, the least lonely individuals are most likely to say they considered their parents "trusted and secure bases of support". What Rubenstein and Shaver have, in essence, presented, without clearly stating so, are the memories and perceptions of lonely and non-lonely persons about their relationships with parents and how these differ. Bergenstal (1981), on the other hand, relates the experiences male adolescents have with their fathers and their degree of loneliness contemporaneously, and is, thus, able to assert a relationship between positive experiences with fathers and lower levels of loneliness.

There are two important limitations to these studies. One, common to them all, is that no evaluation was made of the memories of lonely and non-lonely individuals about early parental relationships differentiated for mothers and for fathers. Rubenstein and Shaver and Hojat considered the relationship subjects had with their parents as a whole, while Bergenstal considered the relationship lonely and non-lonely sons had with their fathers only. The other, is that Hojat had examined separately the reports of lonely and non-lonely individuals about their relationships with parents and with peers without a consideration of possible linkages between how these experiences are remembered. The failure to do this ignores the extensive research support for the hypothe-

sis that the type of relationship children have with their parents largely determines how they relate to others outside the family.

## Peer Relations

### Family Effects on Peer Relations

Research evidence suggests that experiences in the social world of the family determines how the child builds relationships and exists in the social world of peers and other adults. This is based on the assumption that there is a carry over or continuity from one set of experiences, that is, with the family, to the next, that is, with peers and others outside the family. The family is regarded as the preeminent socialization context in which the child's earliest experiences occur and which shapes the future behaviour and personality of its progeny. The social abilities acquired through the dynamics of the family find extension and practice in the contacts with others. In considering the social development of the child, the relative amount of time spent in contact with peers, rather than with family members, and the potential importance of these relationships should also receive attention.

Studies of early relationships with peers. Several studies have investigated the nature of the parent-child relationship and the sociability of children in interaction with peers at a point when there are minimum chances for other

influences other than those by the family. Thus, they are studies of infants and preschoolers, and the parent-child relationship is examined in terms of attachment. These studies have been mainly correlational, but they point to the positive effect of secure attachment on the child's sociability and social competence in peer relationships. No studies were found which seriously put these findings into question.

In a study of the influence of attachment and prior peer experiences on the social competence of a group of 3 year olds, Lieberman (1977) found a high positive correlation between the amount of experience preschoolers had with peers and secure attachment with their mothers. This supports Bowlby's (1973a) view that it is secure attachment which promotes exploration of the social and physical environment, and represents the optimal situation where the mother is able to maintain a balance between the child's need for a secure base and for exploration and relationships with others by being responsive to both. Lieberman also found an overall positive correlation between peer competence and secure attachment, and suggested that security of attachment plays a dual role. First, possibly because of the positive image of the attachment figure which is generalised, secure attachment encourages a positive orientation to others and, thus, directly promote peer competence. Second, secure attachment, in so far as it is characterised by the child be-

ing assured of the parent's availability when needed, seems to have a natural corollary of encouraging expanded interaction. So children have the opportunity of being with, and learning from peers which promotes social competence.

In the Strange Situation procedure (Ainsworth, Bell, & Stayton, 1971) for assessing degree of attachment, there are three major patterns of infant behaviour, falling into A, B, and C groups, with Group B representing the securely attached. In their study, Easterbrooks and Lamb (1979) considered differences in peer group competence among four subgroups of 18 month old B-group children. The more securely attached subgroups were observed to engage in more frequent and sophisticated interaction with peers and in more distal interaction with their mothers. The less securely attached infants were relatively more clinging, proximity oriented to their mothers, and less sociable toward their peers. If within a group of generally securely attached infants such relative individual differences are found, the contrast should be more striking if comparisons were made across the A, B, and C groups.

Pastor (1981) included the A and C groups, or anxiously attached groups in his study, and found that the differences among children which emerged during observed peer interaction were related to quality of attachment. Securely attached infants appeared more competent and sociable than anxiously attached ones. Pastor noted, as Lieberman did,

that these positive behaviours of the securely attached infants were demonstrated with mothers and with peers. This emphasises that infants seem to need or require this type of positive secure relationship with the attachment figure to be able to extend or generalise this behaviour to other members of the social network.

Some major shortcomings of these studies are that, first, the observation period of peer interaction was generally 15 to 30 minutes long, which might have presented some difficulties for the studies in truly capturing the essence of a child's interactive style and abilities. It may be argued that if they were observed after a longer period of familiarity with their interactive partners, no such differences might be as easily descernible. Second, mothers were generally present with their children during the observations periods, and it is not known how they would perform in the parent's absence. Third, the issue of stability of behaviour was not addressed, in that, observations were made at only one point in time, ruling out the possibility of testing behavioural changes that might occur with maturation.

Some attempts at "short-term" longitudinal studies have been made to respond to the issue of stability of observed behaviours. Arend, Grove, and Sroufe (1979) assessed infants at three different ages and found relationships between quality of attachment at 18 months and the child's problem solving ability at 24 months and social competence

at 4 to 5 years of age. These children were assessed across a variety of situations. Waters, Wippman, and Sroufe (1979) found that individual differences in peer competence and ego strength at 3 1/2 years were predicted by security of attachment at 15 months. Matas, Arend, and Sroufe's (1979) study was intended partly to determine the strength of the link from early to later behaviour, although the comparison periods were only six months apart. Findings in this study are congruent with others, in that, infants assessed as securely attached at 18 months were more socially competent with peers at 2 years old than insecurely attached infants. The writers assumed that there is continuity and coherence in development over time, and that later characteristics of personality and behaviour are predictable from early assessments. Particular difficulties in later life are, thus, linked to early maladaptation.

Results of these studies which sought to explain individual differences in peer competence by security of attachment are quite consistent. Limiting their investigations to children in the preschool years, they have found, at least for that period, continuity of adaptive functions over time and across different situations. Secure attachment effectively supports the child's early attempts at exploration and promotes the development of interpersonal competence. There is general support for the extent to which the quality of parent-child attachment affects the social experiences

and the development of the child. Qualitative aspects of this attachment relationship persist and predictably influence later behaviour, seeming to set the stage for, and be integrated into the child's future social interactions.

The interaction of parent-child and peer relations. Hartup (1979) proposes two theoretical models used for explaining how the family system and the peer system interrelate. In the first, a single process model, social competence evolves and a basic orientation is established by family interactions, which find extension and elaboration in peer interaction. Secure attachment within the family system strengthens the ego and promotes effectance, competences which transfer readily from the primary situation to the secondary one. In the second model, a dual process model, specific competences develop independently within the family system and the peer system. The family context gives growth, for example, to social skills necessary to successfully manage heterosexual and parental functions in later life, while skills for successful interaction with age-mates develop within the context of the peer relationship.

The hypothesis of continuity and progression from one system to another, inherent in the first model, is especially attractive for the purpose of this study, and the studies on peer competence that have been reported are more in keeping with this model.

## The Importance of Peer Relations

Evidence from studies concerning the significance of peer relations to social development are again mainly correlational in nature, but the general indication is that peer relations in childhood are central to the socialization process. Peer relations in childhood are prognostic indicators of social conduct in adolescence and adulthood (Hartup, 1978), and poor relations are predictive of a variety of types of adult psychological disturbances.

Empirical evidence. In a study of servicemen who were former patients of a child guidance clinic, Roff (1961) found that more men who as children were rated as having poor peer adjustment received "bad conduct" discharges than those who had better peer relations. Adult mental health status was predicted by ratings of peer acceptance in childhood (Roff, 1963), and more adults diagnosed as psychotic were rated as social isolates in childhood than their "normal" controls (Kohn & Clausen, 1955). Partial results of a longitudinal study of the relationship of early dysfunction to later dysfunction, were that children in a third grade class who were scorned and disparaged by their classmates had more psychiatric difficulties when they were 11 to 13 years old, than children who were positively accepted (Cowen, Pederson, Babijian, Izzo, & Trost, 1973). Of several measures used with these third grade children, the best predictor of emotional difficulties was peer ratings. In this

latter study, more so than in the others reported here, the possibility of reciprocal causation is very obvious, that the rejection by peers could produce the effect as well as the early indications of the present emotional problems could have caused the children's rejection.

More specific to loneliness, Moore (1974) found a trend for more lonely individuals to report having fewer friends, engaging in more solitary activities, and not having been fond of the company of other children and adults during childhood than non-lonely adults.

Overall, there is no strong evidence contradicting the view that peer relations occupy a central position in the development of personality and the ability to live in a social world. A relevant review by Rubin (1980) presents the several unique functions of children's peer friendships which cannot be as well provided in relationships with parents and other adults.

## Components and Functions of Peer Relations

It is primarily through the medium of play that early peer friendships are initiated and maintained, and through play activity that such qualities as social skills, the sense of self, and the ability to form attachments with others outside the family are nurtured. Under optimal conditions, children at varying stages of their early development engage in, and may even show preferences for, different composi-

tions of peer groups and groups of play-mates. At times there are sex preferences, age preferences, and group size and group composition preferences in children's play, and each of these peer group characteristics has the potential to contribute to aspects of the child's social development.

Same-sex friendships may allow children to share similar interests and activities with others who generally demonstrate similar behavioural styles, while cross-sex friendships expose children to a wider range of behavioural styles and activities and develop in them an understanding and appreciation of opposite sex members (Rubin, 1980). It is also likely that children derive differential benefits from interacting with same-age and cross-age peers. In mixed age groups children, for example, are integrated into a diverse social environment which enhances the development of communicative and social skills, these groups demanding as they do that children resolve conflicts and learn to acknowledge the points of view of others (Konner, 1975).

Lougee, Grueneich, and Hartup (1977), based on the results of their study of the social interaction of same- and cross-age dyads of preschool children, suggested that children are sensitive to age differences among themselves, and are likely to make appropriate behaviour adjustment to accomodate them. Roopnarine (1981) found evidence which supported the value of both same- and cross-age friendships. Older children lowered their level of play when in interac-

tion with younger children, while younger children increased their level of play when interacting with older children, suggesting the mobilisation of skills of empathy and role taking. On the other hand, children engaged in more play when interacting with same-age peers than with cross-age ones. Same-age friendships may, then, allow more intensity of play, which may stimulate the generation of aspects of relationships such as intimacy and conflict resolution.

Peer groups comprising larger numbers of children may provide them with experiences and learning opportunities for managing multiple and shifting roles as characteristic of adult social life, and pose some of the most central issues regarding group living, such as inclusion and exclusion, individuality, and compliance (Rubin, 1980). Children learn about, and experience, the rupture of friendships, how to re-establish broken relationships, and how to deal with the grief resulting from the permanent loss of a friend. Through group experiences they may also learn how and when to be independent and to seek privacy and aloneness without a sense of loneliness. Additionally, such views as generated by the work of Bronfenbrenner (1979) and Condry and Siman (1974), express the belief in the powerful influences of peer groups, which often override the familial influences with regards to such characteristics as appearance, behaviours, and skills.

Sutton-Smith and Rosenberg (1970) regarded sibling interaction a type of peer relationship, and in their review emphasise the considerable influence of siblings upon the development of personality and behaviour. While abusive social experiences and rivalry often characterise the relationship between siblings, Bank and Kahn (1975), in a study of the dynamics of the sibling group, found that siblings provide reflected self-appraisal which is crucial for the development of self-esteem and identity. Siblings find support in each other, especially when the parental relationship is disorganised, act as socializers for each other, play out differentiated social roles, and exert social pressure regarding behaviour. They may also serve as models of identification and offer immediate opportunities within the family for the development of interpersonal skills.

## Social Learning of Interpersonal Abilities

Children learn from others so that their behaviours and attitudes are largely shaped by the dominant social influences in their environment during the period of development. Several principles of social learning are recognised as determining behaviours in children, such as instruction, positive reinforcment, extinction, punishment, counterconditioning, social imitation, and discrimination. However, as early as 1906, James Baldwin considered imitation to be a central process in socialization, and later interest was aroused in this principle by the extensive programmes of research un-

dertaken by Bandura and his colleagues (1963, 1969, 1971), which brought out clearly the imitative behaviours of children. An indication that imitation occurs is that children are seen to adopt many behaviours and attitudes of their parents, for example, saying many of the same things they do and adopting their mannerisms.

While other learning principles may explain the gradual acquisition of behaviour, imitation more adequately explains the rapid development of novel responses (Bandura & Walters, 1963). For example, a three year old's unanticipated behaviour of putting out a hand to be shaken in the absence of specific instruction may be better understood as imitation of parental or other behaviour than due to other learning principles. Differential rewarding, reinforcement, or punishment may follow behaviours that have been spontaneously learnt through imitation, causing certain behaviours to be added to, or deleted from, the child's behaviour repertoire. Findings from Bandura's work weakened the acceptance of other learning principles, showing them as having less influence on the initial acquisition of particular behaviours, and opening a line of thought that an important role of parents in children's learning is that they are seen as models whose behaviours may serve as patterns on which children style their own behaviours.

Bandura's research suggests the conditions which foster and encourage imitation as: first, that the model is per-

ceived by the child as prestigious and powerful, for instance, if the model has control over things and objects that the child desires; and second, that there is a positive affective relationship between the child and the model as occurs if the model has been nurturant toward the child. If both these conditions are clearly present, children are more likely to imitate parents than if these conditions are absent or minimally present. Parents who manifest a lot of control behaviours will be perceived by their children as powerful, while nurturant behaviours will be interpreted as affection, and children in these circumstances will likely perceive being reinforced for behaving as their parents do. Thus, the most potent models are those who are nurturant or who control resources. The behaviours children adopt under these circumstances are likely to be those characterising the models.

Children may imitate parents generally, even to the extent of imitating negative and self-destructive behaviours, but the theory also suggests that the manner of relating which children observe in their parents may be modelled in their own relationships with others such as peers, and might become aspects of their own social competence. Imitation seems, then, to be a powerful element in the process of socialization and implies that children may spontaneously learn how they are supposed to behave when models are available to them.

Social Learning and the Development of Social Skills

Attachment theory is concerned with the development of emotional bonds in the parent-child relationship, and implies that the ability to relate well to others develops naturally out of the security of an early emotional relationship with an attachment figure. It is the orientation to others which seems important in this case, and not the presence or absence of a learnt ability to relate. But the ability to relate to others may be a learnt quality facilitated by access to appropriate social skills.

"Social skills refer to the techniques for establishing and managing social interactions and relationships" (Rubin, 1980, p. 4). Rubin identifies these skills as including the ability to communicate successfully, the ability to engage others in activity, the exercise of tact and sensitivity, and the ability to deal appropriately with conflict. These skills may be learnt through the wide range of environmental opportunities available to do so; through instruction, through reinforcement of appropriate skills, and through imitation of models such as parents, siblings, and peers. The role of peers have already been examined in this review.

The child's earliest environment is the family and so the first and primary models available to the child are parents. There is some evidence in the literature to support the view that imitation may be a process through which individuals acquire social skills, and that the social competence of parents may be causally linked to that of their children.

Results of a study by Sherman and Farina (1974) indicate there is similarity between mothers and sons on the dimension of social adequacy, thus supporting the hypothesis that mothers in some way influence the social skills of their sons. This suggests that the children of highly skilled parents are more likely to function effectively in their own social worlds more so than the children of parents with limited social skills. In another study, Siegelman, Block, Block, and von de Lippe (1970) divided adults into a high optimal adjustment group and a low optimal adjustment group and employed a number of measures in order to identify the antecedent circumstances which differentiated the groups. They concluded that adult adjustment appears to have a precondition of a competent and integrated mother who demonstrated high intellectual skills, and skills desireable for optimal family life. They believed these were even more important than emotional warmth between child and mother in determining later adjustment. The paucity of studies involving fathers is quite marked in this area. Popplewell and Sheikh (1979) have reviewed studies of father role in child development and point out the traditional lack of attention in this area.

Three effects are proposed in relation to the role of the parent in this area. First, in so far as children may not have adequate or appropriate models to imitate constitutes a failure or inability to adequately prepare the child for

managing the social environment. Second, maladjustment, which possibly include the proclivity to be chronically lonely, may be traced not only to negative emotional experiences in the family but also to faulty learning. Third, an interaction effect between the two processes generated by attachment theory and social learning theory should be considered. Negative emotional experiences as may arise from deficits in the relationship between parent and child may be related to the parent's level of social skills, in that, parental dominant and rejecting behaviours and the inability to act as secure attachment figures may be an indication of parental lack of social skills.

If loneliness is indicative of a limited capacity for emotional attachment lonely parents may have lonely children because of their failure to provide secure emotional relationships. But slso, children may have acquired, through imitation, the similar styles of social relating which had served to keep parents isolated. In addition to observation and imitation, however, one may often see parents providing direct instruction regarding social behaviours to their children, which may reflect the parents' own biases about social behaviours. These may or may not be accurate in terms of what is appropriate or skilled social behaviour.

Loneliness and Social Skills

The importance of interpersonal skills in the establishment and maintenance of human relationships has always been stressed, and has been studied extensively. Much of the support for this proposition comes from research on the relationship between social skills and maladjustment as found among psychiatric patients. Recently, however, there have been studies directly addressing the relationship between loneliness and levels of social skills, eliminating the need to extrapolate or deduce from the relationships found for other categories of psychological problems.

The available evidence of the negative relationship between loneliness and social skills is consistent, and no studies were found to contradict this general finding. An examination of these studies shows that a range of behaviours and personal qualities have been identified as constituting social skills, introducing some confusion into the literature. Also, relationships between these two concepts have been found for individuals at various age levels and life stages.

Among the various indices of social skills and interpersonal functioning that have been correlated with loneliness are: hostility in interpersonal situations (Moore, 1974), using coercive power in influence attempts (Gerson, 1978), inhibited sociability indicated by difficulties in initiating, maintaining, and participating in social interaction

(Horowitz & de S. French, 1979), lower dispositional levels of self-disclosure (Chelune, Sultan, & Williams, 1980), higher levels of self-focused attention (Goswick & Jones, 1981), taking fewer risks in social situations and being less expressive of affection for others (Jones, Freemon, & Goswick, 1981), and less partner attention as a specific category of conversational behaviour (Jones, Hobbs, & Hockenbury, 1982). The relationship between loneliness and poor social skills has been found for various age groups as well; for young children as indicated by their amount of contact with peers (Moore, 1967), for adolescents (Brennan, 1982), for college age populations (Goswick & Jones, 1981; Horowitz & de S. French, 1979), and for senior citizens (Perlman, Gerson, & Spinner, 1978).

As Trower, Bryant, and Argyle (1978) suggest, any individual who is unable, through socially accepted ways, to affect the behaviours and feelings of others in desired or intended ways may be considered socially inadequate. Poor social skills impede the individual's ability to capitalize on opportunities for interpersonal involvement, and the resulting social isolation may lead to a sense of interpersonal failure and the experiencing of loneliness.

## Personality Correlates of Loneliness

Social inadequacy may stem from a deficit of social skills and from other stable personality traits which serve to keep the individual socially isolated and unable to form meaningful emotional bonds. Research has linked several personality variables with loneliness which act as impediments to the individual attaining the desired level of social relationships. Depression and low self-esteem are among the personality variables which have been shown to have the highest correlations with loneliness.

While low self-esteem has been linked consistently with the experiencing of loneliness (Cutrona, 1982;Jones,Freemon,& Goswick, 1981; Lobdell, 1981; Loucks, 1980; Moore & Sermat, 1974; Paloutzian & Ellison, 1982), a causal direction has not been firmly established. It is equally as likely that low self-esteem is a cause of loneliness as it is a consequence of the sense of personal failure which accompanies loneliness. Cutrona (1982) has produced evidence from a longitudinal study, however, which supports the position that low self-esteem might be precedent to loneliness. She found that among college students, characteristics indicative of self-esteem were related to whether they experienced loneliness transitorily or if it persisted over a longer period of time. High self-esteem students were more likely not to feel lonely at the end of seven months after entering college than were low self-esteem students.

Low self-esteem may also be a cause or consequence of poor social skills. Horowitz, de S. French, and Anderson (1982) argue that low self-esteem may be a reflection of the individual's social skills deficit, while Zimbardo (1977) proposes low self-esteem may cause social anxiety, social reticence, and the individual not to demonstrate the social behaviours necessary for the initiation and maintenance of social relationships. Low self-esteem or the realisation of the absence of skills to promote liking and respect of others may increase the tendency to withdraw from social situations.

Depression seems to be among the most common affective states associated with loneliness, and it is not yet clear which condition exacerbates the other or how they are sequenced temporally (Rook, 1982). The dominant view projected in the literature is that persistent loneliness is more likely the precursor to depression than vice versa, based on the nature of depression as a reactive state (e.g., Rubenstein & Shaver, 1982). Cutrona (1982) shows that depression is more likely to be reported when individuals make personal attributions about the causes of their loneliness than when they make environmental attributions, and appears to be one of the major ways individuals cope with and react to their loneliness. While depression may not cause loneliness, and while there are many reasons why people become depressed, self-reports of lonely individuals reveal significantly high

levels of depression among them (Moore & Sermat, 1974; Paloutzian & Ellison, 1982; Russell, Peplau, & Cutrona, 1980; Weeks, Michela, Peplau, & Bragg, 1980).

In considering the inter-relatedness of personality factors, one may also examine the link between self-esteem and depression. It seems uncommon for depressive affect to occur in isolation from other unpleasureable states, and clinicians seem to generally agree that depression tends to be associated with low self-esteem. There appears to be no consensus, however, which of these states take precedence in terms of sequence.

Circumstances may threaten the person's positive self-evaluation, thus evoking self-rejecting attitudes, and Kaplan (1977) considers depression the affective response to such negative self-attitudes. Klerman (1974) also believes feelings of depression may be initiated as a response to helplessness and fallen self-esteem. Beach, Abramson, and Levine (1981) identify a situation where they believe depression takes precedence by suggesting that depressed patients will suffer loss of self-esteem if they attribute their helplessness to internal factors rather than to external ones. In contrast to these views, Akiskal and McKinney (1975) give precedence to neither of these conditions, but regards depression as the emotional concommitant of low self-esteem.

The persistent relationship between low self-esteem and depression is supported by the results of several studies. In a study to determine the correlation between self-esteem and depression, Battle (1978) obtained a Pearson correlation of -.55 for a combined group of male and female students. Also, Altman and Wittenborn (1980), in testing the hypothesis that women who have been depressed have personalities different from women who have not, found that level of self-esteem was one personality quality that significantly differentiated the two groups. It is not only the current state of depression which is found to be related to low self-esteem, but also a proneness to depression. When Zemore and Bretell (1983) controlled for current level of depression and depressed affect, they found a statistically significant correlation of -.55 between a measure of depression proneness and low self-esteem.

It may be that such personality features as low self-esteem and depression are extensions of the symptomatic complex of loneliness, and may form part of a more total package of beliefs and attitudes about the self and others which is identified with the lonely individual.

## Differentiating Loneliness and Depression

Depression is a particularly confounding condition of loneliness. The substantial overlap consistently found between the two conditions has led to questions about their sepa-

rateness as distinct constructs. The view of Horowitz, de S. French, and Anderson (1982) is that "the prototype of a lonely person is itself nested within the prototype of a depressed person. That is, the major features of a lonely person are a subset of those of a depressed person" (p. 184), which suggests little separateness between the two. However, to clarify the conceptual separateness between the two phenomena, Weeks, Michela, Peplau, and Bragg (1980) carried out a structural equation analysis which demonstrates that loneliness is discriminable from depression. Although correlated phenomena, they propose no causal link between the two, but the possibility that they share a common genesis.

What should also be noted is that the depressive and lonely states are qualitatively different in their manifestation. Depression is more dominantly characterised by passivity than is loneliness; depressed persons might more exclusively make dispositional attributions and more totally accept blame for their present predicament than lonely individuals; the lonely person yearns for intimacy and may seek social contact while the depressed feel deserving of their present condition, unworthy of the company of others, and satisfied to remain depressed; the lonely is capable of caring for others while the depressed might not be able to respond to others even when this is most demanded (Ortega, 1969; Weiss, 1973). More recently, Bragg (1979) addresses

this issue of the frequently noted association between depression and loneliness and showed that people reporting both loneliness and depression are dissatisfied with social and non-social aspects of their lives, while lonely persons who report no depression seem to experience only social dissatisfaction.

## Social Relationships and Loneliness

Interpersonal involvement, as measured by amount of social contact, has been found to be related to loneliness. Studies by Hill, Rubin, and Peplau (1976), Russell, Peplau, and Cutrona (1980), and Cutrona (1982), suggest that among college students the absence or loss of dating relationships, reduced numbers of friends, and little romantic involvement are associated with loneliness. Special subgroups of the population, such as single individuals and older persons, with limited social engagement, tend to experience more loneliness (Bloom, Asher, & White, 1978; Kivett, 1978; Lopata, 1969, 1980; Weiss, 1973).

However, the effects of low amounts of social contacts may be mitigated by the degree of emotional intimacy existing in current relationships. Individuals may find enough satisfaction within only a few relationships and be less lonely, while some may feel lonely despite a high amount of social contact. For example, Jones, Freemon, and Goswick (1981) found that quantitatively, social interaction does

not differ between high-lonely and low-lonely students, but that the difference in degree of loneliness felt appears related to the existing levels of intimacy within friendships. This differential level of intimacy, and consequently how much loneliness is experienced, suggests that, unless one has the capacity to form affectional bonds, the mere presence of a number of social contacts is not enough to prevent loneliness. It appears that two major abilities are needed to avoid loneliness: first, interpersonal skills, to allow social engagement; and second, an orientation to experience affection and emotion in relationships in order to achieve intimacy. The literature also suggests that how much loneliness individuals report depends on how satisfied they are with their existing social relationships compared to others (Goldenberg, 1982).

## Lineage Transmission of Loneliness

The concept of the lineage transmission of loneliness derives from recent research investigating intergenerational similarities of patterns of interpersonal relationship characteristics. There is little research in this area, and what has been done primarily addresses the issue of the lineage transmission of marital stability/instability (Bumpass & Sweet, 1972; Mott & Moore, 1979; Pope & Mueller, 1976). From the results of these studies, Filsinger and Lambke (1983) have proposed that what is being transmitted specifically between generations is interpersonal competence.

Filsinger and Lambke hypothesised that interpersonal competence in both intimate and general social relationships is transmitted down generational lines. Their study involved a sample of college students and their parents who were tested for lineage effects. Both groups were measured on adjustment to intimate and general social relationships, with results giving evidence that interpersonal competence in general social situations is transmitted from parents to children.

It is reasonable to extrapolate from these findings that the propensity to loneliness, as an indication of interpersonal competence, may be transmitted from one generation to another. Learning theory suggest that children tend to acquire, through imitation, similar behaviour of their parents, and that this is more likely to occur where closeness between parent and child facilitates the imitative process. Loneliness may be transmitted because its associated personality and social behaviour characteristics are transmitted en masse from parent to child, through children acquiring the similar characteristics associated with their parents' loneliness.

## Statement of Hypotheses

The general purpose of this study is to determine the multivariate relationship of a number of reported family relations, personality, and social interaction variables on the degree of loneliness experienced by students, and to specify which variables among these have the strongest relationship with student loneliness. In addition to this general aim, several specific hypotheses are proposed as follows:

1. Students who are more lonely are expected to recall the relationship with their parents when they were children as less positive than less lonely students.

2. Parents, with whom students recall having had a more positive relationship, are expected to report lower levels of loneliness and depression, and higher levels of social skills, self-esteem, and marital satisfaction than parents with whom students recall a less positive relationship.

3. Students who recall a more positive relationship with parents when they were children are expected to recall more diverse peer relationships in childhood than students who recall a less positive parent-child relationship.

4. Students who recall more diversity in early peer relationships are expected to report less loneliness than students who recall less diverse peer relationships. This relationship is expected to be mediated by level of social skills.

5. Students and parents who report lower levels of social skills and self-esteem, and higher levels of depression, are expected to be more lonely than students and parents who report higher levels of social skills and self-esteem, and lower levels of depression.

6. Low satisfaction with number and quality of current friendships is expected to be associated with more loneliness in students and their parents.

7. Students who are more lonely are expected to have parents who also report more loneliness than parents of less lonely students. This relationship is expected to be mediated by student reports of positive parent-child relationships.

One exploratory question to be addressed, which is not stated as a hypothesis, is how students experiencing varying degrees of loneliness remember their relationship with parents, differentiated for mothers and for fathers.

## METHOD

The study seeks to identify, among other things, what family and social relationship factors as subjects recall and report them help to separate the more lonely from the less lonely. To do this several methodological issues have to be considered.

As Weiss (1982) asserts, it is unlikely that an objective correlate of loneliness will ever be found, and reliance of obtaining information about factors associated with loneliness will have to be on the reports of respondents. There is as yet no reliable way of manipulating all the variables being investigated in this study, but from respondents' reports it is possible to examine in which way naturally occurring individual differences on the independent variables are related to differences on the dependent variable, loneliness. In other words, since the levels of the independent variables were not controlled, a correlational design is used, to examine what changes on the independent variables are associated with changes on the dependent variable.

Established correlations between these variables will, of course, say nothing about why the relationships exist, and explanation of this will depend on the nature of the variables involved and on existing theoretical knowledge. Spe-

cifically, it will not be possible to make inferences about causal relationships between variables, since there is no control over the levels of the independent variables to which the research units are exposed.

The reliance in this study on retrospective information may be seen as problematic, particularly in relation to the information obtained about early parental behaviours and early peer relationships. This form of reporting is thought not to be reliable in capturing the true nature of the relationships as they actually existed. An alternative approach of using the observation of behaviour exchanges, even when feasible, tends to ignore the cognitive processes entering the interpretation of meaning of the behaviours, which is an important factor in how behaviours are understood. Even the immediacy of reporting on a behaviour or event does not eliminate the subjective perspective given to them. Because of this, it is possible that present life conditions and feelings about the self will colour or affect how past experiences and behaviours are recalled. For example, it might be difficult to determine whether lonely subjects had unsupportive parents or poor peer relationships as children, or whether their current feelings of loneliness causes their negative perceptions of these early events.

Bower (1981) investigated the influence of emotions on memory and thinking, with the result that subjects recalled a greater percentage of experiences that were affectively

congruent with the mood they were in during recall. For the study, Bower used what he described as "normal" subjects in whom he induced, through hypnotic suggestion, moods of sadness and happiness. He found that his subjects recalled more words from a list they had learnt in a particular mood when this mood was again induced in them than when they were in the opposite mood. In other words, affect-state-dependent memory was demonstrated in subjects' better recall of the same-mood list and worse recall of the opposite-mood list. He also found this effect in how subjects remembered personal episodes and childhood incidents. When subjects were feeling good they recalled personal episodes as more pleasant than they had previously rated them, and when they were feeling bad they were rated more unpleasant than originally. Regarding childhood incidents, Bower found that happy subjects retrieved significantly more pleasant than unpleasant memories, while sad subjects recalled more unpleasant memories. These findings suggest that subjects will shift their perception of what is pleasant and unpleasant toward their current mood.

However, results in a different direction and contradicting Bower's findings of mood-state-dependent memory were obtained by Abrahams and Whitlock (1969). In a study of childhood experiences and later depression, they found that reports given by inpatient depressed subjects about early relationship with parents were similar to reports they gave

18 months later when they were not depressed. Since depression is an affective state recognised for its potential for negatively colouring how events are interpreted, these results suggest that little bias is introduced into the individual's recall of information related to parent-child experiences.

The difference in results between these two studies might be due to the type of study and the type of subjects used. Although Bower hoped to obtain results showing how memory is influenced by emotions and also how emotional thinking is similar to the pathological thinking seen in the affective disorders, his laboratory findings cannot be generalised to other populations. Subjects in the Abrahams and Whitlock naturalistic study were classified as clinically depressed, and if Beck's (1967) proposition is accepted, that a negative view of the self and the world, self-blame and criticism are primary elements of depression and are core aspects of the personality, it is understandable that these subjects would consistently describe the important relationships in their lives negatively.

Subjects used in the present study could represent various types, from those considered "normal" in the manner employed by Bower, to those exhibiting some degree of affective disorder. Measures are to be taken of depression and self-esteem, which should distinguish between these groups of subjects, and the differences in how these individuals

describe past and current relationships and events would be reflected in the data. These differences could then be related to loneliness.

Another issue to be considered concerns the ongoing debate regarding the permanence and stability of personality traits over time. This study assumes that the traits measured have some stability and permanence. However, the literature reflects the unresolved status of this question.

Schuerger, Tait, and Tavernelli (1982) addressed the question of the temporal stability of personality using questionnaire measures by examining the test-retest reliabilities of a wide range of types of personality inventories differing in construction, number of items, and ages for whom they were designed, with samples differing in size, sex, and occupation. They found that all tests they examined showed a similar pattern of decline in reliability over time. Differences in reliability among scales were related to their number of items and degree of homogeneity. An interesting finding of this study is that the older a person at the time of testing, the higher the test-retest reliability. This suggests that younger people are more susceptible to the effects of mediating events, or are more sensitive to the changes and feelings occurring with them, than older people are.

Gottfredson (1982) obtained different results which led her to accept the proposition of the stability and reliability of personality. She found that three global personality dimensions - Anxiety, Extraversion, and Commitment - are highly stable and have direct influence on several other dimensions of the individual's functioning, such as educational attainment, social competence, and affective moods.

The finding by Schuerger et al., that stability of personality increases with age, and that by Gottfredson, will permit some confidence that the personality traits measured for parents in this study are stable over the period of interest. For students, measured personality traits are regarded as outcome factors.

## Subjects

The sample for this study comprises 130 female students and their mothers and fathers. It was decided to focus the study on female students only in order to limit the sources of variability that would be present if males were included, and to allow a more intense study of a specified group. Student participants were recruited from the pool of students doing Introductory Psychology at the University of Manitoba. They receive credit for research participation.

Several criteria were applied to select these subjects: i.e. students should be between the ages of 17 and 24 years, unmarried, and living at home with their parents. The age

range specified might be considered as representing the threshold between adolescence and adulthood when, according to conventional thinking, developmental changes essentially ceases and parental influences on children are minimal or have lost the ability to further affect behaviour (Labouvie-Vief, 1978). Since parental influence is one major area of interest in the study, students were to have had relatively undisturbed contact with their parents. The marriages of the students' parents were to be intact, although no stipulations were made about the quality of their marital relationships. Broken homes and parents absent through death or divorce are hypothesised to have unique effects on children and constitute a separate area of research (Rosenberg, 1965; Rubenstein, Shaver, & Peplau, 1979; Schooler, 1972).

Three hundred and seven students initially completed a 45-minute questionnaire from which the variables for the study were derived. Parents were recruited by asking students to take separate packages home to their mothers and fathers, which included a letter briefly describing the study and requesting their cooperation and participation (Appendix A), the parent questionnaire, and a stamped, addressed envelope in which they were to return the completed questionnaires. Five students declined taking packages home to their parents. Parents who did not return their questionnaires after a two-week period were contacted by telephone and encouraged to do so.

Despite the initial screening based on the criteria established for inclusion in the study, which was done at the point of recruiting student subjects, 43 students who completed the questionnaires were found not to qualify, for reasons that they had parents who had died or were divorced and that they were not living at home with their parents. Of the parent questionnaires returned, 8 were discarded mainly because of incomplete data substantial enough to invalidate the records. Finally, questionnaires from 258 students, 150 mothers, and 133 fathers were useable. Questionnaires for students, mothers, and fathers were matched using code numbers which were similar across the student-mother-father triad. One hundred and thirty completed triads were extracted, and in addition, there were 105 single student questionnaires, 20 student-mother pairs, and 3 student-father pairs. The final sample of completed triads represents approximately 50% of the useable questionnaires and of those that qualified for the study.

The average age of students was 18.9 years with a median of 18.5 years. Average sibling size was 2.3 with a median of 2.1. All fathers, except 5 who were retired and 2 who were unemployed, had jobs outside the home. Of the mothers, 61% were employed outside the home, and 39% were described as being housewives. English was the primary language spoken in the home of 79% of families, while 21% used a language other than English.

## Variables and their Measurement

Student loneliness is the primary dependent variable of interest but, for some analyses, other variables may be regarded as the dependent measure. Independent variables measured for students exclusively were their recall of early relationships with parents and with peers, current closeness to parents, and perceptions of their parents' marital happiness. Marital satisfaction was measured for mothers and fathers. Commonly measured variables for the three groups of research subjects were loneliness, social skills, self-esteem,depression, quality of current friendships, and two social comparison measures regarding number of friends and quality of friendships compared to others. Each parent also reported how they remember the student subjects' early peer relationships, this information to be used for validation of students' own reports. Several measures were used to derive these variables.

### Loneliness

Researchers have not yet found a way of readily manipulating loneliness, nor have developed an experimental paradigm to produce differing degrees of loneliness under controlled conditions, so reliance is on an instrument that can adequately detect variations in the experiencing of loneliness (Russell, Peplau, & Cutrona, 1980). Such an instrument needs to be able to discriminate clearly among the various personality characteristics, such as low self-esteem, shy-

ness, depression, and alienation, that are closely related to loneliness itself. Cook and Campbell (1979) emphasise the need to be concerned with confounding, meaning that operations which are intended "to represent a particular cause or effect construct can be construed in terms of more than one construct, each of which is stated at the same level of reduction" (p. 59). Dependent variables should represent the theoretical dimension they are meant to measure and should be differentiated from their particular cognates. While other personality variables may co-occur with loneliness, recent research has demonstrated that it is a distinct construct (Russell, Peplau, & Cutrona, 1980; Weeks, Michela, Peplau, & Bragg, 1980).

The U.C.L.A. Loneliness Scale is a reliable measure of loneliness. The 20-item scale measures subjects' self-reports of several experiences and behaviours which are theoretically related to loneliness, such as social accessibility to others, difficulty in making friends, and a sense of aloneness (See Appendix B). The scale is recommended for its relative ease of rating and scoring. It has high internal consistency with a coefficient alpha of .96, and a test-retest reliability of .73, for the student population on which the measure was standardized. The correlation between a self-labelling loneliness index and the scale was .79, thus, the scale relates closely to another measure of loneliness. It correlates very highly with the later revised

scale, with an r of .91 (Russell, Peplau, & Cutrona, 1980). Higher scores on this scale represent greater loneliness.

Parental Behaviour with Children

For the purposes of this study, interest is in three broad categories of the parent-child relationship: first, memories of early parental behaviour; second, students' attitudes to parents when they were children, in terms of their perceiving parents as reliable, and secure and trusted bases of support; third, current closeness to parents.

Schaefer's Children's Report of Parental Behaviour Inventory (CRPBI) (Schaefer, 1965) is an effective form by which to obtain reports of early parental behaviours but, because of its unweildly length, efforts have been made to develop shortened versions of the Inventory (e.g., Raskin, Boothe, Reatig, & Schulterbrandt, 1971; Schludermann & Schludermann, 1970). A factor analytic study by Raskin et al., using 90 items of the CRPBI, yielded essentially the same three factors as obtained by other factor analyses of the full number of items of the scale. The three major dimensions derived from the Raskin et al. study of parental child-rearing attitudes and practices have been labelled Positive Involvement, Negative Control, and Lax Discipline.

An examination of the items comprising the dimension Positive Involvement shows that they reflect nurturant parental behaviours. Examples of these items are that parents

"Talked over worries", "Showed love", and "Comforted me when afraid". The items on the Lax Discipline dimension appear to be reverse presentations of behaviours that could constitute parental power and control, and imply that parents have the priviledge of allowing or not allowing certain behaviours of their children. Examples of these items are that parents "Gave me great freedom", and "Allowed me to spend money as I pleased". The Negative Control factor includes items indicating punitive and negatively controlling parental behaviours. The 22 items of the Positive Involvement factor, the 10 items of the Lax Discipline factor, and the 16 items of the Negative Control factor comprise the measure of early parental behaviours with children (Appendix C).

Three items from the Shaver and Rubenstein Loneliness Questionnaire (Shaver & Rubenstein, 1980) were included to assess the perception that parents showed affection and acted as reliable, secure, and trusted bases of support for their children.

The Closeness to Parents Scale discussed and refined by Shaffer, Duszynski, and Thomas (1982), and a subset of items of the Family Attitudes Questionnaire, was used to assess closeness to parents (Appendix D). The scale consists of 25 items which are adjectives describing parental attitudes to children and children's attitudes to parents, each scored +1 or -1 if checked by the subject. This scale correlates .97 with the Family Attitudes Questionnaire and has a coeffi-

cient alpha of .83. An interclass correlation coefficient of .54 was obtained from data from pairs of siblings, and which represents the extent to which subjects' scores is an objective appraisal of an actual situation prevailing in the home.

Early Peer Relationships

Students were asked to give retrospective reports regarding the diversity of their peer relationships for the period when they were between the ages of 6 to 12 years. This period coincides with the years normally spent in elementary school and is hypothesised to be a time when children's ability to effectively manage the social milieu outside the family develops and is tested.

A questionnaire measure was developed by the researcher intended to obtain information regarding aspects of early peer friendships which contribute to the development of social skills and to adult social adjustment. (See Appendix E). Impairments resulting from the absence of appropriate peer group friendships are expected to be reflected in adult social adaptation and, by extension, the degree of loneliness experienced.

The procedure for constructing the questionnaire begun with the selection of 18 items designed to solicit information on several aspects of friendships, including same- and cross-sex friendships, same- and cross-age friendships,

friendships with siblings, the environment from which friends came, stability of friendship groups, power distribution within friendships groups, influentiality of friends, and degree of liking for friends.

Student subjects in the study rated these items, and parents were also asked to give their ratings on the items in relation to their child taking part in the study. Validity of each item was established by comparing student self-ratings to the parent ratings. Since mothers are traditionally considered more alert and attuned to their children's behaviour, their ratings were the ones used for comparison. Pearson product-moment correlation coefficients were run between student ratings and mother ratings for each of the 18 items. Thirteen of these items correlated significantly, ranging from $\underline{r} = .22$ ($\underline{p} < .01$) to $\underline{r} = .48$ ($\underline{p} < .001$), and these were used to derive the scores to assess early peer relations. Students' total scores on these 13 items correlated .33 ($\underline{p}<.001$) with the total scores of their mothers' ratings.

Test-retest reliability was established by administering the instrument, along with all others used in the study, to a sample of 30 female students that was independent of the study sample. They were retested after 3 weeks. The Pearson product-moment correlation coefficient between pre- and post-test scores was $\underline{r} = .80$ ($\underline{p} < .001$). Scale reliability using the Spearman-Brown split-half measure of internal con-

sistency was found to be .81. However, a Cronbach alpha of .60 was found. Together, these results suggest the instrument has moderate internal consistency.

Overall, the results indicate that the total scale is sufficiently reliable, valid, and adequate for the purpose of assessing the diversity of early peer relationships.

Marital Satisfaction

This variable was measured using the Dyadic Adjustment Scale (Spanier, 1976). (See Appendix F). Factor analytic studies of the scale items produced four empirically verified components which may be used as subscales - Dyadic Satisfaction, Dyadic Cohesion, Dyadic Consensus, and Affectional Expression. The format allows for easy coding and scoring and can be incorporated easily in a self- administered questionnaire. Evidence shows the full scale has high criterion-related validity. Each of the 32 items correlates significantly with the external criterion of marital status, in that there is a significant difference between the mean score of a divorced sample and of a married sample ($p < .001$). Construct validity was assessed by correlating scores on the most frequently used measure of marital adjustment with scores on the Dyadic Adjustment Scale. The correlation is .86 ($p < .001$ among married respondents. Total scale reliability is .96, and for the Dyadic Satisfaction subscale is .94.

Since the Dyadic Satisfaction subscale seems adequate to provide an overall summary of an individual's perception of the various facets of the marital relationship, this subscale was the only one administered in the study. The subscale contains 10 counter-balanced items with a theoretical range of 0 - 50. Two items, one asking if subjects kissed their mates and to indicate their feelings about the future of their marriage, were omitted. One item, asking subjects to rate their degree of happiness in their marriage, was modified and used to obtain students' perception of their parents' marital happiness, in order to provide external validation of parent reports.

Social Skills

There are two major concerns regarding the measurement of social skills; first, arriving at a definition of the target behaviours which comprise the skill and second, the efficacy of using self- report versus behavioural assessment techniques.

Regarding the first issue, there are social norms governing what are considered appropriate social behaviours in different situations, so that the social-interpersonal context in which a behaviour occurs should be considered. The type of behaviours exhibited on a date might not be considered skilled or appropriate during a job interview. Additionally, similar behaviours observed by people with differ-

ent norms may be differently assessed. So, a behaviour cannot be judged as skilled or unskilled without considering the specific interpersonal context, and these judgements are influenced by the values and norms of the observers of these behaviours.

In relation to the second area of concern, both self-reports and behaviour observational methods have been used extensively in the assessment of social skills. Perhaps, the best way of assessing any behaviour is direct observation in the natural setting, but for research purposes this has been possible to some extent only with captive groups such as school children in classrooms or psychiatric patients in hospitals. Otherwise, observational techniques are practically impossible. However, simulated interpersonal situations have been generated as an alternative to the natural setting (e.g., Jones, Hobbs, & Hockenbury,1982).

Self-reports have become the most widely used assessment strategy for measuring social skills. One limitation of self-reports is that derived summed scores mask the situational variations in specific social contexts (Bellack,1979). Summative scores are, then, best used for identifying uniformly low or high skilled subjects and not for such processes as predicting performance in specific social situations. Hersen and Bellack (1976) suggest two levels of analysis of social skills: first, molar skill categories, including such general skill types as assertiveness and het-

erosexual skill; second, molecular response components, including such highly specific response elements as eye contact, and speech duration. For the purposes of this study a molar skill category, namely, assertiveness, seems more useful, and a self-report assessment technique seems more practical.

Consequently, a short version of the Rathus Assertive Schedule (RAS) (Rathus, 1973) was used for the assessment of social skills of both student subjects and their parents. (See Appendix G). The full schedule contains 30 counterbalanced items on a 6-point scale with responses ranging from Very Characteristic of Me, scored +3, to Very Uncharacteristic of Me, scored -3. The schedule has been shown to have fairly high test-retest reliability ($r$ = .78, $p$< 01) and split-half reliability ($r$ = .77, $p$< .01). Validity was established by comparing self-reported RAS scores to two external measures of assertiveness, namely; impressions respondents make on other people (.33< $r$'s < .62, $p$'s < .01), and respondents' indication of how they would behave in specific situations in which being assertive would be advantageous ($r$ = .70, $p$< .01). Nineteen of the 30 scale items had significant correlations with at least one of six external criteria used in the test of validity. These 19 items comprised the short form of the schedule used.

Self-esteem

Self-esteem as conceptualized by Backman and O'Malley (1977), Coopersmith (1967), and Rosenberg (1965) has been adopted for this study that: first, self-esteem refers to an individual's self- evaluation or judgement of personal worth; second, the concept is a global dimension rather than comprising a number of traits; and third, it is a relatively enduring characteristic rather than situationally determined.

The measure of self-esteem used was that developed by Bachman and O'Malley, comprising a selection of items from scales used by Rosenberg, and by Cobb, Brooks, Kasl, and Connelly (1966). The result is a 10-item counter-balanced index which asks respondents to indicate on a 5-point scale how often each item is true for them. (See Appendix H). Construct validity was tested by relating self-esteem with other variables which have overlap with the concept, such as happiness and negative affective states. Relationships were in expected directions with correlation coefficients ranging from .21 to .54. Test-retest reliability was .75.

Depression

This variable was measured using the Center for Epidemiologic Studies Depression Scale (CES-D Scale) (Radloff, 1977). (See Appendix I). This scale was designed for use with the general, as opposed to, a clinical population, to measure

depressive symptomatology, and for use in studies of the relationships between depression and other variables across population subgroups.

The scale is comprised of 20 items which are symptoms associated with depression. The instrument asks subjects to respond to each item on a four-point scale, from Rarely or None of the Time, scored zero, to Most or All of the Time, scored 3, regarding how they have felt during the week previous to its administration. Test of internal consistency resulted in a coefficient alpha of .85. Test-retest correlations were moderate, ranging from $\underline{r}$ = .45 to $\underline{r}$ = .70 for different groups tested. This is expected since the scale as designed would be sensitive to changes in affective states over time. Validity was tested by comparing the correlations with other self-report measures and clinical ratings of depression, and by examining the relationships with other variables such as, Need for Service. The scale has excellent concurrent and construct validity and these properties hold across all subgroups of the general population that were studied. It discriminates adequately between psychiatric inpatients and samples in the general population, in that, the average scale scores were significantly higher for psychiatric patients than for the general population.

For the purpose of this study the instructions for the scale were modified to ask respondents how they have felt generally about each scale item. The scale provides a possible range of scores from zero to 60.

Current Friendship Relationships

Goldenberg's (1982) adaptation of LaGaipa's (1977) Friendship Scale was used to assess subjects' perceptions of the quality of their current relationships with good friends. Factor analytic studies of the original scale items had produced eleven dimensions, representing different aspects of friendships; Self-disclosure, Authenticity, Helping Behaviour, Acceptance, Positive Regard, Strength of Character, Similarity, Empathic Understanding, and Ritualistic Social Exchange.

Goldenberg selected two items from each of five of these friendship dimensions; Positive Regard, Self-disclosure, Authenticity, Helping Behaviour, and Empathic Understanding. The resulting 10-item measure is responded to on a 7-point rating scale ranging from Never, scored 1, to Always, scored 7. Results of a factor analysis on data obtained using the abbreviated measure and the inter-item correlations, show that items from the five dimensions can be combined to form an overall scale of achieved quality of friendships.

A further modification of the original measure for the purposes of this study is that subjects were not asked to state their "desire" for experiencing particular qualities in friendship relationships as in the adapted Goldenberg measure, nor their "expectation" as was requested in the original scale, but rather to state the qualities of their friendships as they perceive them to actually exist. Two

items were added to provide social comparison measures regarding subjects' number and quality of friendships compared to others (Appendix J).

Test-retest of Questionnaire

Where scales were abbreviated for use in the study, this was done according to the suggestions of the standardization procedures, or on the basis of results from other studies. However, such abbreviations may raise concerns about the accuracy and dependability of the measures.

A way of determining the accuracy of an instrument is to administer it on two separate occasions to the same group of persons and compare the results. Thus, test-retest reliabilities were calculated for all the measures in the questionnaire given to student subjects. It was not feasible to perform this procedure for students' parents. A group of 30 female students, independent of the sample group, completed the questionnaire, and were re-administered the same questionnaire after 3 weeks. Pearson product-moment correlation coefficients were calculated between the pre- and post-test scores. These ranged from an $r$ of .72 to an $r$ of .97 for the measures in the questionnaire (see Appendix K), indicating high to very high stability of test scores over a 3-week period.

## Statistical Methodology

This study is categorised as non-experimental passive observational in design, and will attempt to systematically evaluate a complex of non-manipulated and inter-related variables. The statistical methodology is basically correlational in nature, and extensive use is made of regression procedures. Stepwise regression procedures were used to indicate order of importance of independent variables in explaining the dependent variable, and to determine additional variance contributed by the ordered entry of variables. Univariate statistics were reported where appropriate, but as these are not typically sensitive to the complexity of interrelationships among variables, they were supplemented by standard regression and regression on principal components analyses. Additional procedures were used to more fully elucidate the data. For example, analysis of variance was used when interest was in testing group differences on particular variables. A canonical correlation procedure was used to test the relationship between clusters of variables across groups of research units.

All tests of statistical significance were set at an alpha of .01. With the relatively large sample size, rejection of the null hypotheses would almost be certain with a larger margin of error, and trivial amounts of explained variance would be accepted as significant. Although this is likely to increase the Type I error rate, in using a lower

alpha level, the choice is made for higher strength of association over frequency of significant relationships.

Computer data analysis was done using the BMDP Statistical Software (Dixon, 1983). Frequency distributions for data checking were produced by SPSS (Statistical Package for the Social Sciences) (Nie et al., 1975).

The Problem of Multicollinearity

The presence of a large number of independent variables having interrelationships between them had introduced the problem of multicollinearity and, consequently, potential difficulties in the analysis and interpretation of the data. Without adjustments for this, the use of multivariate statistics would result, for example, in estimates of regression coefficients which are unstable and unlikely to be reproduced with another sample drawn from the same population. Also, in operations requiring the invertion of the correlation matrix, solutions would be unreliable. These problems are usually associated with the situation where correlations between independent variables are .80 or higher. However, undesireable effects, based more on theoretical considerations than statistical ones, may also be produced by lower, but still substantial, degrees of correlation (Gordon, 1968).

Consideration of how to deal with the problem of multicollinearity depends partly on what types of analyses are to

be performed. The procedures for factor analysis and canonical correlation should naturally collect together the multicollinear variables. However, in the case of multiple regression, interest is in determining the most parsimonious set of independent variables for explaining the dependent variable, and so redundant variables need not be included in the analysis.

Several approaches were reviewed to deal with this problem and, for the overall analysis of data, a choice was made to group variables sharing a common dimension. The variables were subjected to principal components analysis and the scores on the resulting components used as variables in subsequent regression analyses. This approach was also used for the test of some hypotheses. However, this procedure would be helpful only in the case where the principal components are interpretable.

Cases-to-Variables Ratio

Suggestions for the ideal cases-to-variables ratio differ according theorist and the type of statistical procedure to be performed. Ideally, twenty times more cases than variables are required for regression analyses, and a minimum requirement is to have four or five times more cases than independent variables for stepwise regression (Tabachnick & Fidell, 1983). This study involves 130 research units and 38 measured independent variables. However, the reduction

of these variables through the application of principal components analysis, and using the resulting factor scores as the independent variables, brings the cases-to-variables ratio within the acceptable limit.

Treatment of Missing Values

Instructions to the questionnaires had asked participants in the study to respond to all items, and students were instructed to review their questionnaire after completion to ensure that they had responded accordingly. Consequently, there were relatively few missing values in the sample data, and those that there were might truly be considered refusals to respond. Since the missing data were proportionately small and appeared randomly distributed, any procedure for handling them would likely produce similar results. The option for the list-wise deletion of cases was used, which causes a case with a missing value to be deleted from the statistical procedure where the case was included in a variable in the variable list. These were the considerations regarding the sample used in the study.

However, as reported earlier, there were 105 students who met the criteria for participation in the study and completed questionnaires, but who had neither parent returning questionnaires. These non-returns could probably be considered a case of missing data. It was decided to test the randomness of these, as there might have been relationships

between important variables and the fact of these as missing data. Means and percentage distributions on variables were calculated for the group of students who had both parents returning questionnaires and the group who had neither parent doing so, and comparisons made between them. These results are reported later.

# RESULTS

This chapter begins with a general description of the variables and the reporting of univariate statistics. The next section reports the results of multivariate analyses of the data. The extent to which the dependent variable is related to the independent variables is examined. Reported early relationships with parents are of particular interest in this study, and the next section examines these in some detail. The next section reports the analysis of variables commonly measured for students, mothers, and fathers. The hypotheses of the study are then tested in turn.

## Description of Variables

The variables entering the analysis of data are enumerated in Table 1, along with their abbreviated forms, corresponding descriptive statements, the range of possible scores on each, their means, and their standard deviations. Abbreviations for variables are used in order to facilitate ease of reporting results, particularly in the construction of tables. In their abbreviated forms, the variables derived from student reports are prefixed with an "S", those from mothers with an "M", and those from fathers with an "F". These letters are then followed by acronyms to denote the measured variable.

Table 1

Variables used in Analysis of Data: Abbreviated Forms, Descriptions, Means, and Standard Deviations. (N=127)

| Variable Number | Abbreviated Forms | Descriptons | Possible Range of Scores | Means | Standard Deviations |
|---|---|---|---|---|---|
| | | Student retrospective reports of parental behaviours and attitudes to parents when they were children | | | |
| 1 | S-MPOSINV | Mother positive involvement | 24-64 | 57.85 | 6.40 |
| 2 | S-MNEGCON | Mother negative control | 16-48 | 27.51 | 4.93 |
| 3 | S-MLAXDIS | Mother lax discipline | 10-30 | 17.02 | 3.25 |
| 4 | S-FPOSINV | Father positive involvement | 24-64 | 52.51 | 9.94 |
| 5 | S-FNEGCON | Father negative control | 16-48 | 24.55 | 4.95 |
| 6 | S-FLAXDIS | Father lax discipline | 10-30 | 17.04 | 4.13 |
| 7 | S-MCLOSE | Closeness to mother | 1-4 | 3.32 | .77 |
| 8 | S-MRELY | Reliability on mother | 1-5 | 4.49 | .81 |
| 9 | S-MTRUST | Trust in mother | 1-5 | 4.44 | .80 |
| 10 | S-FCLOSE | Closeness to father | 1-4 | 3.11 | .68 |
| 11 | S-FRELY | Reliability on father | 1-5 | 4.26 | .92 |
| 12 | S-FTRUST | Trust in father | 1-5 | 4.25 | .93 |
| 13 | S-PEERS | Student retrospective reports of extent of peer relationships when they were children | 13-65 | 42.26 | 3.41 |
| 14 | S-CLOSPAR | Student current closeness to parents | -10-15 | 8.63 | 4.65 |

(Continued)

Table 1 - Continued

| Variable Number | Abbreviated Forms | Descriptions | Possible Range of Scores | Means | Standard Deviations |
|---|---|---|---|---|---|
| 15 | S-PARMAR | Student ratings of parents' marital happiness | 0-6 | 3.79 | 1.32 |
| 16 | S-LONE | Student loneliness | 20-80 | 36.28 | 10.63 |
| 17 | S-DEPR | Student depression | 0-60 | 34.01 | 7.66 |
| 18 | S-SELFEST | Student self-esteem | 10-50 | 40.90 | 5.50 |
| 19 | S-SOCSK | Student social skills | -57-57 | .28 | 16.25 |
| 20 | S-CURFR | Student quality of current friendships | 10-70 | 57.61 | 7.05 |
| 21 | S-NUMFR | Student number of friends compared to others | 1-5 | 3.02 | .75 |
| 22 | S-QUALFR | Student quality of friendships compared to others | 1-5 | 3.95 | .72 |
| 23 | M-MARSAT | Mother marital satisfaction | 7-48 | 37.81 | 4.70 |
| 24 | M-LONE | Mother loneliness | 20-80 | 36.42 | 11.15 |
| 25 | M-DEPR | Mother depression | 0-60 | 32.93 | 8.04 |
| 26 | M-SELFEST | Mother self-esteem | 10-50 | 42.09 | 5.73 |
| 27 | M-SOCSK | Mother social skills | -57-57 | - 1.03 | 18.54 |
| 28 | M-CURFR | Mother quality of current friendships | 10-70 | 52.46 | 12.40 |
| 29 | M-NUMFR | Mother number of friends compared to others | 1-5 | 2.81 | .79 |
| 30 | M-QUALFR | Mother quality of friendships compared to others | 1-5 | 3.58 | .75 |
| 31 | F-MARSAT | Father marital satisfaction | 7-48 | 38.74 | 4.64 |

(Continued)

Table 1 - Continued

| Variable Number | Abbreviated Forms | Descriptions | Possible Range of Scores | Means | Standard Deviations |
|---|---|---|---|---|---|
| 32 | F-LONE | Father loneliness | 20-80 | 34.15 | 11.10 |
| 33 | F-DEPR | Father depression | 0-60 | 32.12 | 7.66 |
| 34 | F-SELFEST | Father self-esteem | 10-50 | 43.39 | 5.13 |
| 35 | F-SOCSK | Father social skills | -57-57 | 5.82 | 17.83 |
| 36 | F-CURFR | Father quality of current friendships | 10-70 | 48.23 | 11.20 |
| 37 | F-NUMFR | Father number of friends compared to others | 1-5 | 2.79 | .79 |
| 38 | F-QUALFR | Father quality of friendships compared to others | 1-5 | 3.43 | .67 |

Generally, scores on these variables do not differ significantly from those found in standardization and other studies. For example, compared to average scores reported in Table 1, scores from the U.C.L.A. Loneliness Scale standardization study was 38.9 on the average (Russell, Peplau, & Ferguson, 1978). Other comparative mean scores are: Closeness to Parents, 8.59 (Shaffer, Duszynski, & Thomas, 1982); Rathus Assertiveness Schedule, .29 to 1.62 (Rathus, 1973); and Dyadic Satisfaction Subscale, 40.5 (Spanier, 1976). Scores obtained in this study on the CES-D to measure depression seem to differ from those found for the normal population in the validation study of the scale, which ranged from 7.94 to 24.42 for four groups of subjects. The mean scores obtained for students, mothers, and fathers, were closer to that found for the patient population in the validation study, i.e., 39.11 (Radloff, 1977). The fact that the Radloff measure is for current feelings of depression in a particular week, while this study asked subjects to report about their general feelings of depression, might account partly for this result.

It was realised that multiple measures were being made for variables sharing similar underlying concepts, and while this gives rise to the problem of multicollinearity, this approach provides an internal means for the cross validation of variables. For example, student ratings of parents' marital happiness correlates .58 ($p < .001$) with their moth-

ers' own ratings of marital happiness, and .41 ($p < .001$) with fathers' ratings. Also, student current closeness to parents correlates .58 ($p < .001$) with memories of mother positive involvement, .49 ($p < .001$) with memories of closeness to mother, .77 ($p < .001$) with memories of father positive involvement, and .60 ($p < .001$) with memories of closeness to father. These latter results suggest that there is some consistency between how students remember their early relationships with parents and how they feel about them currently. Other correlations between the variables are reported in Appendix L.

## Representativeness of Sample

Although the research units comprise the completed triads of students, mothers, and fathers, comparisons were made of the data from students in this group with students whose parents had not returned questionnaires, on the assumption that there are important differences which might partly explain the non-return of parent questionnaires. If the non-returns are treated as missing data this may introduce a bias in the useable data.

Means were calculated on the relevant variables for the two groups and differences were tested for significance (Appendix M). There are significant differences on three measured variables indicating that students whose parents did not return questionnaires feel less close to their parents

currently, remember their fathers as more negatively controlling with them as children, and rate their parents' marriage as less happy than students whose parents had returned questionnaires. Additionally, families in the student-only group have a higher proportion using other than English as the primary language than families in the triad group - 42% as opposed to 21%.

It should be expected that where there is less marital happiness between parents and less positive interaction between parents and children, parents would be less disposed to be involved in an activity which requires giving information about these relationships. The substantially higher proportion of parents who did not return questionnaires not having English as their primary language is also a major factor in the questionnaires not being returned. The positive effect of this is that measurement error is reduced (since non-English speaking individuals might not have adequately understood the questions), but the overall differences between these groups limits the generalizability of results obtained from the sample used to the population of students who met the study criteria. There is no reason to believe, however, that the sample used is not representative of the population of students who met the criteria and whose parents returned questionnaires.

## Overall Multivariate Analysis of Data

The next stage in the data analysis is intended to examine the overall multivariate relationship of the independent variables with the dependent variable, student loneliness. This was done in three steps. In order to deal with the problem of multicollinearity among the measured variables,the first step was a principal components analysis to group together variables sharing a conceptual similarity. In the second step, the derived latent variables were entered as the independent variables in a step-wise regression so that these variables were entered in the order of their validity and usefulness in accounting for variance on the dependent variable. The third step involved a hierarchical regression procedure in which variables were entered in the equation based on theoretical criteria.

### Step 1

A principal components analysis (PCA) was performed on the independent variables to test the structure of the underlying dimensions in the data and to derive variables more compatible with the regression procedure. The PCA was chosen for two reasons: first, it is considered the most appropriate of the factoring procedures for the initial extraction of components; second, multicollinearity is not a problem since the singular matrix need not be inverted in the process (Tabachnick & Fidell, 1983).

From this initial PCA ten factors were extracted following a varimax rotation of raw factors, each having an eigenvalue of 1 or more, which accounted for 71% of the variance. With a loading cutpoint of .40 for inclusion of a variable in a factor, two factors had only two variables defining them. However, they were similar in item composition to two of the three factors of the CRPBI, to measure childrens' memories of early parental behaviours, i.e., Negative Control and Lax Discipline. On this basis, these factors were considered adequately defined. The items of the third factor of the CRPBI, Positive Involvement, loaded on another factor which included other positive parent-child relationship items. Student retrospective reports of the extent of early peer relationships (i.e., S-PEERS) did not achieve a loading of .40 on any factor. From a consideration of the content of this variable it was concluded that this measure of student reports of early peer relationships shares little conceptual similarity with other variables, which might justify its removal from subsequent factoring.

As an attempt to obtain a more reliable, well defined, and interpretable factor structure, a second principal components analysis was performed on all independent variables except student retrospective report of the extent of early peer relationships (i.e., S-PEERS), the variable of the single variable factor in the previous analysis. Table 2 gives the results of this analysis, with the factor descriptions,

Table 2

Principal Components Analysis of Independent Variables, with Factor Labels, Item Composition, and Loadings.

(N = 127)

| Factor I<br>Positive Parent-child Relations | | Factor II<br>Mother Social and Personality Functioning | | Factor III<br>Father Personality Characteristics | | Factor IV<br>Parental Marital Satisfaction | | Factor V<br>Student Personality Characteristics | |
|---|---|---|---|---|---|---|---|---|---|
| S-FPOSINV | .85 | M-CURFR | .75 | F-DEPR | -.74 | M-MARSAT | .84 | S-SELFEST | .70 |
| S-FRELY | .83 | M-SELFEST | .67 | F-SELFEST | .70 | F-MARSAT | .61 | S-DEPR | -.65 |
| S-FTRUST | .82 | M-QUALFR | .65 | F-SOCSK | .69 | S-PARMAR | .55 | S-SOCSK | .47 |
| S-CLOSPAR | .78 | M-LONE | -.65 | F-LONE | -.68 | | | | |
| S-MRELY | .77 | M-NUMFR | .54 | | | | | | |
| S-MPOSINV | .76 | M-SOCSK | .54 | | | | | | |
| S-MTRUST | .72 | M-DEPR | -.53 | | | | | | |
| S-FCLOSE | .68 | | | | | | | | |
| S-MCLOSE | .62 | | | | | | | | |

(Continued)

Table 2 - Continued

| Factor VI<br>Student Quality of Current Friendships | | Factor VII<br>Parents' Lax Discipline | | Factor VIII<br>Father Quality of Current Friendships | | Factor IX<br>Parents' Negative Control | | Factor X<br>Student Current Number of Friends | |
|---|---|---|---|---|---|---|---|---|---|
| S-QUALFR | .82 | S-FLAXDIS | .89 | F-CURFR | .80 | S-MNEGCON | .88 | S-NUMFR | .71 |
| S-CURFR | .77 | S-MLAXDIS | .87 | F-QUALFR | .42 | S-FNEGCON | .71 | | |

item composition, and loadings. Ten factors were extracted following a varimax rotation of the raw factors with eigenvalues of 1 and above. These 10 factors accounted for 69% of the variance. A cutpoint of .40 was used for the inclusion of a variable in defining a factor. Consequently, father number of friends compared to others (i.e., F-NUMFR) was not included in the solution. Factor 10 had only student number of friends compared to others (i.e., S-NUMFR) loading on it, and so was regarded as a poorly defined factor in this solution. The eigenvalue and the cumulative proportion of total variance for each factor is given in Appendix N.

Further attempts at factor extraction did not yield a better solution in terms of obtaining conceptually compatible constellations of variables. This PCA solution was the most interpretable and defensible on the basis of the theoretical assumptions of the study, and factor scores on the resulting latent variables were used as independent variables in subsequent regression analyses. However, because Factor 10 was regarded as poorly defined, it was excluded, and the variable comprising it was maintained in its original form.

Step 2

A stepwise regression procedure was employed to identify those independent variables, in the order of their statistical importance, which contribute significantly to the variance on student loneliness. In this procedure, variables are selected for entry into the regression equation, one at a time. The order of entry is based on statistical criteria, in that, the variable most important in terms of the amount of variance it explains, is entered first. At each subsequent step, the variable from among the remaining variables which add most to the multiple correlation, is entered into the equation.

Table 3 displays the results of this analysis, showing the variable which entered at each step, R-square values, the amount by which the addition of each variable increased R-square, and the F-to-enter at each step. Since, in stepwise procedures, all possible independent variables do not enter the equation, R-square is not distributed as F, and a significant F reported at the final step by computer outputs reflects a Type I error rate in excess of the established alpha. Therefore, in this analysis, R-square was tested using tables developed by Wilkinson (1979), which make the appropriate adjustments.

Table 3

Stepwise Regression Analysis: Variables Contributing Significantly to Variance on Student Loneliness. (Order of entry statistically determined).

(N = 127)

| Step | Variable Entered | $R^2$ | Increase in $R^2$ | F to enter |
|---|---|---|---|---|
| 1 | FACTOR 1 | .20 | .20 | 30.56** |
| 2 | S-NUMFR | .34 | .15 | 27.63** |
| 3 | FACTOR 5 | .45 | .11 | 25.26** |
| 4 | FACTOR 6 | .48 | .02 | 5.25 |
| | | | Multiple $R^2$ = | .48 |
| | | | df = | 4,122 |
| | | | F = | 27.86** |

** $p < .001$

The results show that four variables entered the equation. However, Student Quality of Current Friendships (i.e., FACTOR 6) did not attain significance. The importance of this variable appears ambiguous, in that, it had a significant correlation with student lonelinesss, ($r$ = -.21, $p$ < .01), and entered the stepwise regression equation based on the criteria established for entry, but did not contribute significantly to R-square. However, on the basis of its significant correlation with student loneliness, it was decided to enter it, along with the other three important variables into a subsequent hierarchical regression analysis.

Step 3

The theoretical orientation of this study suggests an order of importance these variables should have in explaining student loneliness. Hierarchical regression analysis allows the entry of variables into the equation based on theoretical criteria, as opposed to statistical ones. Accordingly, the variables were entered, in the order Positive Parent-Child Relations, Student Personality Characteristics, and Student Quality of Current Friendships (i.e., FACTOR 1, FACTOR 5, & FACTOR 6) and student number of friends compared to others (i.e., S-NUMFR), into a stepwise hierarchical regression analysis. Table 4 sets out the results of this analysis. The procedure used to test R-square in the previous step was used in this analysis.

Table 4

Hierarchical Regression Analysis: Variables Contributing Significantly to Variance on Student Loneliness. (Order of entry theoretically determined).

(N = 127)

| Step | Variable Entered | $R^2$ | Increase in $R^2$ | $F$ to enter |
|---|---|---|---|---|
| 1 | FACTOR 1 | .20 | .20 | 30.56** |
| 2 | FACTOR 5 | .33 | .13 | 24.98** |
| 3 | FACTOR 6 | .38 | .04 | 8.79* |
| 4 | S-NUMFR | .48 | .10 | 23.71** |
| | | | Multiple $R^2$ = | .48 |
| | | | $df$ = | 4,122 |
| | | | $F$ = | 27.86** |

* $p < .01$

** $p < .001$

Specifying the order of entry of variables in this analysis, modified the relative amounts of variance on the dependent variable that they explained and their order of importance. Each variable entered in the specified order added significantly to the variance on student loneliness: Positive Parent-Child Relations contributed the same amount to regression, 20%, as in the previous step; Student Personality Characteristics contributed more, 13%, as opposed to 11%; Student Quality of Current Friendships contributed more, 4%, as opposed to 2%; and student number of friends compared to others contributed less, 10%, as opposed to 15%.

In summary, the student reports of positive parent-child relationships factor has the best relationship with student loneliness, in that, students who are less lonely report more positive relationships with their parents, both when they were children and currently. The next best relationship is between student personality characteristics and loneliness. This suggests students who have higher levels of self-esteem and social skills, and less depression, experience less loneliness. Theoretical assumptions had led to the assumption that the quality of current friendships factor would take precedence in importance over the social comparison measure of number of friends in explaining loneliness. However, this was not so. Student perception regarding number of good friends compared to others was next in importance. Of the four significant variables, the qual-

ity of friendships factor contributed least to the variance on student loneliness. Students who regard themselves as having a better quality of relationships with good friends when compared to others, and also without comparison to others, are less lonely.

It is interesting to note that the variables contributing significantly to student loneliness all derived from student reports. None of the parent reported variables, for example, mother social and personality functioning, and father personality traits, achieved significance. Since reported parent-child relationships appear of major significance in explaining loneliness, this factor will be examined in more detail.

## Reported Early Parent-Child Relationships

In order to examine the extent to which students described the early behaviours of their mothers and fathers, and their attitudes to each parent as similar, Pearson product-moment correlations between reports pertaining to each parent were computed. Means were also extracted. Table 5 shows these statistics.

The correlations and mean differences between these variables suggest that student reports are not altogether similar for mothers and for fathers. Students remember their mothers as more positively involved with them than were their fathers, $t(258) = 5.22$, $p < .001$, and mothers as more

Table 5

Means on Paired Variables of Student Reports Regarding Early Relationship with Mother and with Father, and Correlations between them.

(N = 130)

| Paired Variables | Means | Correlations |
|---|---|---|
| S-MPOSINV | 57.85 | .71** |
| S-FPOSINV | 52.51 | |
| S-MNEGCON | 27.51 | .49** |
| S-FNEGCON | 24.55 | |
| S-MLAXDIS | 17.02 | .64** |
| S-FLAXDIS | 17.04 | |
| S-MCLOSE | 3.32 | .48** |
| S-FCLOSE | 3.11 | |
| S-MRELY | 4.49 | .50** |
| S-FRELY | 4.26 | |
| S-MTRUST | 4.44 | .48** |
| S-FTRUST | 4.25 | |

** $p < .001$

negatively controlling of them than were their fathers, $t(258) = 4.89$, $p < .001$. However, it appears that in a significant number of cases, students who remembered their mothers as positively involved with them, have similar memories of their fathers. But there is also a significant group who experienced their mothers in this way than they did their fathers. This situation holds also for parent negative control behaviours. Means on other parent behaviour variables were not significantly different between mothers and fathers although the variables were significantly correlated.

Remembered and Current Positive Parent-Child Relationship

Conceptually, reported memories of early parental behaviours and student attitudes to parents can be seen as falling into two broad categories, i.e., positive, and negative. In order to examine the degree of concurrence between remembered and current positive aspects of the parent-child relationship, scores on memories of parental positive involvement, student closeness to parents, reliance on, and trust in parents were combined and averaged. These variables were all included in the Positive Parent-Child Relations factor in the principal components analysis which suggests their unidimensionality. A Pearson product-moment correlation computed between the derived scores and the scores on the current closeness to parents measure resulted in a significant correlation, $r = .67$, $p < .001$.

This correlation is accepted as a reliable indicator of consistency between how students remember their early relationship with parents and how they assess their current relationship, and reflects the more realistic situation that changes in sentiments about others are likely to occur, to some degree, over time. A higher degree of correlation, in the range of .80 and above, would possibly have other implications; for example, that students were responding to the measure of current closeness to parents on the basis of their response pattern on measures tapping memories of early relationships, or vice versa.

The study had no comparative measure of current negative aspects of the parent-child relationship. However, there was a significant negative correlation between the averaged scores on the measures of reported parental negative control and lax discipline behaviours and scores on current closeness to parents, $r = -.29$, $p < .001$.

## Analysis of Personality and Friendship Measures

Several variables were measured commonly for students, mothers, and fathers. These were loneliness, depression, self-esteem, social skills, quality of current friendships, number of friends compared to others, and quality of friendships compared to others. Table 6 shows the means on these variables for the three groups of research units.

Table 6

Means on Commomly Measured Variables
for Students, Mothers, and Fathers
(N = 127)

| Variable | Mean |
|---|---|
| S-LONE | 36.35 |
| M-LONE | 36.39 |
| F-LONE | 33.93 |
| S-DEPR | 34.01 |
| M-DEPR | 32.72 |
| F-DEPR | 32.02 |
| S-SELFEST | 40.81 |
| M-SELFEST | 42.24 |
| F-SELFEST | 43.45 |
| S-SOCSK | .32 |
| M-SOCSK | - .95 |
| F-SOCSK | 6.12 |
| S-CURFR | 57.68 |
| M-CURFR | 52.51 |
| F-CURFR | 48.20 |
| S-NUMFR | 3.02 |
| M-NUMFR | 2.82 |
| F-NUMFR | 2.79 |
| S-QUALFR | 3.95 |
| M-QUALFR | 3.58 |
| F-QUALFR | 3.44 |

There was a nonsignificant trend for fathers to score less on the loneliness measure than students and mothers. On the U.C.L.A. scale, significant differences between sexes are rarely found, but when they are, males usually have higher loneliness scores (Perlman,1984). Significant differences on other measures are in the direction one might expect on the basis of what is known about individual differences attributed to sex, age, and occupation. Scores on the social skills measure differed significantly between students and fathers, $t = 2.73$, $p < .01$, and between mothers and fathers, $t = 3.12$, $p < .01$. On the quality of current friendships measure, fathers reported the lowest score on the average. On this measure, for the difference between students and fathers, $t = 7.99$, $p < .01$; between students and mothers, $t = 4.10$, $p < .01$; and between mothers and fathers, $t = 2.90$, $p < .01$.

Assertiveness was the component of social skills measured and, thus, it is understandable that fathers scored higher on this scale. Males, it would appear, are more confident about, and concerned with this social skill than females who might be more uncertain about this aspect of their behaviour. On the other hand, males appear to be less concerned with, or attuned to the qualitative nuances of social relationships, than females generally, and than female students particularly, who are at an age and in an environment where a wide network of social relationships are important and valued.

Another intergroup difference was revealed through a step-wise regression of the commonly measured variables on loneliness for each of the three groups of research units. This was that, for students and their fathers, the two variables entering the regression, in order, were depression and number of friends compared to others, while those entering for mothers were, in order, depression, self-esteem, and number of friends compared to others. Table 7 reports these results. Thus, from among the commonly measured variables depression is the best predictor of loneliness for all three groups, followed by number of friends compared to others for students and fathers. For mothers, self-esteem is the second best predictor of loneliness, while number of friends compared to others is the third best predictor.

A further procedure for examining the differential responding of students, mothers, and fathers on the commonly measured variables, was to determine the respective underlying latent structures through a principal components analysis. This serves to test any hypothesised differences in structure between these groups of research units who differ in experiences and characteristics. Differences in factor patterns for distinct groups could be seen as reflecting differences between them, and not merely errors in measurement of variables.

The PCA on the seven commonly measured variables employed a varimax rotation of raw factors with eigenvalues of 1 or

Table 7

Stepwise Regression Analysis: Commonly Measured Variables Contributing Significantly to Variance on Loneliness for Students, Mothers, and Fathers.

| | Step | Variable Entered | $R^2$ | Increase in $R^2$ | F to enter |
|---|---|---|---|---|---|
| Students (N=130) | | | | | |
| | 1 | S-DEPR | .48 | .48 | 116.43** |
| | 2 | S-NUMFR | .54 | .07 | 18.68** |
| | | | Multiple $R^2$ = .54 | | |
| | | | df = 2,127 | | |
| | | | F = 75.59** | | |
| Mothers (N=129) | | | | | |
| | 1 | M-DEPR | .32 | .32 | 59.05** |
| | 2 | M-SELFEST | .40 | .08 | 16.68** |
| | 3 | M-NUMFR | .46 | .06 | 13.60** |
| | | | Multiple $R^2$ = .46 | | |
| | | | df = 3,125 | | |
| | | | F = 34.98** | | |
| Fathers (N=128) | | | | | |
| | 1 | F-DEPR | .31 | .31 | 57.23** |
| | 2 | F-NUMFR | .37 | .06 | 11.46** |
| | | | Multiple $R^2$ = .37 | | |
| | | | df = 2,125 | | |
| | | | F = 36.72** | | |

** $p < .001$

more. Two factors emerged for each group, accounting for 60%, 61%, and 58% of total variance in the case of students, mothers, and fathers, respectively. Table 8 shows the resulting factors and salient loadings for each group.

A cursory examination of the table shows, there is similarity between the overall factor patterns for mothers and fathers. For these two groups of subjects, Factor 1 describes a dimension of personality characteristics, while Factor 2 describes a dimensioin of current friendships. The structure for students differs from those for mothers and fathers, mainly in having student number of friends compared to others (i.e., S-NUMFR) loading on Factor 1. Thus, the variable measuring student number of good friends compared to others shares the same factor as loneliness and other personality characteristics, and suggests that for students, having a perceived adequate social circle is a more central goal, and is interpreted in terms of personality functioning.

Comparisons between factor structures may also be performed statistically. Tabachnick and Fidell (1983) suggest that a possible method of doing this is the calculation of Pearson $\underline{r}$, using loadings on the factors as the data to be compared between groups. By this method, the comparison between the factor structures for students and mothers yielded $\underline{r} = -.53$, between students and fathers, $\underline{r} = -.43$, and between mothers and fathers, $\underline{r} = .91$. These coefficients

Table 8

Principal Components Analysis of Commonly Measured Variables for Students, Mothers, and Fathers

| | Factor I | | Factor 2 | |
|---|---|---|---|---|
| Students (N=130) | S-LONE | .82 | S-CURFR | .85 |
| | S-DEPR | .87 | S-QUALFR | .88 |
| | S-SELFEST | .73 | | |
| | S-SOCSK | .63 | | |
| | S-NUMFR | .44 | | |
| Mothers (N=129) | M-LONE | .76 | M-CURFR | .71 |
| | M-DEPR | .86 | M-NUMFR | .68 |
| | M-SELFEST | .80 | M-QUALFR | .87 |
| | M-SOCSK | .45 | | |
| Fathers (N=128) | F-LONE | .64 | F-CURFR | .71 |
| | F-DEPR | .79 | F-NUMFR | .67 |
| | F-SELFEST | .76 | F-QUALFR | .72 |
| | F-SOCSK | .72 | | |

should not be regarded as correlations, but more correctly as indices of concurrence between the various factor patterns compared. However, they verify the noted difference in the latent structure derived from student variables as compared to mothers and fathers.

## Test of Hypotheses

### Hypothesis 1

Students who are more lonely are expected to recall the relationship they had with their parents when they were children as less positive than less lonely students.

The variables involved in the test of this hypothesis are student retrospective reports of mother and father positive involvement, closeness to mother and to father, reliability on mother and on father, trust in mother and in father, and student report of current closeness to parents (i.e., S-MPOSINV, S-FPOSINV, S-MCLOSE, S-FCLOSE, S-MRELY, S-FRELY, S-MTRUST, S-FTRUST, & S-CLOSPAR). The relationship of these variables to student loneliness (i.e., S-LONE) was investigated.

Simple univariate correlations, as reported in Table 9, reveal that student loneliness has significant negative correlations with all reported positive parental behaviours and student attitudes to parents. This confirms the hypothesis that less lonely students remember early relationships with parents more positively, and currently experience more

Table 9

Correlations between Student Loneliness and Variables of Student Reports regarding Early Relationship with Mother, Father, and currently with Parents Together[a] (N = 130)

Mother

| Variables | S-MPOSINV | S-MCLOSE | S-MRELY | S-MTRUST |
|---|---|---|---|---|
| S-LONE | -.46 | -.36 | -.42 | -.32 |

Father

| Variables | S-FPOSINV | S-FCLOSE | S-FRELY | S-FTRUST |
|---|---|---|---|---|
| S-LONE | -.42 | -.39 | -.33 | -.32 |

Parents

| Variables | S-CLOSPAR |
|---|---|
| S-LONE | -.36 |

[a] All correlations significant at $p < .001$

closeness to them. The results of the multivariate analysis of data had also shown that these parent-child relationship variables combined was the most important factor in explaining student loneliness.

However, the differential contribution of variables pertaining to mothers and fathers to student loneliness was not determined. To do this, two regression on principal components analyses were performed: the first, regressing variables relating to mothers on student loneliness (i.e., S-MPOSINV, S-MCLOSE, S-MRELY, S-MTRUST on S-LONE); the second, regressing variables relating to fathers on student loneliness (i.e., S-FPOSINV, S-FCLOSE, S-FRELY, S-FTRUST on S-LONE). In the first analysis, one factor with an eigenvalue of more than 1 was extracted which accounted for 69% of the variance. For regression, $R$-square = .23, [$F(1,129) = 37.25$, $p < .001$]. In the second analysis, again one factor with an eigenvalue of more than 1 was extracted, and this accounted for 77% of the variance. For regression, $R$-square = .16, [$F(1,129) = 23.80$, $p < .001$]. The difference between the $R$-squares is not significant, and so it can be said that only a tendency is suggested that what students report about their relationship with mothers is more highly related to their loneliness than what they report about fathers.

Further analyses of these relationships were performed using a one-way analysis of variance (ANOVA) technique, in order to further isolate group differences. The measure of

student current closeness to parents was included in this analysis. Groups were specified using a median split on the variables measuring student recall of mother positive involvement, father positive involvement, and student report of current closeness to parents (i.e., S-MPOSINV, S-FPOSINV, & S-CLOSPAR), four levels each on the variables rating student recall of closeness to mother and closeness to father (i.e., S-MCLOSE & S-FCLOSE), and five levels on each of the variables rating student recall of reliability on mother, reliability on father, trust in mother, and trust in father (i.e., S-MRELY, S-FRELY, S-MTRUST, & S-FTRUST). Table 10 shows the results of this analysis with the group means and various statistics from the ANOVAs.

With the exception of student reports of fathers acting as trusted and secure bases of support when they were children, the table shows that there is a significant main effect of all components of the reported parent-child relationship on student loneliness. The Scheffe method of multiple comparison (Glass & Stanley, 1970) was employed for the post hoc test of equality between group means, where there were more than two groups. Thus, results indicate that: for recall of closeness to mothers, there were significant differences between Level 1 and Level 2, between Level 1 and Level 3, and between Levels 1 and 2 and Levels 3 and 4; for recall of closeness to father, there were significant differences between Level 1 and Level 3, and between Levels

Table 10

Analysis of Variance: Student Reports regarding Relationship with Parents on Student Loneliness
(N = 130)

| | Variables | Level 1 Mean | 2 Mean | 3 Mean | 4 Mean | 5 Mean | Mean Square | df | F |
|---|---|---|---|---|---|---|---|---|---|
| Mother | | | | | | | | | |
| | S-MPOSINV | 31.19 | 40.93 | | | | 3072.16 | 1,128 | 34.14** |
| | S-MCLOSE | 32.37 | 38.47 | 52.67 | 43.14 | | 776.66 | 3,126 | 7.98** |
| | S-MRELY | 33.02 | 41.09 | 40.87 | 48.75 | 57.00 | 721.57 | 4,125 | 7.71** |
| | S-MTRUST | 33.79 | 38.68 | 40.31 | 50.75 | | 577.59 | 3,126 | 5.66** |
| Father | | | | | | | | | |
| | S-FPOSINV | 32.55 | 39.91 | | | | 1761.15 | 1,128 | 17.57** |
| | S-FCLOSE | 30.97 | 36.87 | 43.80 | 45.67 | | 708.58 | 3,126 | 7.16** |
| | S-FRELY | 33.54 | 38.10 | 38.33 | 45.44 | | 484.24 | 3,126 | 4.64* |
| | S-FTRUST | 33.70 | 37.41 | 39.41 | 45.43 | 46.00 | 334.33 | 4,125 | 3.15 |
| Parents | | | | | | | | | |
| | S-CLOSPAR | 32.68 | 39.46 | | | | 1486.21 | 1,128 | 14.52** |

* $p < .01$

** $p < .001$

1 and 2 and Levels 3 and 4; for recall of reliability on mother there were significant differences between Level 1 and Level 2, between Level 3 and Level 5, and between Levels 1 and 2 and Levels 3, 4 and 5; for recall of reliability on father, there was a significant difference between Level 1 and Level 4; for recall of trust in mother, there were significant differences between Level 1 and Level 4, and between Levels 1 and 2 and Levels 3 and 4. All differences were significant at $.01 > p < .001$. On variables where there were two groups, all differences were significant ($p < .001$).

These differences again indicate the change in degree of loneliness felt with how positively students perceive their relationship with parents. Since significant differences were not as frequently found between group means on the father related measures as on those for mothers, they also indicate the higher sensitivity of the student loneliness scores to what they report about their relationship with mothers.

In contrast to the relationship between reported positive parent-child relationships and loneliness, reported negative relationships were found to have no relationship with student loneliness. The correlations of loneliness with mother and father negative control, and mother and father lax discipline ranged from -.01 to .06.

It should also be useful to report at this point how the personality characteristics of depression and self-esteem are related to how students report on their relationship with parents. Student depression correlates -.4 ($p < .001$) with the factor Positive Parent-Child Relations, while student self-esteem correlates .31 with it ($p < .001$).

Hypothesis 2

Parents, with whom students recall having had a more positive relationship, are expected to report lower levels of loneliness and depression, and higher levels of social skills, self-esteem and marital satisfaction than parents with whom students recall a less positive relationship.

To test this hypothesis, two types of results were used. The first was the univariate correlations of the relevant personality dimensions and marital satisfaction measures for mothers and fathers with student reports of positive parent-child relationships. These correlations are reported in Table 11.

For mothers who report less loneliness and fathers who report more satisfaction with their marriage, students have memories of feeling closer to them when they were children. Fathers who report less loneliness are remembered by students as more reliable and as trusted and secure bases of support. In the case where mothers are less depressed and both parents are more satisfied with their marriage, students currently feel closer to them.

Table 11

Correlations between Variables of Student Reports regarding Relationship with Parents and Measures of Loneliness, Depression, Self-esteem, Social Skills, and Marital Satisfaction for Mothers and Fathers.

| Mothers (N=129) Variables | S-MPOSINV | S-MCLOSE | S-MRELY | S-MTRUST | S-CLOSPAR |
|---|---|---|---|---|---|
| M-LONE | -.12 | -.22* | -.12 | -.12 | -.17 |
| M-DEPR | -.15 | -.07 | -.15 | -.05 | -.23* |
| M-SELFEST | .11 | .17 | .11 | .13 | .12 |
| M-SOCSK | .09 | .02 | .11 | .10 | .02 |
| M-MARSAT | .03 | -.01 | .01 | .00 | .36** |

| Fathers (N=128) Variables | S-FPOSINV | S-FCLOSE | S-FRELY | S-FTRUST | S-CLOSPAR |
|---|---|---|---|---|---|
| F-LONE | -.07 | -.02 | -.25* | -.20* | -.03 |
| F-DEPR | -.08 | .04 | -.11 | -.06 | -.12 |
| F-SELFEST | .06 | .05 | .09 | .07 | .09 |
| F-SOCSK | .02 | -.08 | .10 | .02 | -.01 |
| F-MARSAT | .17 | .22* | .16 | .13 | .26* |

* $p < .01$

** $p < .001$

The second set of results derive from regressing principal components extracted from the relevant set of independent variables on each of the dependent variables. In the case of mothers, student recall of mother positive involvement, closeness to mother, reliability on mother, and trust in mother (i.e., S-MPOSINV, S-MCLOSE, S-MRELY, & S-MTRUST) were the independent variables, while mother loneliness, social skills, depression, self-esteem, and marital satisfaction (i.e., M-LONE, M-SOCSK, M-DEPR, M-SELFEST & M-MARSAT) comprised the dependent variables. A parallel constellation of variables was used in the case of fathers. The decision to factor the independent variables was based on the fact of the high degree of correlation between them, and that they had loaded on the same factor in the multivariate analysis of data. In each case, one factor was extracted, accounting for 63% and 75%, respectively.

Since only the factor with eigenvalue of value over 1 entered the regression in each case, the $\underline{R}$'s calculated from the $\underline{R}$-square values are essentially the simple correlations between the dependent variables and the factors derived from the independent variables. The only significant of these correlations was that between father marital satisfaction and the factor, $\underline{r} = .21$, $\underline{p} < .01$. That between mother loneliness and the factor approached significance, $\underline{r} = .18$, $\underline{p} < .02$. Thus two trends may be noted: first, the more loneliness mothers report, the less positive are the memories stu-

dents have of them; and second, the more satisfied fathers are with their marriage, the more positive are the memories students have about their relationship with them. Since the regression procedure is regarded as a more powerful test of the hypothesis, it cannot be said that the hypothesis has been fully confirmed.

Hypothesis 3

Students who recall having had a more positive relationship with parents when they were children are expected to recall more diverse peer relationships in childhood than students who recall a less positive parent-child relationship.

This hypothesis was confirmed in the case of mothers, but not in the case of fathers.

Table 12 shows the correlations between individual reported positive relationship variables and student reports of their early peer parent-child relationships. As the table shows, all variables in relation to mothers are significantly correlated in the positive direction with student reports about their peer relationships. When students recall their mothers as more positively involved with them, that they felt closer to, more reliant on, and more trusting of them, they also recall more diverse relationships with peers. In the case of fathers, only student closeness to father, achieved a significant positive correlation with student recall of early peer relationships.

Table 12

Correlations between Variables of Student Reports of Early Relationship with Parents and Reports of Early Peer Relationships

(N = 130)

Mothers

| Variables | S-MPOSINV | S-MCLOSE | S-MRELY | S-MTRUST |
|---|---|---|---|---|
| S-PEERS | .25* | .21* | .27* | .24* |

Fathers

| Variables | S-FPOSINV | S-FCLOSE | S-FRELY | S-FTRUST |
|---|---|---|---|---|
| S-PEERS | .20 | .25* | .17 | .10 |

* $p < .01$

A further analysis was performed using student reports of early peer relationships as the dependent variable and recalled positive aspects the parent-child relationship as the independent variables. The independent variables were subjected to a principal components analysis, and the resulting components regressed on the dependent variable. In the case of student reports of positive father-child relationships, one factor was extracted using the criterion of an eigenvalue of 1 or more. This factor accounted for 77% of the variance. The regression analysis in this case produced a non-significant $R$-square of .03 [$F(1,129) = 4.18$, $p > .01$]. For student reports of positive aspects of the mother-child relationship, again one factor was extracted, accounting for 69% of the variance. The regression analysis produced a significant $R$-square of .07, [$F(1,129) = 9.18$, $p < .01$]. Since, on the basis of an eigenvalue of 1 or more, only one factor entered the regression in each case, these results also imply significant simple correlation between the dependent variable and the factor.

Looking at the results overall, students who recall better relationships with their mothers, also feel they had more diverse peer relationships when they were children. However, this is not so in the case of fathers, where no significant linkages were found between how students remember their relationship with fathers and their early peer relationships.

Hypothesis 4

Students who recall more diverse peer relationships when they were children are expected to report less loneliness than students who recall less diverse peer relationships. This relationship is expected to be mediated by levels of social skills.

It could be taken that what students report about their early peer relationships has some acceptable degree of validity, since this was corroborated by the perceptions their mothers gave about these relationships. The correlation between mother reports and student reports is .33 ($p < .001$). The zero-order Pearson product-moment correlation coefficient between student recall of early peer relationships and student loneliness (i.e., S-PEERS & S-LONE) is -.08 ($p < .19$), which is not significant. There is no relationship, then, between reports of early peer relationships and student loneliness.

The basis for expecting social skills to be a mediating variable, is that the literature suggests differential levels of social skills may be acquired during early interactions with peers, and in turn poor social skills are related to loneliness. However, since there is no relationhip between student recall of early peer relationships and student loneliness, the question of the mediating effect of social skills need not be considered further. And, indeed, removing the effect of social skills, does not in anyway alter the relationship between these two variables (partial $r = -.06$).

Despite the strong theoretical support for a relationship between quality of early peer relationship and the development of social skills, this study found a nonsignificant correlation of .07 between student reports of early peer relationship and the current measure of social skills. Two preliminary interrelated explanations are offered for this: first, that the social skills measure tapped only one component of this attribute, i.e., assertiveness; and second, the measure that was developed to assess how students recall the diversity of early peer relationships was inadequate in capturing those aspects of peer relationships that might influence the development of assertiveness.

Hypothesis 5

Students and parents who report lower levels of social skills and self-esteem, and higher levels of depression, are expected to be more lonely than students and parents who report higher levels of social skills and self-esteem, and lower levels of depression.

This hypothesis is testing to what extent personality characteristics are related to amount of loneliness experienced. Loneliness of students, mothers, and fathers comprise the dependent variables, with measures on the various personality characteristics as independent variables. Table 13 displays the simple correlations between the dependent and independent variables for students, mothers, and fathers, separately. As may be noted all correlations are significant, and relationships are in the expected directions.

Table 13

Standard Multiple Linear Regression of Personality Measures on Loneliness for Students, Mothers, and Fathers, with Correlations between Dependent and Independent Variables.

| | Variable | Correlation | Standard Regression Coefficient | t | p (2-tail) |
|---|---|---|---|---|---|
| Students (N=130) | S-DEPR | .69** | .67 | 7.56 | .00 |
| | S-SELFEST | -.43** | .04 | .43 | .67 |
| | S-SOCSK | -.38** | -.11 | -1.58 | .12 |
| | | | Multiple $R^2$ | = | .48 |
| | | | df | = | 3,123 |
| | | | F | = | 38.55** |
| Mothers (N=129) | M-DEPR | .58** | .38 | 4.55 | .00 |
| | M-SELFEST | -.55** | -.31 | -3.65 | .00 |
| | M-SOCSK | -.30** | -.11 | -1.46 | .15 |
| | | | Multiple $R^2$ | = | .42 |
| | | | df | = | 3,123 |
| | | | F | = | 29.83** |
| Fathers (N=128) | F-DEPR | .55** | .50 | 5.55 | .00 |
| | F-SELFEST | -.36** | -.08 | - .89 | .37 |
| | F-SOCSK | -.20* | -.02 | - .22 | .82 |
| | | | Multiple $R^2$ | = | .31 |
| | | | df | = | 3,123 |
| | | | F | = | 18.51** |

* $p < .01$

** $p < .001$

To examine the linear effect of the combined independent variables on the dependent variable, three standard multiple regression analyses were performed for each group of subjects. The decision was made to use the standard regression procedure rather than the regression on principal components approach in this case, since the correlations between the independent variables in each cluster were not extremely high, and tolerance levels for entering variables into the regression equation were considered acceptable. Table 13 also reports the results of the regression analysis.

As can be seen from these results, depression is the only independent variable contributing significantly to prediction of loneliness for students and fathers, while for mothers, both depression and self-esteem contributed significantly. However, for all three groups, significant proportions of variance on loneliness may be explained by the combination of the independent variables, i.e., 48% for students, 42% for mothers, and 31% for fathers.

Although the correlations between loneliness and the personality variables are highly significant in all cases, some variables did not contribute significantly to regression, as shown in the table. It would appear that the relationship between the variables not contributing significantly to regression and loneliness are indirect results of the relationship between the variables contributing significantly and loneliness. In other words, depression modifies the ef-

fect of the other personality variables in the case of students and fathers, and both depression and self-esteem have this effect in the case of mothers. When the effect of depression was statistically removed from the relationship between loneliness and the other personality variables for students and fathers, this resulted in non-significant partial r's as follows: .01 between student loneliness and student self-esteem, -.13 between student loneliness and student social skills, -.09 between father loneliness and father self-esteem, and -.04 between father loneliness and father social skills. In the case of mothers, the effect of the linear combination of depression and self-esteem was removed, resulting in a partial r of -.13 between mother loneliness and mother social skills.

On the basis of these result, the hypothesis is generally confirmed, that loneliness is negatively related to social skills and self-esteem, and positively related to depression. However, the strong tendency for depression to mediate the relationship between loneliness and the other personality characteristics qualifies these findings.

Hypothesis 6

Low satisfaction with number and quality of current friendships is expected to be associated with more loneliness in students, mothers, and fathers.

For the test of this hypothesis, similar prodecures were used as in Hypothesis 5, with parallel results. The rationale for employing the standard regression procedure as opposed to the regression on principal components, and the explanation for significant correlations between dependent and independent variables where the independent variables do not contribute significantly to regression, are also offered for this hypothesis.

Table 14 reports the correlations between the dependent variables and the independent variables for the three classes of subjects. As may be noted in the table, all correlations are significant, except that between father loneliness and father quality of current friendships. Student and mother loneliness are related significantly to the quality of current friendships, and to the two social comparison measures, i.e., number of friends compared to others, and quality of friendships compared to others. Father loneliness is related significantly to the two social comparison measures.

The results of the linear regression analysis are also reported in Table 14. The linear combinations of the friendship measures, in all cases, are significantly related to loneliness. The relevant friendship measures combined explained 22% of the variance on student loneliness, 25% on mother loneliness, and 15% on father loneliness. For both students and fathers number of friends compared to others

Table 14

Standard Multiple Linear Regression of Friendship Measures on Loneliness for Students, Mothers, and Fathers, with Correlations between Dependent and Independent Variables.

| | Variable | Correlation | Standard Regression Coefficient | t | p (2-tail) |
|---|---|---|---|---|---|
| Students (N=130) | S-CURFR | -.24* | -.08 | - .84 | .41 |
| | S-NUMFR | -.44** | -.40 | -4.89 | .00 |
| | S-QUALFR | -.21* | -.10 | -1.02 | .31 |
| | | | Multiple $R^2$ | = | .22 |
| | | | df | = | 3,123 |
| | | | F | = | 11.45** |
| Mothers (N=130) | M-CURFR | -.43** | -.32 | -3.47 | .00 |
| | M-NUMFR | -.41** | -.28 | -3.17 | .00 |
| | M-QUALFR | -.25* | .02 | .25 | .80 |
| | | | Multiple $R^2$ | = | .25 |
| | | | df | = | 3,123 |
| | | | F | = | 13.76** |
| Fathers (N=130) | F-CURFR | -.17 | -.04 | - .40 | .69 |
| | F-NUMFR | -.35** | -.29 | -3.25 | .00 |
| | F-QUALFR | -.26** | -.15 | -1.64 | .10 |
| | | | Multiple $R^2$ | = | .15 |
| | | | df | = | 3,123 |
| | | | F | = | 6.96** |

* $p < .01$
** $p < .001$

was the only variable contributing significantly to regression, while for mothers both quality of current friendships and number of friends compared to others contributed significantly.

Partialling procedures were performed to remove the effect of the variables contributing significantly to regression from the significant relationships between loneliness and the other friendship variables. This resulted in non-significant *r*'s as follows: when the social comparison measure of number of friends compared to others was removed they were -.14 between student loneliness and student rating of quality of friendships, .16 between student loneliness and student quality of friendships compared to others, -.09 between father loneliness and father rating of quality of friendships, and -.18 between father loneliness and father quality of friendships compared to others. In the case of mothers, partial *r* was .03 between loneliness and quality of friendships compared to others, when the effect of the linear combination of number of friends compared to others and rating of quality of friendships was removed.

Hypothesis 7

Students who are more lonely are expected to have parents who report more loneliness than the parents of less lonely students. This relationship is expected to be mediated by student reports of positive parent-child relationships.

The zero-order Pearson product-moment correlation coefficients between student loneliness and mother loneliness was found to be .25, ($p < .01$), and .19, ($p > .01$), between student loneliness and father loneliness. Student loneliness, therefore, varies significantly with mother loneliness, but not as much with father loneliness.

To examine the possible mediating effect of reported positive parent-child relationships, a partialling procedure was used. This effect need not be considered in the case of fathers, since there is not a significant relationship between student loneliness and father loneliness. If the hypothesis of this mediating effect is correct, then, statistically removing the effect of student recall of mother positive involvement, closeness to mother, reliability on mother, and trust in mother (i.e., S-MPOSINV, S-MCLOSE, S-MRELY, and S-MTRUST), from the correlation between student loneliness and mother loneliness, should reduce the significant correlation to non-significance. The partialling procedure did reduce the correlation between student loneliness and mother loneliness to $r = .19$ ($p = .015$), just short of significance. The reduction in $r$ does not appear large enough to report that the hypothesis is firmly supported. It indicates, however, that students are possibly more lonely when they have mothers who are also more lonely, and that this tends to occur where there is a positive relationship between mother and daughter. The hypothesis is not at all supported in the case of fathers.

In relation to this hypothesis, it may also be useful to consider if there is a more general patterning of student personality and social functioning on that of parents. The factor structures derived from the commonly measured variables for students, mothers, and fathers, had indicated that the overall underlying structures of personality and social relationship variables were different between student and mother and between student and father. However, following the procedure used by Filsinger and Lambke (1983), this proposition may be tested further through the use of canonical correlations.

For the canonical procedure, linear combinations were developed separately for student and parent personality and social relationship variables to form the canonical variables. None of the resulting relationships were significant, although some trends were identifiable. Mother personality variables were independent from the set of student personality variables [$\chi$-square(9) = 15.32, $p < .08$]; father personality variables were independent from the set of student personality variables [$\chi$-square(9) = 7.98, $p < .54$]; mother social relationship variables were independent from the set of student social relationship variables [$\chi$-square(9) = 18.66, $p < .03$]; and likewise, father social relationship variables were independent from the set of student social relationship variables [$\chi$-square(9) = 13.18, $p < .15$].

However, the Pearson product-moment correlations reported in Table 15 show that several parent characteristics were independently and significantly related to similar characteristics of students, and may be considered specific characteristics which are transmitted from parent to child. These significant simple correlations are reflected in the approach to significance of the canonical correlation between mother and student personality characteristics. Two of the three personality variables, depression and self-esteem, were significantly related between mothers and students, while two of the three social relationship variables, number of friends and quality of friendships in comparison to others, were. But, these significant relationships were not enough to result in total concurrence between mothers and daughters on these sets of characteristics as shown by the canonical correlation.

These relationships, considered along with the significant relationship between mother loneliness and student loneliness, seem to support the proposition that students have acquired enough of the similar personality and social relationship characteristics that might be factors in their mothers' loneliness. Only one father characteristic, i.e., quality of social relationships compared to others, was significaty related to the similar characteristic of students. This might explain the even less significant canonical correlation between father characteristics and student charac-

Table 15

Correlations of Student Personality and Friendship Variables with Mother and Father Personality and Friendship Variables.
(N = 127)

| Variable | S-DEPR | S-SELFEST | S-SOCSK | S-CURFR | S-NUMFR | S-QUALFR |
|---|---|---|---|---|---|---|
| M-DEPR | .21* | | | | | |
| M-SELFEST | | .25* | | | | |
| M-SOCSK | | | .11 | | | |
| M-CURFR | | | | .08 | | |
| M-NUMFR | | | | | .25* | |
| M-QUALFR | | | | | | .23* |
| F-DEPR | .11 | | | | | |
| F-SELFEST | | .08 | | | | |
| F-SOCSK | | | .04 | | | |
| F-CURFR | | | | .11 | | |
| F-NUMFR | | | | | .11 | |
| F-QUALFR | | | | | | .22* |

* $p < .01$

teristic, and the earlier finding that father loneliness was not at all related to student loneliness.

## Summary of Results

The principal components analysis of the thirty-eight measured variables produced ten interpretable factors which were used as variables in subsequent regression analyses. Results showed that student recall and current perception of a positive relationship with parents has the strongest relationship with loneliness, followed by student personality characteristics of self-esteem, depression and social skills, student number of friends compared to others, and student quality of current friendships, in that order.

From other analyses, it was found that how students recall their early relationship with parents correlated significantly with how they currently perceive this relationship. Fathers of students who are more satisfied with their marriage are remembered as having a more positive relationship with students, and there is a tendency for less depression in mothers to be associated with more positive memories of them.

Where students recall a more positive relationship with parents they also recall more diversity in early peer relationships. Surprisingly, however, early peer relationships was not significantly associated with current loneliness among students, nor with social skills, as was hypothesised.

But students' social skills had a significant relationship with their loneliness.

The personality characteristics of self-esteem, depression, and social skills all had significant relationships between them and with loneliness, for students and their mothers and fathers. Also, for these three groups of research units, satisfaction with current friendship relationships was significantly related to loneliness.

The degree of loneliness experienced by students was positively related to the degree of loneliness experienced by their mothers. This relationship did not hold in the case of fathers. The differential relationship between students' loneliness and their recall of a positive relationship with mothers and with fathers was not strongly supported. However, students' loneliness scores seem to show a greater sensitivity to what they report about their relationship with mothers than with fathers.

The established relationships of interest are presented diagrammatically in Figures 2, 3, and 4.

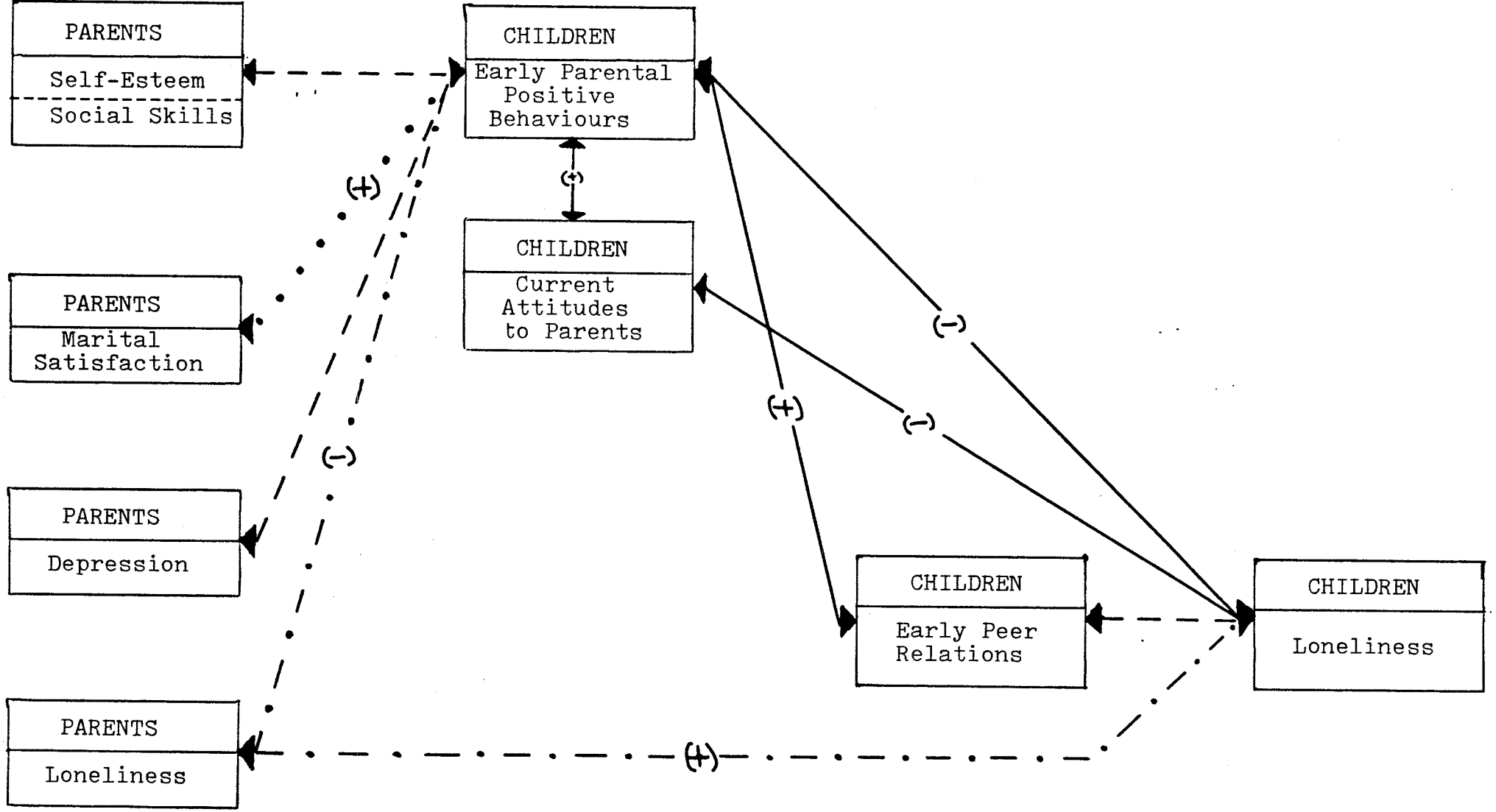
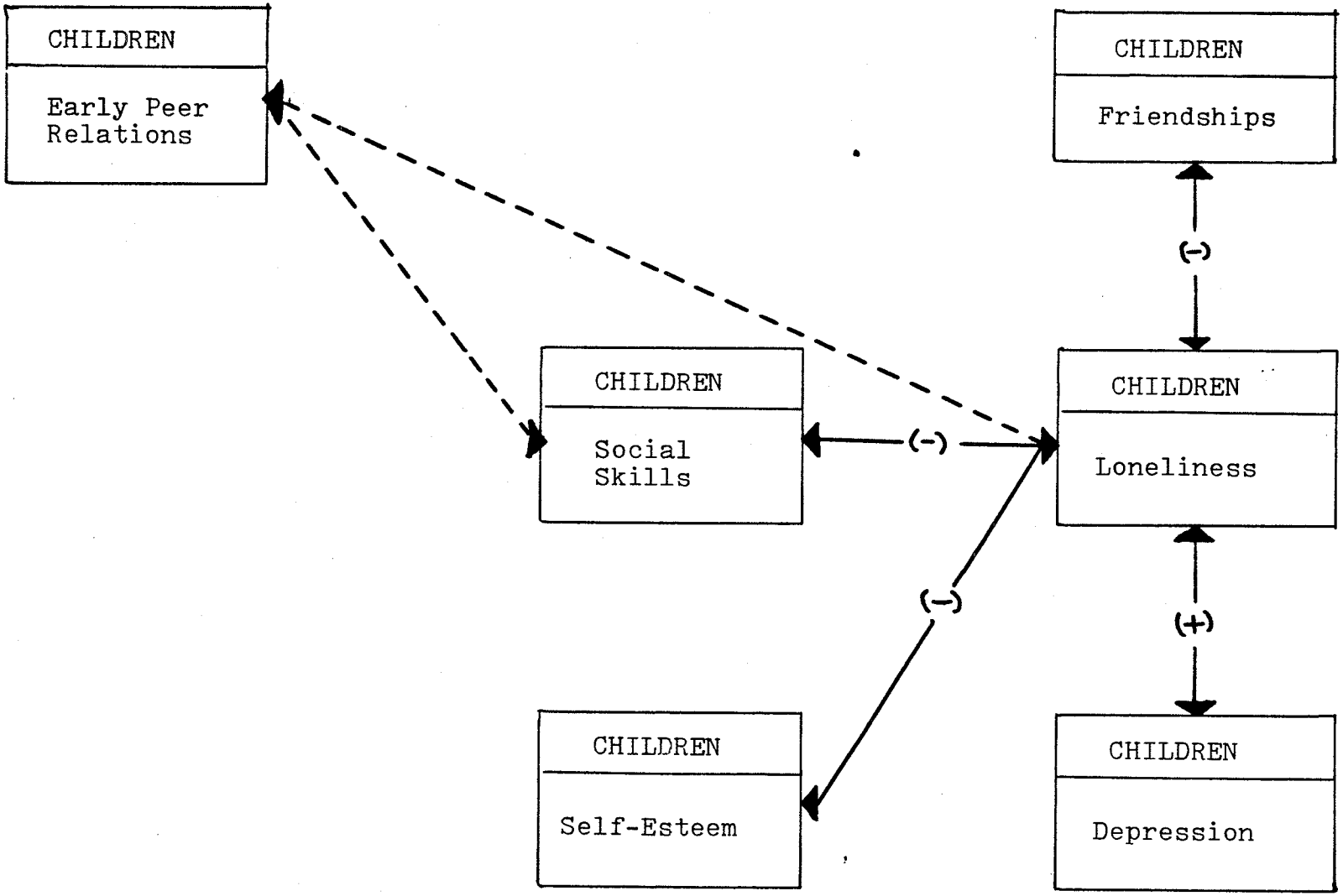



Fig. 2. Diagrammatic representation of relationships between variables tested in Hypotheses 1, 2, 3, 4, and 7.




Legend

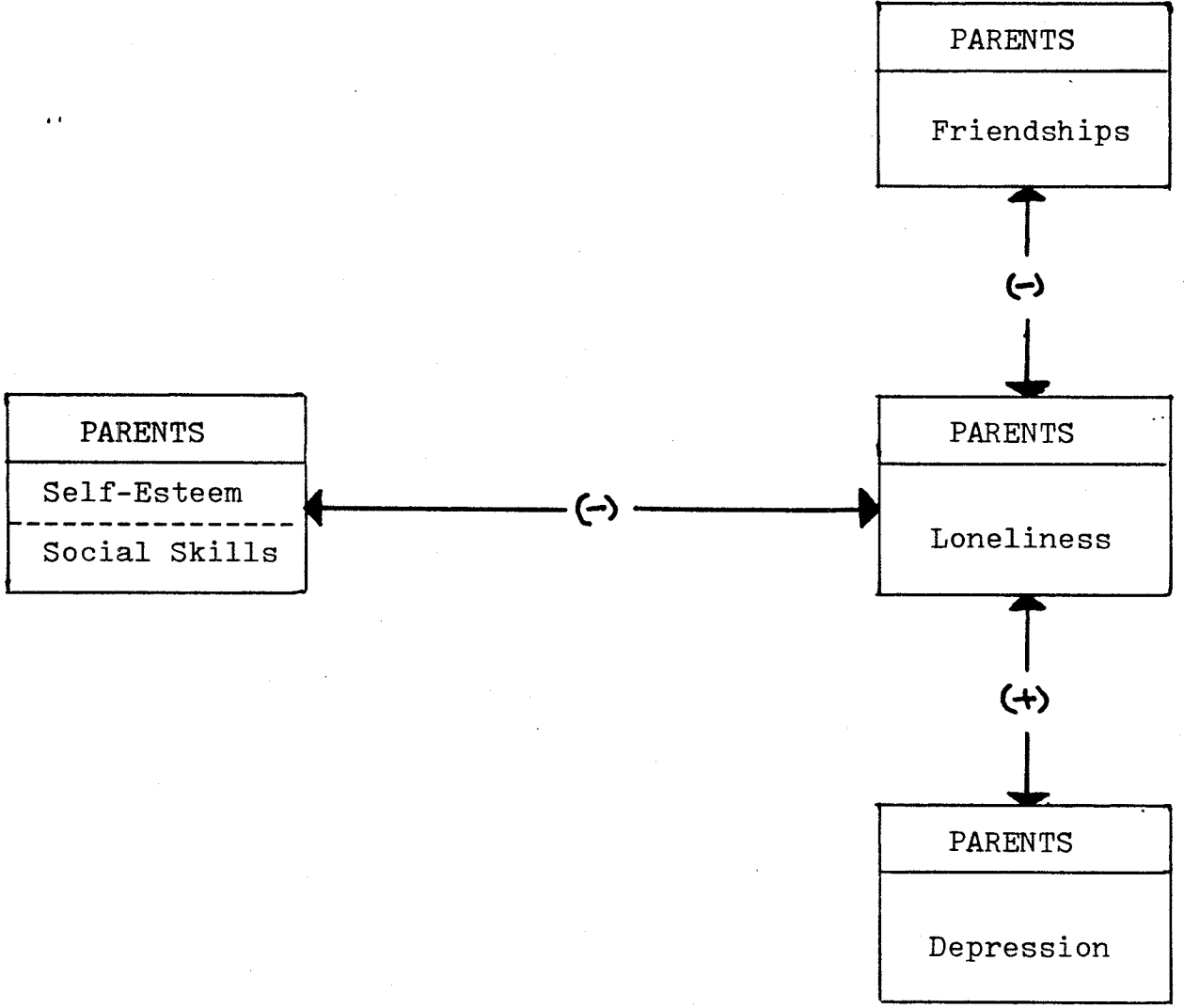
——— Relationship established

– – – – Relationship not established

(+) Positive relationship

(-) Negative relationship

Fig. 3. Diagrammatic representation of relationships between variables tested in Hypotheses 4, 5, and 6.




Legend

——— Relationship established
(+) Positive relationship
(-) Negative relationship

Fig. 4. Diagrammatic representation of relationships between variables tested in Hypotheses 5, and 6.

# DISCUSSION

The present study examined the relationship between loneliness and a variety of parent-child relationship, personality, and social relationship factors. In addition to obtaining measures on these factors for a group of female students, measures were obtained from their mothers and fathers on personality characteristics and social relationships to test the extent to which these might be related to the degree of loneliness experienced by their daughters.

Generally, it was expected that students who reported better parent-child and social relationships both in the past and presently, and who showed better personality adjustment, would experience less loneliness. It was also expected that parents' patterns of personality and social functioning would be mirrored in their daughters, so that, specifically, loneliness would be intergenerationally transmitted. All but one of the proposed hypotheses were confirmed, replicating some findings of previous studies, and producing some new ones. With the alpha level set conservatively at .01 for all tests of significance, results may be accepted with a fair degree of confidence.

The study, like previous ones of this general nature, relied on verbal reports of early relationships with parents

and with peers, which formed the bases of indices of the early interactions to be interpreted. While of questionable reliability, it seems the state of the art is such that verbal reports, of one type or another, constitute the principal evidence upon which knowledge about these interactions rest. So, a major question for the study is, to what extent are students' reports of early family and social relationships based on what actually happened. Or, are they reporting what they think happened?

Reference was made earlier to the varying opinions regarding this issue. Bower's (1980) finding, using a group of "normal" subjects, that what an individual remembers is dependent on the emotional state at time of recall differs from the Abrahams and Whitlock (1969) view, based on their findings from a group of depressed subjects, that there is no significant emotional-state-dependent memory. The Bower finding is from a laboratory experiment and cannot be generalised beyond that setting. The Abrahams and Whitlock finding, that depressed individuals maintain a consistent, even if not veridical, history of the nature of their relationship with parents over varying affect states, has more relevance for the present study, since both employed a naturalistic approach.

One way of understanding early memories is as representations of the self and others, or as giving some indication of the habitual emotional attitude of the individual, rather

than as factual accounts of early events in the person's life. But these conceptualizations of the self and others, it may be suggested, likely have their roots somewhere in the developmental history of the individual. One area of research, based on attachment theory, seeks to determine how early experiences with attachment figures affect later socioemotional development. Results, so far, have been based mainly on studies of the earliest periods of the individual's life, but show that aspects of the relationship within the parent-child dyad do carry over into relationships beyond the family. This suggests the possibility that early experiences could continue to colour the individual's socioemotional life even into adulthood.

The past relationship between, say, parent and child may give rise to the development of an internal psychic structure such that whatever might be the current realities of the individual's life, all events are understood and interpreted under the instruction of this internal structure. So, for example, negative experiences with parents may become organised so that the individual registers and processes information about the self and others in a negative way. The internal structure could have already been developed before the time of the individual's capacity to recall, and the actual experiences, which gave rise to the particular psychic structure, could be lost to retrievable memory. What the individual is then left with, is a particular ori-

entation to self and others which gets interwoven into the memories and reports about "real" relationships in the external world.

This may go to explain the consistency with which subjects report about their parents in the Abrahams and Whitlock study, and also why subjects in the present study gave the type of reports about their relationship with parents as they did. Those who gave negative reports should show evidence of a negatively oriented internal psychic structure while the opposite should hold for those giving positive reports. Beck (1967) regards a negative view of the self and the world as core elements of depression, and self-esteem is an indication of the individual's view of the self. Measures on these two variables should, then, be significantly related to how students report their relationship with parents and also with loneliness. In the final analysis, students who are more lonely should also be more depressed and lower on self-esteem, and would have more negative perceptions of their relationship with parents.

Preliminary to the test of specific hypotheses, multivariate analyses were performed on the data. To deal with the problem of multicollinearity, and to arrive at a parsimonious set of variables, the manifest independent variables were subjected to principal components analysis, and the resulting factors used as independent variables in subsequent regression analyses. Stepwise regression procedures were

used to identify the factors important in explaining variance on student loneliness, followed by a hierarchical regression analysis in which factors were entered into the equation based on theoretial criteria. These were reported positive parent-child relationship, student personality characteristics, student quality of current friendships, and student ratings of number of friends compared to others which was entered as a non-factored variable. The theoretical orientation of the literature review had suggested this order of entry.

The parent-child relationship factor was entered first, since the family context is the first to which an individual is exposed, provides the first developmental and learning experiences, and establishes the general orientation the child will have toward the world outside the family. The development of personality characteristics is assumed to stem largely from the early relationship with significant others, in particular with parents. This proposition is supported by research such as that by Coopersmith (1967). Based on this rationale, the student personality characteristics factor was entered second into the equation. Student quality of current friendships was entered third before student number of friends compared to others, since the literature suggests that quality of friendships is more strongly related to loneliness than number of friends.

This chapter goes on to discuss the results of the study in more detail. Limitations of the study are discussed and suggestions made for further research.

## Parent-Child Relationship and Loneliness

Findings regarding the relationship between reported parent-child interaction and student loneliness were generally consistent with those of other studies addressing this issue (Bergenstal, 1981; Hojat, 1982; Rubenstein & Shaver, 1980). However, a refinement of these general findings was produced by examining the differential relationship of reports regarding mothers and reports regarding fathers with student loneliness.

It was hypothesised that students who recall a positive relationship with parents when they were children would be less lonely. The specific behaviours and attitudes of parent and child which were involved were the parent's positive involvement with the student, the student's feeling of closeness to parent, and the extent to which the parent was considered reliable and a trusted and secure base of support. Student perception of current closeness to parents, reflecting both perceived attitudes of parents toward the student and the student's attitudes toward parents, was also negatively related to student loneliness. When the principal components analysis combined these variables to form the latent variable labelled Positive Parent-Child Relations,

and various regression procedures were performed, it was shown to have the strongest relationship with student loneliness.

In order to provide some indication of the nature of the family context associated with students' positive reports of their relationship with parents, the hypothesis that these parents would give reports suggesting more adequate functioning, in terms of their marital satisfaction, self-esteem, social skills, and the extent to which they experience depression was tested. From the result of regression analyses, only father marital satisfaction was significantly related to student overall perception of a positive father-child relationship. However, other parent adjustment measures were related to individual aspects of the parent-child relationship, and these differed for mothers and fathers. Students remember being closer to less lonely mothers, but this is not so for fathers. Less lonely fathers are remembered, instead, as being more reliable and trusted bases of support. Mothers who are less depressed have daughters who currently feel closer to their parents, while fathers' level of depression does not seem to affect this attitude to parents. It would seem that different characteristics of mothers and fathers elicit unique perceptions from children about their relationship with them. Common to both mothers and fathers, however, is that when they report more marital satisfaction, students report being closer to

them currently. This suggests that a family atmosphere of closeness is filtered through all intermember relationships.

The concept of a family emotional system (Bowen, 1978) also seems to be given support by this latter finding. In Bowen's view, emotional reactions that tie individual family members to each other are important in understanding the failure or success of family members to be relatively free of psychological problems, possibly including loneliness. These reactions stem from a supposed innate need for connectedness with others and a sense of belonging, and include sensitivity to approval and criticism, the need to please others, feeling threatened by rejection, and empathic reactions to others. When these reactions operate optimally, family members are able to enjoy each other, and obtain pleasure from their closeness. Such a successful social organization of the family conditions members so that they are able to develop a similar system outside the family. From this point of view, then, one may argue that it is not only the relationship between parent and child which is associated with loneliness, as shown earlier, but the total family system of interrelationships.

No specific predictions were made about the relative importance of reported mother-child relationships as opposed to reported father-child relationship in explaining student loneliness. Results suggested an overall tendency for students' reports of a positive relationship with mothers to

have a stronger association with their loneliness than such reports about fathers. Interestingly, mother negative control showed higher scores than father negative control, but neither of these measures had any relationship with student loneliness. Mother negative controlling behaviours need not subtract from the assessment of positive behaviours, as it is possible to have a pattern of parent-child relationships where parent negative control operates within the context of warmth and acceptance of the child (Becker, 1964).

When the variables measuring reported positive aspects of the mother-child and the father-child relationship were respectively combined into latent variables, the factor derived from mother variables contributed more to student loneliness than that derived from father variables, although the difference was not significant. Also, the analysis of variance of the individual variables relating to how students report their relationship with parents showed the greater sensitivity of the loneliness scores to what students report about their relationship with their mothers than with their fathers. If early memories contain some degree of fact, these results would suggest that from the students' perspective, while the parent-child relationship, on the whole, is related to their level of loneliness, there is a tendency for the nature of the relationship with mothers to be more crucial.

By virtue of their being charged with the primary responsibility for care-giving functions, mothers have more influence on the social and personality development of their daughters than fathers do. There have been attempts to specify sex-linked patterns of socialization between parents and children. Findings have suggested an interaction between sex of the parent and sex of the child in socialization practices (Margolin & Patterson, 1975; Rothbart & Maccoby, 1966), and that parents interact preferentially with the same sex child from infancy. Lamb (1977,a,b) reports that mothers continue to give equivalent attention to their sons and daughters while fathers withdraw their involvement from daughters and accord more attention to their sons as the children get older. The net effect of this is that mothers will be relatively more involved with their daughters than fathers are.

The data of the present study do not allow an examination of what daughters report about parents as opposed to the report of sons, since male children were not included in the study. However, the differential reporting of the relationship with mothers and with fathers by their daughters has been shown.

Students who have positive attitudes toward their parents, as indicated by their positive reports of their relationship with them, are likely individuals who have the capacity to form strong affectional bonds in general. The

positive orientation to their parents is generalized to others in their social environment, reflecting such personal qualities as trust, security, cooperativeness, and helpfulness toward others. These attributes are likely to facilitate the development of adequate and satisfying social relationships, and the avoidance of loneliness.

## Early Peer Relationships and Later Loneliness

The hypothesis of a relationship between student loneliness and their reports of early peer relationships, with social skills as a mediating variable, was not supported by this study. In view of the theoretical support for this relationship, which was outlined in the literature review section of this report, this is surprising. Social skills is related to loneliness, but not to reported early peer relationships, nor is there a relationship between loneliness and reported early peer relationships. The only variables with which early peer relationships was correlated were mother positive involvement, students' memories of mothers as reliable and trusted bases of support, and closeness to fathers. This result is unlike that found by Hojat (1982), in that, he had found a significant relationship between students reports of early peer relationships and later loneliness.

The most likely explanation for this centres around the intention of the measure used to obtain information about

early peer relationships. What the measure seemed to have tapped, in essence, is the expansiveness or diversity of peer relationships in terms of the various social and environmental contexts from which friends were drawn. Hojat, in his study, had students responding to two questions with the focus on the quality of the relationships they had with peers. However, because the measure in this study was significantly related to positive aspects of the parent-child relationship, it is suggested that the family context provides the motivation and confidence for children to explore a wider social environment outside the family.

This supports Hartup's (1979) first theoretical model for explaining how the family and peer systems interrelate, that the security of a positive relationship with parents strengthens the ego and promotes effectance, which find extension in peer interaction. However, the measure seems not to have captured, more specifically, how the child had performed in the various social contexts, in terms of numbers and quality of peer friendships. The assumption that diversity would, by implication, give a measure of the quantitative and qualitative aspects of peer friendships was not totally misguided. The varying social milieus and interactive patterns experienced through diverse peer relationships could give growth to desireable social abilities including assertiveness, which was the component of social skills measured in the study. However, based on Hartup's second

theoretical model, these may be important only for interaction with age-mates, and do not necessarily carry over to later relationships. According to Hartup, it is the relationships within the family context which give growth to the abilities necessary for the successful management of later significant relationships. By this account, there would be a direct path from early parent-child relationships to later loneliness, but not one going through from early peer relationships to later loneliness. This pattern was elucidated by the retrospective reports in this study.

Self-Esteem, Social Skills, Depression and Loneliness

It is not a surprising finding that less lonely students also reported less depression and higher levels of self-esteem and social skills. These characteristics are compatible with individuals who possess a representational model of self as being able to perform effectively in social interaction. Their behaviours are less coloured by anxiety, insecurity, and immaturity, and they can confidently seek out and maintain intimate relationships with others.

As discussed in Chapter 2, studies on loneliness have consistently found strong relationships between loneliness and these personality characteristics, to the extent that one may be led to believe they might be the best predictors of loneliness. But when studied in conjunction with other factors, what emerges is that they are secondary to the re-

called parent-child relationship in their degree of relatedness to loneliness. This supports the proposition offered in this study that within the family context children develop a concept of self and an orientation to others, and may learn specific social behaviours which largely affect later social functionning.

Principal components analysis had produced one factor of the personality characteristics measured, which was significantly related to student loneliness, suggesting that, together, self-esteem, social skills, and depression form a package of beliefs about the self, and an orientation to others, which interferes with the initiation and maintenance of satisfying social relationships. However, when these three variables were regressed in linear combination on student loneliness, depression was the only significant contributor to regression, although, singly, they were all significantly correlated with loneliness. A possible interpretation of this is that, for students, high levels of social skills and self-esteem do act to decrease the amount of loneliness experienced, but do so only in the absence of depression. Depression, it seems, would nullify the positive effect of high self-esteem and social skills, so that even if individuals possess these qualities, they are likely to be lonely if depression is present.

For fathers also, depression has a deleterious effect on self-esteem and social skills. In the case of mothers, how-

ever, their self-esteem seems relatively more stable, and is not subjected to the same effects by depression. Regression analysis showed that both depression and self-esteem contributed significantly to regression. So for mothers, loneliness will more likely occur, not only in the presence of depression, but also when they are characterised by low self-esteem.

These results, and the high correlation between loneliness and depression (.69, .58, .55 for students, mothers and fathers respectively), draw attention again to the dominant presence of depression in the lives of lonely individuals. Despite Weeks, Michela, Peplau, and Bragg's (1980) proposition, that they are distinctively separate constructs, the question is raised as to whether loneliness can occur in the absence of depression.

An inspection of the measures used for loneliness and depression provides an insight into why this might be so. The depression scale, more so than the scales used for measuring self-esteem and social skills, is based on the measure of emotional states and social relationship factors that are highly correlated with loneliness; for example, anxiety, being happy, and feeling self-enclosed which correlate .35, -.40, and .54 respectively with loneliness (Russell, Peplau, & Ferguson, 1978). Thus, there may be some degree of overlap in what is being measured by the two scales.

It would be in the long-term interest of loneliness research that a a measure be developed that more clearly discriminates between loneliness and depression. Alternatively, one might consider the identification of an emotional state, not yet named, which encompasses loneliness and depression.

The condition of the lonely individual may be reflecting not as much deficiencies in self-esteem and social skills, as the limited capacity to form emotional and affectional bonds which, in Bowlby's (1969) view, may be traced back to disturbances in attachment in childhood. While one may develop adequate social skills and come to have a positive evaluation of self, as reflected in high self-esteem, the negative orientation to others may persist. The resulting inability to experience a sense of emotional connectedness with others, would seem quite apart from any level of self-esteem and social skills the individual may possess. From the psychodynamic point of view, this is at the core of both loneliness and depression. Self-esteem and social skills may increase the probability of friendship formation, but it seems reasonable to say that these are generally not enough to promote intimacy in relationships and attenuate the sense of loneliness.

## Social Relationships and Loneliness

An unexpected finding was that the social comparison measure of student number of friends compared to others explained more of the variance on student loneliness than did ratings of quality of friendships. With respect to students, results of simple correlation calculations, and the various regression procedures in the multivariate analysis of data and the hypothesis test, gave no support for the Cutrona (1982) view, that perceived qualitative deficits in friendship relationships are more related to loneliness than quantitative deficits. Although not to the same extent, this holds also for students' fathers, in that, their loneliness is more related to the number of friends they perceive having compared to others than to ratings of the qualitative aspects of their friendships. Father loneliness had no relationship with the social comparison measure regarding quality of friendships compared to others. However, for mothers, perceived qualitative deficits in their friendships was more related to their loneliness than perceived deficits in number of friendships compared to others, and this finding does support the Cutrona view.

The social comparison measures regarding number and quality of friendships are based on the subjects' own perception, and implicitly they had to make judgements about these aspects of the friendships of others without probably knowing what they are, in fact. Consequently, values which

formed the bases of perception may vary widely, and similar values may be viewed both as satisfactory and unsatisfactory by different individuals. More objective measures of the quantitative and qualitative aspects of subjects' social contacts, might have produced results more consistent with those of Cutrona. But one's perception, regardless of the reality, is a powerful determinant of affect and behaviour, thus, making the social comparison measures valid, and even more meaningful.

Implicit in the discrepancy theory of loneliness, is that social relations are evaluated not only in terms of the number of social contacts one has, but also in terms of the quality of these relationships. Unless number of social contacts is the sought and valued goal, quality of relationships would take precedence, and the individual would experience more loneliness if desired quality of friendships is not achieved.

Results of the principal components analysis of the commonly measured variables for students, mothers, and fathers had shown that, for students, the social comparison measure of number of friends compared to others, had loaded on the factor that included loneliness and the personality characteristics measures of self-esteem, social skills, and depression. For mothers and fathers, however, this variable loaded with the other social relations variables, i.e., rating of quality of current friendships and the social comparison measure of quality of friendships compared to others.

It seems that for students, more so than for their parents, the achievement of a large social network is a central goal and a major factor in their self-evaluation. In this respect, values regarding social relationships differ between generations. It is likely that social recognition, as indicated by the relative number of friends one has, is more important to younger individuals, such as the students in the sample, and contributes to a sense of their social integration. Thus, the sense of isolation and alienation from others and, consequently, more loneliness is experienced when one perceives having a relatively small social circle. Fathers of these students show some similarity in this respect.

Psychoanalytic explanations of loneliness seem to give more emphasis to the achievement of intimacy in relationships to avoid loneliness. Imbedded in students' goals to acquire a large social network, may be the core goal of achieving a number of intimate and emotionally satisfying relationships, the probability of which is increased with a larger number of social contacts. This study was not able to unravel this issue, but could be a proposition for further investigation.

## Intergenerational Transmission of Loneliness

Two processes may be identified as facilitating the passing of parental characteristics down generational lines. First, based on learning theory, children tend to imitate parental behaviours, attitudes, and even affective responses, and this is more likely to occur where there is a high degree of closeness between parent and child (Bandura, 1969, 1971). The second, is that parents, intentionally or inadvertently, tend to reinforce children for behaving as they do, thus minimizing differences between themselves and their children. A sociological viewpoint is that members of the parental generational group have a stake in maximizing consistency between themselves and their children (Bengtson & Kuypers, 1971). Thus, loneliness may be transmitted from one generation to another because the similar personality and social behaviour characteristics of the parental generation, through these processes, become those of the children generation.

The hypothesis that students would be more lonely if they have parents who are also more lonely, and that this relationship would be mediated by positive aspects of the parent-child relationship, was supported, although not strongly, in the case of mothers, but not in the case of fathers. A further test of the extent to which there might be a more general patterning of students' personalities and social characteristics on those of their parents did not yield firm

results. There was not a total transmission of parental characteristics either in the mother-child lineage or in the father-child lineage. However, more characteristics of the mother were seen as transmitted to the child than of the father. Students tend to mirror their mothers' depression, self-esteem, and perception of number and quality of friendships compared to others. Thus, students might have acquired enough of the maternal personality and social behaviour characteristics to foster the similar propensity to loneliness of their mothers. In the father-child lineage only father perception of quality of friendships compared to others was related to that of the student. This might explain why there was no relationship between father loneliness and student loneliness.

The earlier comments regarding the interaction between sex of the parent and sex of the child in children's socialization also has relevance to this finding. There are many factors determining this effect; not least among them is the process of identification. Although seeming similar to imitation, identification, where children incorporate into their behaviour patterns those of others with whom they associate, implies an emotional attachment. This notion was supported by the data, in that, daughters were similarly lonely as their mothers when they feel close to them.

## Limitations of the Study and Implications for Future Research

Although this study employed no manipulations of variables or imposition of units, in other words, maintained a naturalistic perspective, no claim can be made about the generalizability of its findings to everyday circumstances. The use of university students is a major factor imposing limitations on generalizability. Moreover, in extending the sample group to include mothers and fathers, some degree of sample self-selection was in operation, in that, particular parents chose to return questionnaires, while others chose not to. Important differences were found between the group of students whose parents returned questionnaires and who were included in the study, and those whose parents did not, and who were, thus, excluded from the sample. Significant differences appeared on family language use, and on the reported nature of the parent-child relationship.

Therefore, the generalizability of the study is limited to a population similar to the group of students and their parents all for whom questionnaires were received. Future research could use a more randomly selected group of children than the pool of university students allows, but to include parents, the problem of sample self-selection may remain, over and above what would occur in the process of obtaining the group of children. Research ethics demand that participation in a study should be voluntary, and the biases introduced by voluntarism would continue to limit

generalizability. It remains likely that volunteers might be those experiencing better parent-child relationships, more psychologically minded, and limited in ethnic diversity.

As noted earlier, the use of retrospecitve data is problematic, and although their validity has some empirical support, a longitudinal approach might obtain more reliable measures, and would allow the assertation of cause and effect relationships between factors, which this study could not do. A longitudinal study could also more effectively clarify the chain of relationships between early parent-child interaction, early peer relationships, personality and social development, and later loneliness.

However, a longitudinal approach is not without its own problems, which are well known to developmental research. The length of time involved, the number of measures that have to be made, and maintaining contact with subjects over a lengthy period of time are costly and often make such studies prohibitive. In addition, over the period of study, subjects might be lost at time of re-testing because of refusal to participate further in the study, death, or failure to locate former participants. This would introduce bias into the data so that results may be due to a "mortality" effect. In this design, bias may also be introduced through repeated study of the sample group. Since similar information is usually solicited at each repeated measure, familiarity with questions may affect how they are answered.

This study has provided, however, fairly extensive descriptions and measurements of the possible distributions of relevant variables in a natural system, which is appropriate to an early stage of investigation. These could be elaborated through longitudinal research, through intensive research of parts of the system, and through manipulations in studies with experimental designs where these are possible.

Additionally, the data suggested several other directions of investigation which could not be undertaken within the limits established for this study. Findings suggested the model that mothers have more influence on the social development, and specifically the loneliness experiences, of their daughters than fathers do. This seems to lead naturally to the question of what would be the differential parental influences on sons' loneliness experience. A more complex study, involving sons and daughters and their mothers and fathers, could answer this question.

Also, a research area of increasing interest pertains to the differential effect of working and non-working mothers (i.e., mothers in paid employment outside the home or described as housewives) on the personality and social development of their children. Information regarding the proportion of working and non-working mothers was obtained in this study, and supplementary findings, which were not earlier reported, indicated that students with working mothers were,

for example, less lonely and higher in self-esteem. Such issues could be explored more intensively in other studies.

Loneliness research is frequently confronted with the consistent co-occurrence of loneliness and depression, leading to speculations that they are one and the same construct. Attempts have been made, which have been judged successful, to establish their distinctiveness. But, in this study, results of the examination of the effect of personality characteristics on loneliness, have raised the question as to whether loneliness can occur in the absence of depression, despite their distinctiveness. Further clarification of this issue must be attempted.

## Summary

Loneliness implies relational deficits, regardless of whether these are conceived in quantitative or qualitative terms. It seems to be one of the affective products of a failure in socioemotional development, whereby the individual is unable to initiate and maintain satisfying social relationships, and to achieve intimacy and emotional satisfaction with others. In essence, the individual is unable to achieve the desired level of social relationships.

Several features of this study distinguishes it from others of a similar nature. First of all, the study examined several classes of variables for their multivariate and univariate relationship with loneliness. This had given some

indication of the relevant importance of parent-child relationship variables, personality variables, and social relationship variables for explaining the loneliness of a group of students. The finding that more lonely individuals recall having less positive relationships with their parents when they were children, is similar to those obtained generally by other studies. But, having obtained information from students about their relationship with mothers and fathers separately, it was possible to obtain results suggesting the model that mothers are more influential in determining the social behaviour of their daughters, and specifically their loneliness experience. This study also included the mothers and fathers of subjects, who were measured on several personality and social relationship variables. Thus, a major question of the study was answered, that is, students who were more lonely tended to have mothers who were also more lonely, and this relationship was mediated by reported closeness of student to mother.

The finding regarding the lineage transmission of loneliness as found between mother and daughter may find support in social learning theory, but the reasons why early parent-child relationship should continue to influence interpersonal relationships in later life has to be more speculative. Bowlby (1977) suggests that there is a strong causal tie between early experiences with parents as attachment figures and the capacity to form affectional bonds throughout one's

life. The supposition is that the representational models one builds in infancy and early childhood of the attachment figures and of the self persist relatively unchanged into adult life. Consequently, new persons with whom the individual attempts to form relationships are viewed in the light of an existing model, although this model may be inappropriate. Individuals also have expectations of how they will be perceived and treated by others, based on the self-model which persist, although evidence may exist that these expectations are unwarrented. These orientations are likely to be reflected in the individual's self-esteem, social skills, and depressive tendencies. In the situations where these orientations to self and others lead to misconceptions about others and inappropriate actions by the individual, social relationships would likely not be satisfying either to the individual or to those with whom he or she comes into contact.

Bowlby's views, while attractive, extend beyond the amount of empirical support there is for them presently, but are rich sources for longitudinal studies of personality and social development. Of course, these views could be tested specifically in relation to loneliness outcome.

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# APPENDICES

# APPENDIX A

Letter to parents,
general instructions,
and student personal data

HE UNIVERSITY OF MANITOBA

DEPARTMENT OF PSYCHOLOGY

Winnipeg, Manitoba
Canada R3T 2N2

February 21, 1983.

Dear Parent,

Your daughter has agreed to be a participant in a study being undertaken at the University of Manitoba, Department of Psychology. The primary purpose of this survey is to learn more about people's social relationships. It is part of a larger programme of ongoing research. The information is to be used primarily for social planning and helping individuals to lead more satisfying lives. The present study is being done as part of my work towards a Ph.D. degree and is under the supervision of Dr. Daniel Perlman.

The design of the study calls for the participation of both children and their parents. In the past, most of the research on social and family relations has relied on the participation of mothers only, who historically have shown great willingness to take part in such studies. We would be grateful to have, at this time, the participation of <u>both</u> parents to make this study a worthwhile one, and for a more complete understanding of how individuals manage their family and social relationships.

We hope you will agree to participate in this study, in which case, please complete the attached questionnaires <u>privately</u>, and return by mail in the enclosed stamped and addressed envelope. Some items of the questionnaires ask for information which may be considered of a personal nature, but all steps have been taken to ensure that your responses remain strictly confidential as required by the Ethics Review Committee of the Department of Psychology. You will note we have avoided the use of names, and a code number to be used to match groups of questionnaires is the only form of identification used. Additionally, only statistical summaries will be derived from the information you and other participants give, from which no individual can be identified.

Although participation is completely voluntary, we would like to have the participation of as many parents as possible. It is only with the participation of a high proportion of the people we contact that we can have valid results. Thus, it is our hope that each and every parent will cooperate.

We thank you in advance for your time and cooperation.

Yours sincerely,

Judith Lobdell,
Graduate student.

Daniel Perlman

Daniel Perlman, Ph.D.,
Professor, Department of Psychology.

# FAMILY AND SOCIAL RELATIONS QUESTIONNAIRE

## General Instructions

The general purpose of this questionnaire is to learn from you how you perceive your family and your social relations. We would like you to take note of the following points:

1. The usefulness of the information depends on your giving frank, honest answers, so please give the best responses you can.

2. Please respond to all the statements given.

3. You are not required to state your name on any part of the questionnaire.

4. Complete your questionnaire privately, without consulting anyone.

5. Please read the instructions for each part of the questionnaire carefully before giving your responses.

6. Statements are printed on both sides of each sheet, so please remember to respond to both sides of each sheet.

Please turn over.

Ques. # _____



PERSONAL DATA

1. Telephone number _____

2. Parents' telephone number (if different) _____.

3. Date of birth _____ Age _____

4. How many brothers and sisters do you have? _____

5. What is your birth order?
   (e.g. were you born 1st, 3rd, 5th, etc.) _____

6. With whom do you now live?
   Mother _____
   Father _____
   Both _____

7. What is your father's occupation? _____

8. What is your mother's occupation? _____

9. Were either of your parents previously married?
   Yes _____
   No _____

   If yes, which?
   Mother _____
   Father _____
   Both _____

10. Were your natural parents divorced?
    Yes _____
    No _____

    If yes, how old were you when this occurred? _____

11. Did either of your natural parents die?
    Yes _____
    No _____

    If yes, which?
    Mother _____
    How old were you when this occurred? _____
    Father _____
    How old were you when this occurred? _____

12. What is the primary language spoken by you? _____

13. What is the primary language spoken by your parents? _____

# APPENDIX B

## Loneliness Scale

# SOCIAL RELATIONS QUESTIONNAIRE

## Part A

Instructions. Indicate how often each of the statement below is descriptive of you. Circle one letter for each statement:

O indicates "I often feel this way"
S indicates "I sometimes feel this way"
R indicates "I rarely feel this way"
N indicates "I never feel this way"

1. I am unhappy doing so many things alone..... O S R N
2. I have nobody to talk to..... O S R N
3. I cannot tolerate being so alone..... O S R N
4. I lack companionship..... O S R N
5. I feel as if nobody really understands me..... O S R N
6. I find myself waiting for people to call or write. O S R N
7. There is no one I can turn to..... O S R N
8. I am no longer close to anyone..... O S R N
9. My interests and ideas are not shared by those around me..... O S R N
10. I feel left out..... O S R N
11. I feel completely alone..... O S R N
12. I am unable to reach out and communicate with those around me..... O S R N
13. My social relationships are superficial..... O S R N
14. I feel starved for company..... O S R N
15. No one really knows me well..... O S R N
16. I feel isolated from others..... O S R N
17. I am unhappy being so withdrawn..... O S R N
18. It is difficult for me to make friends..... O S R N
19. I feel shut out and excluded by others..... O S R N
20. People are around me but not with me..... O S R N

# APPENDIX C

## Children's Report of Parental Behaviour Inventory

Notes to Appendix C

1. The three scales of the Children's Report of Parental Behaviour Inventory are comprised of the following items:

| Positive Involvement | Negative Control | Lax Discipline |
|---|---|---|
| 1 | 4 | 6 |
| 2 | 10 | 15 |
| 3 | 12 | 17 |
| 5 | 13 | 19 |
| 7 | 14 | 27 |
| 8 | 18 | 34 |
| 9 | 24 | 38 |
| 11 | 25 | 44 |
| 16 | 28 | 46 |
| 20 | 32 | 48 |
| 21 | 33 | |
| 22 | 36 | |
| 23 | 41 | |
| 26 | 42 | |
| 29 | 43 | |
| 30 | 47 | |
| 31 | | |
| 35 | | |
| 37* | | |
| 39 | | |
| 40 | | |
| 45 | | |

2. Item 49*measured the variable Closeness to Mother/Father

3. Item 50*measured the variable Reliability on Mother/Father

4. Item 51*measured the variable Trust in Mother/Father

5. Subjects completed identical but separate forms for mothers and for fathers.

* Items reversed scored

Ques. # _____



# FAMILY RELATIONS QUESTIONNAIRE

t A

tructions. In this portion of the questionnaire we would like you
describe your experiences in your parental families as you remember
n. Please read each statement below, and circle the answer that
t describes the way each of your parents acted towards you when you
e a child. BE SURE TO GIVE YOUR RESPONSE FOR THE PARENT SPECIFIED.

If you think the statement is LIKE your parent, circle L.

If you think the statement is SOMEWHAT LIKE your parent, circle SL.

If you think the statement is NOT LIKE your parent, circle NL.

---

## FORM FOR YOUR MOTHER

| | Like | Somewhat Like | Not Like |
|---|---|---|---|
| Talked over worries with me | L | SL | NL |
| Gave up something for me | L | SL | NL |
| Showed love | L | SL | NL |
| Reminded me of what not to do | L | SL | NL |
| Enjoyed my friends | L | SL | NL |
| Gave me freedom | L | SL | NL |
| Understood my problems | L | SL | NL |
| Made me feel important | L | SL | NL |
| Worried about me | L | SL | NL |
| Believed in punishment | L | SL | NL |
| Listened to my ideas | L | SL | NL |
| Wanted to know all that happened | L | SL | NL |
| Thought I was not grateful | L | SL | NL |
| Didn't forget my misdeeds | L | SL | NL |
| Neglected my misbehaviours | L | SL | NL |
| Told her my ideas | L | SL | NL |

| | | Like | Somewhat Like | Not Like |
|---|---|---|---|---|
| 17. | Excused my bad conduct | L | SL | NL |
| 18. | Said I would be punished | L | SL | NL |
| 19. | Let me go where I pleased | L | SL | NL |
| 20. | Comforted me when afraid | L | SL | NL |
| 21. | Stayed at home with me | L | SL | NL |
| 22. | Became involved in my life | L | SL | NL |
| 23. | Often praised me | L | SL | NL |
| 24. | Said she suffered for me | L | SL | NL |
| 25. | Wanted to control whatever I did | L | SL | NL |
| 26. | Let me help decide things | L | SL | NL |
| 27. | Let me stay up late | L | SL | NL |
| 28. | Said I would be sorry I was bad | L | SL | NL |
| 29. | Seemed proud of things I did | L | SL | NL |
| 30. | Life centred on children | L | SL | NL |
| 31. | Helped me find out things | L | SL | NL |
| 32. | Asked others what I did | L | SL | NL |
| 33. | Was always trying to change me | L | SL | NL |
| 34. | Seldom insisted I do anything | L | SL | NL |
| 35. | Asked my advice | L | SL | NL |
| 36. | Thought my misbehaviours serious | L | SL | NL |
| 37. | Did not show love | L | SL | NL |
| 38. | Allowed me to spend money as I pleased | L | SL | NL |
| 39. | Spent time with children | L | SL | NL |
| 40. | Said I made her happy | L | SL | NL |
| 41. | Always asked who phoned me | L | SL | NL |
| 42. | Told of all she had done for me | L | SL | NL |
| 43. | Didn't let me decide things | L | SL | NL |

| | Like | Somewhat Like | Not Like |
|---|---|---|---|
| Let me not do work assigned | L | SL | NL |
| Gave me choice of what to do | L | SL | NL |
| Could be easily talked into things | L | SL | NL |
| Kept reminding me of my misbehaviour | L | SL | NL |
| Let me do anything I liked | L | SL | NL |

Which of the following describe your mother and her relationship with you while you were growing up. Circle one number.

1. She and I had a warm, loving relationship; we were very close
2. She and I had a good relationship; we were fairly close
3. She and I had almost no relationship; we were not very close
4. She and I had a very conflicted relationship; we argued often

How much could you rely on your mother for help when you had any kind of problem. Circle one number.

1. Very much
2. A fair amount
3. Some
4. Not very much
5. Not at all

While you were growing up, how much did you consider your mother to be a trusted and secure base of support? How much could you really count on her. Circle one number.

1. Very much
2. A lot
3. Some
4. Not very much
5. Not at all

## FORM FOR YOUR FATHER

| | | Like | Somewhat Like | Not Like |
|---|---|---|---|---|
| 1. | Talked over worries with me | L | SL | NL |
| 2. | Gave up something for me | L | SL | NL |
| 3. | Showed love | L | SL | NL |
| 4. | Reminded me of what not to do | L | SL | NL |
| 5. | Enjoyed my friends | L | SL | NL |
| 6. | Gave me great freedom | L | SL | NL |
| 7. | Understood my problems | L | SL | NL |
| 8. | Made me feel important | L | SL | NL |
| 9. | Worried over me | L | SL | NL |
| 10. | Believed in punishment | L | SL | NL |
| 11. | Listened to my ideas | L | SL | NL |
| 12. | Wanted to know all that happened | L | SL | NL |
| 13. | Thought I was not grateful | L | SL | NL |
| 14. | Didn't forget my misdeeds | L | SL | NL |
| 15. | Neglected my misbehaviour | L | SL | NL |
| 16. | Told him my ideas | L | SL | NL |
| 17. | Excused my bad conduct | L | SL | NL |
| 18. | Said I would be punished | L | SL | NL |
| 19. | Let me go where I pleased | L | SL | NL |
| 20. | Comforted me when afraid | L | SL | NL |
| 21. | Stayed at home with me | L | SL | NL |
| 22. | Became involved in my life | L | SL | NL |
| 23. | Often praised me | L | SL | NL |
| 24. | Said he suffered for me | L | SL | NL |

| | Like | Somewhat Like | Not Like |
|---|---|---|---|
| 5. Wanted to control whatever I did | L | SL | NL |
| 6. Let me help decide things | L | SL | NL |
| 7. Let me stay up late | L | SL | NL |
| 8. Said I would be sorry I was bad | L | SL | NL |
| 9. Seemed proud of things I did | L | SL | NL |
| 0. Life centred on children | L | SL | NL |
| 1. Helped me find out things | L | SL | NL |
| 2. Asked others what I did | L | SL | NL |
| 3. Was always trying to change me | L | SL | NL |
| 4. Seldom insisted I do anything | L | SL | NL |
| 5. Asked my advice | L | SL | NL |
| 6. Thought any misbehaviour serious | L | SL | NL |
| 7. Did not show love | L | SL | NL |
| 8. Allowed me to spend money as I pleased | L | SL | NL |
| 9. Spent time with children | L | SL | NL |
| 0. Said I made him happy | L | SL | NL |
| 1. Always asked who phoned me | L | SL | NL |
| 2. Told of all he had done for me | L | SL | NL |
| 3. Didn't let me decide things | L | SL | NL |
| 4. Let me not do work assigned | L | SL | NL |
| Gave me choice of what to do | L | SL | NL |
| Could be easily talked into things | L | SL | NL |
| Kept reminding me of any misbehaviour | L | SL | NL |
| Let me do anything I liked | L | SL | NL |

49. Which of the following describe your father and his relationship with you while you were growing up. Circle one number.

    1. He and I had a warm, loving relationship; we were very close
    2. He and I had a good relationship; we were fairly close
    3. He and I had almost no relationship; we were not very close
    4. He and I had a very conflicted relationship; we argued often

50. How much could you rely on your father for help when you had any kind of problem. Circle one number.

    1. Very much
    2. A fair amount
    3. Some
    4. Not very much
    5. Not at all

51. While you were growing up, how much did you consider your father to be a <u>trusted</u> and <u>secure</u> base of support? How much could you really count on him? Circle one number.

    1. Very much
    2. A lot
    3. Some
    4. Not very much
    5. Not at all

# APPENDIX D

## Closeness to Parents Scale

rt B

structions. Please check below, all attitudes which you consider aracteristic of your family.

HER

attitudes toward you: (Check all adjectives which apply)

| | | | |
|---|---|---|---|
| panionable | Ambitious | Detached | Warm |
| ict | Teasing | Demonstrative | "Father-knows-best" |
| ady | Reserved | Anxious | Unpredictable |
| erstanding | | | |

r attitudes toward him: (Circle all adjectives which apply)

| | | | |
|---|---|---|---|
| fiding | Approval-seeking | Rebellious | Admiring |
| like | Hurt | Conforming | "Man-to-man" |
| fortable | Independent | Detached | |

HER

attitude toward you: (Circle all adjectives which apply)

| | | | |
|---|---|---|---|
| n | Babying | Irritable | Demonstrative |
| anding | Detached | Reserved | Strict |
| ittling | Anxious | Understanding | "Mother-knows-best" |

r attitudes toward her: (Circle all adjectives which apply)

| | | | |
|---|---|---|---|
| fiding | Reserved | Protective | Warm |
| ious | Guilty | Dependent | Insecure |
| fortable | Demonstrative | Rebellious | |

ERPARENTAL RELATIONSHIPS (Circle all adjectives which describe the relationship between your parents)

| | | | |
|---|---|---|---|
| genial | Disagreeing | Relaxed | Child-centred |
| -tension | Home-centred | Close | Mother dominant |
| al | Social-centred | Reserved | Father dominant |
| y-centred | Mother passive | Church-centred | Father passive |
| nstrative | Occupation-centred | | |

# APPENDIX E

## Children's Report of Early Peer Relationships

Part B

Instructions. For this portion of the questionnaire you are asked to recall the friendship relationships you had during the period when you were six to twelve (6 - 12) years old. Indicate how often each of the statements below is descriptive of these relationships. Circle one letter for each statement, using the following code.

A indicates "Always"
M indicates "Much of the time"
S indicates "Sometimes"
R indicates "Rarely"
N indicates "Never"

1. I had a friend who was a special "chum"..... A M S R N
2. My friends were of the same sex as I..... A M S R N
3. I had friends who were older than I..... A M S R N
4. My brothers and/or my sisters were my friends... A M S R N
5. I belonged to a group of friends..... A M S R N
6. My friends were my classmates..... A M S R N
7. I had friends who were younger than I..... A M S R N
8. I changed my group of friends..... A M S R N
9. My friends lived in my neighbourhood..... A M S R N
10. I was liked by my friends..... A M S R N
11. My friends were of the opposite sex as I..... A M S R N
12. My friends corrected my behaviours..... A M S R N
13. I did what my friends did..... A M S R N
14. I was very much on my own..... A M S R N
15. I was a leader among my friends..... A M S R N
16. My friends were the same age as I..... A M S R N
17. My friends influenced what I did..... A M S R N
18. I liked my friends..... A M S R N

Note: Subjects responded to all 18 items, but only those vailidated by information from parents were used to derive total scores on this measure. Consequently, items 2, 10, 13, 14, & 18, were not included in arriving at the total scores.

# APPENDIX F

## Measure of Marital Satisfaction

Ques. # _____



# FAMILY RELATIONS QUESTIONNAIRE

## Part A

Most persons have disagreements in their relationships. This portion of the questionnaire concerns your relationship with your spouse (wife or husband).

Please indicate below the approximate extent of agreement or disagreement between you and your spouse for each item on the following list. Say how you have felt generally about these items over the period of your marriage. We would like you to complete this questionnaire privately.

When you are done completing all the questionnaires, put them in the stamped, addressed envelope and mail. All steps have been taken for your answers to remain confidential.

Indicate your answer on the scale with a check mark.

| | All the Time | Most of the Time | More Often Than Not | Occa-sionally | Rarely | Never |
|---|---|---|---|---|---|---|
| 1. Do you confide in your spouse | 1____ | 2____ | 3____ | 4____ | 5____ | 6____ |
| 2. Do you ever regret that you married | 1____ | 2____ | 3____ | 4____ | 5____ | 6____ |
| 3. How often do you and your spouse quarrel | 1____ | 2____ | 3____ | 4____ | 5____ | 6____ |
| 4. How often do you and your spouse"get on each other's nerves | 1____ | 2____ | 3____ | 4____ | 5____ | 6____ |
| 5. How often do you or your spouse leave the house after a fight | 1____ | 2____ | 3____ | 4____ | 5____ | 6____ |
| 6. How often do you discuss or have you considered divorce, or separation | 1____ | 2____ | 3____ | 4____ | 5____ | 6____ |
| 7. In general, how often do you think things between you and your spouse are going well | 1____ | 2____ | 3____ | 4____ | 5____ | 6____ |

Please turn over.

8. The numbers on the following line represent different degrees of happiness in your marital relationship. The middle point, "Happy", represents the degree of happiness of most relationships. Please circle the number which best describes the degree of happiness, all things considered, of your marriage.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Extremely Unhappy | Fairly Unhappy | A Little Unhappy | Happy | Very Happy | Extremely Happy | Perfect |

Please go on to the next page.

Part C

Instructions. In this portion of the questionnaire you are asked to rate the degree of happiness of your parents' marriage. The numbers on the following line represent different degrees of happiness in a marital relationship. The middle point, "Happy", represents the degree of happiness of most relationships. Please circle the number which best describes the degree of happiness in your parents' marriage.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Extremely Unhappy | Fairly Unhappy | A little Unhappy | Happy | Very Happy | Extremely Happy | Perfect |

Go on to the next page.

# APPENDIX G

## Social Skills Schedule

Part E

Instructions. Indicate how characteristic or descriptive each of the following statements is of you by using the code below. Put the number which best represents your answer on the line before the number of each statement.

+3 very characteristic of me, extremely descriptive
+2 rather characteristic of me, quite descriptive
+1 somewhat characteristic of me, slightly descriptive
-1 somewhat uncharacteristic of me, slightly nondescriptive
-2 rather uncharacteristic of me, quite nondescriptive
-3 very uncharacteristic of me, extremely nondescriptive

_____ 1. I have hesitated to extend or accept invitations because of "shyness".

_____ 2. When the food served at a restaurant is not done to my satisfaction, I complain about it to the waiter/waitress.

_____ 3. I am careful to avoid hurting other people's feelings, even when I feel that I have been injured.

_____ 4. When I am asked to do something, I insist upon knowing why.

_____ 5. To be honest, people often take advantage of me.

_____ 6. I often don't know what to say to attractive persons of the opposite sex.

_____ 7. I will hesitate to make phone calls to business establishments and institutions.

_____ 8. I would rather apply for a job or for admission to a college by writing letters than by going through with personal interviews.

_____ 9. I find it embarrassing to return merchandise.

_____10. I have avoided asking questions for fear of sounding stupid.

_____11. During an argument I am sometimes afraid that I will get so upset that I will shake all over.

_____12. I avoid arguing over prices with clerks and salespersons.

_____13. If someone has been spreading false and bad stories about me, I see him/her as soon as possible to "have a talk" about it.

_____14. I often have a hard time saying "no."

_____15. I tend to bottle up my emotions rather than make a scene.

_____16. I complain about poor service in a restaurant and elsewhere.

_____17. Anyone attempting to push ahead of me in a line is in for a good battle.

_____18. I am quick to express an opinion.

_____19. There are times when I just can't say anything.

# APPENDIX H

## Self-Esteem Measure

art F

nstructions. Indicate how much the statements below are true of ou, using the following code.

1 Almost always true
2 Often true
3 Sometimes true
4 Seldom true
5 Never true

. I feel that I am a person of worth, at least on an equal plane with others..... 1 2 3 4 5

. I feel that I have a number of good qualities..... 1 2 3 4 5

. I am able to do things as well as most other people..... 1 2 3 4 5

. I feel I do not have much to be proud of..... 1 2 3 4 5

. I take a positive attitude toward myself..... 1 2 3 4 5

. Sometimes I think I am no good at all..... 1 2 3 4 5

. I am a useful person to have around..... 1 2 3 4 5

. I feel that I can't do anything right..... 1 2 3 4 5

. When I do a job, I do it well..... 1 2 3 4 5

. I feel that my life is not very useful..... 1 2 3 4 5

# APPENDIX I

## Depression Scale

Part D

Instructions. Below is a list of the ways you might have felt or behaved. Please tell how often you have generally felt this way using the following code.

1 indicates Rarely or None of the Time

2 indicates Some or a Little of the Time

3 indicates Occasionally or a Moderate Amount of the Time

4 indicates Most or All of the Time

| | | | | | |
|---|---|---|---|---|---|
| 1. | I am bothered by things ..... | 1 | 2 | 3 | 4 |
| 2. | I do not feel like eating; my appetite is poor... | 1 | 2 | 3 | 4 |
| 3. | I feel I cannot shake off the "blues" even with help from my family and friends ..... | 1 | 2 | 3 | 4 |
| 4. | I feel that I am just as good as other people ... | 1 | 2 | 3 | 4 |
| 5. | I have trouble keeping my mind on what I am doing ..... | 1 | 2 | 3 | 4 |
| 6. | I feel depressed..... | 1 | 2 | 3 | 4 |
| 7. | I feel that everything I do is an effort ..... | 1 | 2 | 3 | 4 |
| 8. | I feel hopeful about the future ..... | 1 | 2 | 3 | 4 |
| 9. | I think my life has been a failure ..... | 1 | 2 | 3 | 4 |
| 10. | I feel tearful..... | 1 | 2 | 3 | 4 |
| 11. | My sleep is restless..... | 1 | 2 | 3 | 4 |
| 12. | I am happy..... | 1 | 2 | 3 | 4 |
| 13. | I talk little..... | 1 | 2 | 3 | 4 |
| 14. | I feel lonely..... | 1 | 2 | 3 | 4 |
| 15. | People are unfriendly ..... | 1 | 2 | 3 | 4 |
| 16. | I enjoy life..... | 1 | 2 | 3 | 4 |
| 17. | I have crying spells ..... | 1 | 2 | 3 | 4 |
| 18. | I feel sad..... | 1 | 2 | 3 | 4 |
| 19. | I feel that people dislike me..... | 1 | 2 | 3 | 4 |
| 20. | I can not get "going"..... | 1 | 2 | 3 | 4 |

# APPENDIX J

## Friendship Measures

Part C

nstructions. The next set of questions is about your current riendship experiences. Read each statement and answer it in terms f your relationships with your "good friends."

Use the rating scale after each statement to indicate how often ou experience what is described. Remember to answer in terms of our relationship with your "good friends". Circle the number that est represents your answer.

. "They show appreciation and praise me when I deserve it."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

. "We can express differences of opinion without it coming between us."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

. "They are concerned with my welfare and help promote it."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

. "I feel free to express my most inner private feelings to them."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

. "They really try to see things through my eyes."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

. "They enhance my feelings of self-worth."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

. "I can drop all my defences and be myself with them."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

. "They give readily; I don't have to ask for it."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

. "I can talk to them about my personal problems."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

. "They know how I feel even when I cannot put it into words."

Frequency of experiencing this Never 1 2 3 4 5 6 7 Always

11. Compared to other people your age, do you think the number of good friends you have is: (Circle one number)

    1. Much larger than average
    2. Larger than average
    3. About average
    4. Smaller than average
    5. Much smaller than average

12. Compared to other people your age, do you think the quality of your relationship(s) with your good friends is: (Circle one number)

    1. Much better than average
    2. Better than average
    3. About average
    4. Worse than average
    5. Much worse than average

# APPENDIX K

## Test-Retest Reliability Coefficients

# APPENDIX K

## Test-Retest Reliability Coefficients for Measured Variables, obtained from Independent Female Student Sample (N = 30)

| Variable* | r |
|---|---|
| S-MPOSINV | .91 |
| S-MNEGCON | .79 |
| S-MLAXDIS | .88 |
| S-FPOSINV | .94 |
| S-FNEGCON | .88 |
| S-FLAXDIS | .89 |
| S-MCLOSE | .91 |
| S-MRELY | .87 |
| S-MTRUST | .93 |
| S-FCLOSE | .85 |
| S-FRELY | .89 |
| S-FTRUST | .87 |
| S-PEERS | .80 |
| S-CLOSPAR | .96 |
| S-PARMAR | .97 |
| S-LONE | .86 |
| S-DEPR | .88 |
| S-SELFEST | .75 |
| S-SOCSK | .88 |
| S-CURFR | .87 |
| S-NUMFR | .72 |
| S-QUALFR | .78 |

* See Appendix L for key to anagrams

# APPENDIX L

## Correlation Matrix

Key to Abbreviated Forms for Variables

| Abbreviated Form | Description |
|---|---|
| | Student retrospective reports of parental behaviours and attitudes to parents when they were children |
| S-MPOSINV | Mother positive involvement |
| S-MNEGCON | Mother negative control |
| S-MLAXDIS | Mother lax discipline |
| S-FPOSINV | Father positive involvement |
| S-FNEGCON | Father negative control |
| S-FLAXDIS | Father lax discipline |
| S-MCLOSE | Closeness to mother |
| S-MRELY | Reliability on mother |
| S-MTRUST | Trust in mother |
| S-FCLOSE | Closeness to father |
| S-FRELY | Reliability on mother |
| S-FTRUST | Trust in mother |
| S-PEERS | Student retrospective reports of extent of peer relationships when they were children |
| S-CLOSPAR | Student current closeness to parents |
| S-PARMAR | Student ratings of parents' marital happiness |
| S-LONE | Student loneliness |
| S-DEPR | Student depression |
| S-SELFEST | Student self-esteem |
| S-SOCSK | Student social skills |
| S-CURFR | Student quality of current friendships |

Key to Abbreviated Forms for Variables - Continued

| Abbreviated Form | Description |
|---|---|
| S-NUMFR | Student number of friends compared to others |
| S-QUALFR | Student quality of friendships compared to others |
| M-MARSAT | Mother marital satisfaction |
| M-LONE | Mother loneliness |
| M-DEPR | Mother depression |
| M-SELFEST | Mother self-esteem |
| M-SOCSK | Mother social skills |
| M-CURFR | Mother quality of current friendships |
| M-NUMFR | Mother number of friends compared to others |
| M-QUALFR | Mother quality of friendships compared to others |
| F-MARSAT | Father marital satisfaction |
| F-LONE | Father loneliness |
| F-DEPR | Father depression |
| F-SELFEST | Father self-esteem |
| F-SOCSK | Father social skills |
| F-CURFR | Father quality of current friendships |
| F-NUMFR | Father number of friends compared to others |
| F-QUALFR | Father quality of friendships compared to others |

CORRELATION MATRIX

| | | SMCLOSE 54 | SMRELY 55 | SMTRUST 56 | SFCLOSE 105 | SFRELY 106 | SFTRUST 107 | S-CLOSPAR 108 | SPARMAR 109 | SLONE 110 |
|---|---|---|---|---|---|---|---|---|---|---|
| SMCLOSE | 54 | 1.0000 | | | | | | | | |
| SMRELY | 55 | 0.5611 | 1.0000 | | | | | | | |
| SMTRUST | 56 | 0.5260 | 0.6721 | 1.0000 | | | | | | |
| SFCLOSE | 105 | 0.4585 | 0.3858 | 0.3120 | 1.0000 | | | | | |
| SFRELY | 106 | 0.4063 | 0.5537 | 0.4403 | 0.5807 | 1.0000 | | | | |
| SFTRUST | 107 | 0.3813 | 0.4421 | 0.4807 | 0.5976 | 0.6291 | 1.0000 | | | |
| SCLOSPAR | 108 | 0.4946 | 0.5147 | 0.4386 | 0.5962 | 0.6787 | 0.6417 | 1.0000 | | |
| SPARMAR | 109 | 0.3196 | 0.4067 | 0.3239 | 0.3773 | 0.4693 | 0.4027 | 0.6154 | 1.0000 | |
| SLONE | 110 | -0.3600 | -0.4194 | -0.3216 | -0.3784 | -0.3278 | -0.3175 | -0.3643 | -0.3269 | 1.0000 |
| SCURFR | 128 | 0.1976 | -0.0112 | 0.0362 | 0.0696 | 0.1870 | 0.1500 | 0.1014 | 0.1068 | -0.2412 |
| SNUMFR | 130 | 0.2177 | 0.1791 | 0.0878 | 0.1163 | 0.1274 | 0.1032 | 0.1531 | 0.2491 | -0.4407 |
| SQUALFR | 131 | 0.0714 | 0.0143 | 0.0762 | -0.0387 | 0.0306 | -0.0057 | -0.0584 | -0.0768 | -0.2083 |
| SDEPR | 132 | -0.4047 | -0.3852 | -0.2877 | -0.4088 | -0.3074 | -0.2882 | -0.4122 | -0.3333 | 0.8883 |
| SSELFEST | 152 | 0.3282 | 0.2894 | 0.2236 | 0.2213 | 0.1752 | 0.2185 | 0.3231 | 0.3078 | -0.4253 |
| SMARSAT | 171 | -0.0059 | 0.0140 | -0.0013 | 0.2862 | 0.1947 | 0.1411 | 0.3586 | 0.5786 | -0.1289 |
| SLONE | 173 | -0.2186 | -0.1171 | -0.1184 | -0.1338 | -0.0889 | 0.0856 | -0.1669 | -0.2881 | 0.2539 |
| SCURFR | 174 | 0.1526 | 0.1242 | 0.1100 | 0.0128 | 0.0057 | -0.1010 | 0.0282 | 0.1006 | -0.1880 |
| SNUMFR | 175 | 0.1911 | 0.0870 | 0.0777 | 0.1422 | 0.0852 | 0.0183 | 0.1343 | 0.2128 | -0.2091 |
| SQUALFR | 176 | 0.1886 | 0.1038 | 0.2163 | 0.1583 | 0.1010 | 0.0833 | 0.1044 | 0.1176 | -0.1885 |
| SDEPR | 177 | -0.0711 | -0.1485 | -0.0475 | -0.1850 | -0.1813 | -0.0056 | -0.2248 | -0.1841 | 0.1017 |
| SSELFEST | 187 | 0.1862 | 0.1115 | 0.1298 | 0.1175 | 0.0534 | 0.0033 | 0.1200 | 0.1706 | -0.1384 |
| FMARSAT | 216 | 0.0587 | 0.0732 | 0.1433 | 0.2180 | 0.1585 | 0.1260 | 0.2581 | 0.4111 | -0.0612 |
| FLONE | 218 | -0.0205 | -0.1293 | -0.1348 | -0.0239 | -0.2818 | -0.2038 | -0.0302 | -0.1286 | 0.1917 |
| FCURFR | 219 | -0.0225 | 0.0884 | -0.0589 | 0.1011 | -0.0128 | -0.0372 | 0.1303 | 0.0789 | -0.0535 |
| FNUMFR | 220 | 0.0843 | 0.0077 | 0.0240 | 0.1048 | 0.0546 | 0.0815 | -0.0246 | 0.0322 | 0.0980 |
| FQUALFR | 221 | 0.0381 | 0.0885 | 0.0342 | 0.0581 | 0.0570 | -0.0140 | -0.0154 | 0.0702 | 0.0073 |
| FDEPR | 222 | 0.0628 | -0.0817 | -0.0501 | 0.0403 | -0.1068 | -0.0818 | -0.1181 | -0.1814 | 0.0588 |
| FSELFEST | 242 | -0.0258 | -0.0112 | 0.0736 | 0.0501 | 0.0826 | 0.0887 | 0.0925 | 0.0387 | -0.0882 |
| MPOSINV | 243 | 0.4377 | 0.5150 | 0.5788 | 0.3889 | 0.5805 | 0.5384 | 0.5805 | 0.3618 | -0.4532 |
| MNEGCON | 244 | -0.2439 | -0.1384 | -0.1448 | -0.1589 | -0.1825 | -0.1636 | -0.3342 | -0.1855 | 0.0124 |
| MLAXDIS | 245 | 0.0074 | -0.1183 | -0.0436 | 0.0050 | -0.0843 | 0.0228 | 0.0081 | -0.1431 | 0.0585 |
| FPOSINV | 246 | 0.4242 | 0.5058 | 0.4244 | 0.7015 | 0.7438 | 0.7183 | 0.7888 | 0.5121 | -0.4155 |
| FNEGCON | 247 | -0.0537 | -0.0810 | -0.0353 | -0.1853 | -0.2313 | -0.2405 | -0.2517 | -0.0070 | -0.0137 |
| FLAXDIS | 248 | 0.0458 | -0.0835 | -0.0535 | 0.0121 | -0.0783 | 0.0173 | -0.0435 | -0.1256 | 0.0133 |
| SPEERS | 249 | 0.2077 | 0.2883 | 0.2433 | 0.2521 | 0.1589 | 0.0985 | 0.1343 | 0.0828 | -0.0724 |
| SSOCSK | 250 | 0.2201 | 0.0918 | 0.0134 | 0.1044 | 0.1295 | 0.0778 | 0.1546 | 0.1611 | -0.3758 |
| MSOCSK | 252 | 0.0186 | 0.1071 | 0.0871 | 0.0803 | 0.1084 | 0.0783 | 0.0210 | 0.1341 | -0.0845 |
| FSOCSK | 254 | 0.0886 | 0.0923 | 0.0587 | -0.0763 | 0.1038 | 0.0240 | -0.0128 | -0.0588 | 0.0011 |

| | | SCURFR 128 | SNUMFR 130 | SQUALFR 131 | SDEPR 132 | SSELFEST 152 | MMARSAT 171 | MLONE 173 | MCURFR 174 | MNUMFR 175 |
|---|---|---|---|---|---|---|---|---|---|---|
| SCURFR | 128 | 1.0000 | | | | | | | | |
| SNUMFR | 130 | 0.2576 | 1.0000 | | | | | | | |
| SQUALFR | 131 | 0.5601 | 0.1608 | 1.0000 | | | | | | |
| SDEPR | 132 | -0.2898 | -0.2722 | -0.2182 | 1.0000 | | | | | |
| SSELFEST | 152 | 0.2840 | 0.1361 | 0.1781 | -0.6401 | 1.0000 | | | | |
| MMARSAT | 171 | 0.0897 | 0.0878 | 0.0002 | -0.2384 | 0.1178 | 1.0000 | | | |
| MLONE | 173 | -0.0934 | -0.2089 | -0.0982 | 0.2894 | -0.2255 | -0.4887 | 1.0000 | | |
| MCURFR | 174 | 0.0830 | 0.1004 | 0.1269 | -0.1288 | 0.1328 | 0.2077 | -0.4335 | 1.0000 | |
| MNUMFR | 175 | 0.2248 | 0.2446 | 0.2628 | -0.2173 | 0.1823 | 0.2677 | -0.4128 | 0.4302 | 1.0000 |
| MQUALFR | 176 | 0.1847 | 0.0720 | 0.2270 | -0.1288 | 0.1582 | 0.1383 | -0.2488 | 0.4788 | 0.4087 |
| MDEPR | 177 | 0.0488 | -0.0780 | 0.0815 | 0.2078 | -0.1434 | -0.4375 | 0.5765 | -0.3525 | -0.2836 |
| MSELFEST | 187 | 0.0872 | 0.0744 | 0.0573 | -0.2312 | 0.2543 | 0.2848 | -0.5543 | 0.4221 | 0.2213 |
| FMARSAT | 216 | 0.1141 | -0.0485 | 0.1448 | -0.1778 | 0.0328 | 0.0824 | -0.3430 | 0.1751 | 0.2178 |
| FLONE | 218 | -0.1587 | -0.0845 | -0.1824 | 0.1015 | 0.1012 | -0.2784 | 0.2780 | -0.1594 | -0.1043 |
| FCURFR | 219 | 0.1145 | -0.0981 | 0.0157 | -0.0803 | 0.0490 | 0.2428 | -0.2377 | 0.3283 | 0.2078 |
| FNUMFR | 220 | 0.1381 | 0.1136 | 0.1070 | 0.0872 | -0.1218 | 0.1886 | -0.1348 | 0.1858 | 0.1832 |
| FQUALFR | 221 | 0.1555 | -0.0814 | 0.2224 | 0.0348 | -0.0883 | 0.2840 | -0.1035 | 0.1828 | 0.1880 |
| FDEPR | 222 | 0.0371 | 0.1615 | 0.0348 | 0.1088 | 0.0018 | -0.2807 | 0.2521 | -0.2447 | -0.1886 |
| FSELFEST | 242 | 0.0482 | -0.1488 | 0.1082 | -0.1778 | 0.0784 | 0.2440 | -0.1878 | 0.1848 | 0.0747 |
| MPOSINV | 243 | 0.1260 | 0.1314 | 0.0302 | -0.4408 | 0.4103 | 0.0300 | -0.1178 | 0.1207 | 0.1788 |
| MNEGCON | 244 | 0.1038 | -0.0068 | 0.0025 | 0.1178 | -0.0873 | -0.0218 | 0.0815 | 0.0873 | -0.0841 |
| MLAXDIS | 245 | 0.0071 | -0.0228 | 0.0749 | 0.0836 | 0.0082 | 0.0855 | -0.0731 | 0.0305 | 0.1885 |
| FPOSINV | 246 | 0.1717 | 0.1114 | -0.0345 | -0.3877 | 0.2928 | 0.2404 | -0.0726 | 0.0389 | 0.1701 |
| FNEGCON | 247 | 0.0884 | -0.0217 | -0.0212 | -0.1263 | 0.1823 | -0.0871 | -0.0480 | 0.0341 | -0.0233 |
| FLAXDIS | 248 | 0.0323 | 0.0418 | 0.0415 | 0.1189 | -0.0908 | -0.0845 | 0.0848 | -0.0543 | 0.1803 |
| SPEERS | 249 | 0.1838 | 0.0887 | 0.0780 | -0.1856 | 0.1724 | 0.0127 | -0.0851 | 0.1855 | 0.1525 |
| SSOCSK | 250 | 0.2318 | 0.2362 | 0.0848 | -0.4136 | 0.3208 | 0.0788 | -0.3135 | 0.0564 | 0.1318 |
| MSOCSK | 252 | 0.0080 | -0.0442 | 0.0188 | -0.0728 | 0.1884 | 0.2078 | -0.3000 | 0.2348 | 0.1822 |
| FSOCSK | 254 | -0.1230 | -0.0705 | -0.0809 | -0.0100 | -0.0385 | -0.0825 | -0.0382 | -0.0858 | -0.1847 |

| | | MQUALFR 176 | MDEPR 177 | MSELFEST 187 | FMARSAT 216 | FLONE 218 | FCURFR 219 | FNUMFR 220 | FQUALFR 221 | FDEPR 222 |
|---|---|---|---|---|---|---|---|---|---|---|
| MQUALFR | 176 | 1.0000 | | | | | | | | |
| MDEPR | 177 | -0.0730 | 1.0000 | | | | | | | |
| MSELFEST | 187 | 0.2058 | -0.5571 | 1.0000 | | | | | | |
| FMARSAT | 216 | 0.0847 | -0.2578 | 0.1730 | 1.0000 | | | | | |
| FLONE | 218 | -0.0844 | 0.1534 | -0.0717 | -0.4825 | 1.0000 | | | | |
| FCURFR | 219 | 0.0128 | -0.2873 | 0.1017 | 0.3122 | -0.1885 | 1.0000 | | | |
| FNUMFR | 220 | 0.0385 | -0.0107 | 0.0813 | 0.3023 | -0.2452 | 0.2521 | 1.0000 | | |
| FQUALFR | 221 | 0.1841 | -0.1318 | 0.0757 | 0.3885 | -0.2570 | 0.3921 | 0.3102 | 1.0000 | |
| FDEPR | 222 | -0.1212 | 0.2958 | -0.1780 | -0.4503 | 0.5528 | -0.3181 | -0.1925 | -0.2663 | 1.0000 |
| FSELFEST | 242 | 0.1858 | -0.2347 | 0.2145 | 0.3348 | -0.3822 | 0.2200 | 0.1189 | 0.2803 | -0.5483 |
| MPOSINV | 243 | 0.1110 | -0.1473 | 0.1088 | 0.0885 | -0.0221 | 0.0857 | -0.0178 | 0.0285 | -0.1718 |
| MNEGCON | 244 | -0.0277 | 0.1555 | -0.1188 | -0.0841 | 0.1448 | 0.0588 | -0.0423 | 0.0758 | -0.0109 |
| MLAXDIS | 245 | 0.1008 | 0.0849 | -0.0881 | -0.0070 | 0.0718 | 0.0728 | 0.0125 | -0.0837 | 0.0727 |
| FPOSINV | 246 | 0.1047 | -0.1053 | 0.0858 | 0.1884 | -0.0849 | 0.1145 | 0.0040 | 0.0482 | -0.0807 |
| FNEGCON | 247 | -0.0234 | -0.0217 | 0.1085 | -0.1888 | 0.1104 | -0.0801 | -0.0845 | -0.1398 | 0.0833 |
| FLAXDIS | 248 | 0.0404 | 0.1640 | -0.1403 | -0.0842 | -0.1031 | -0.0824 | -0.0803 | -0.0280 | 0.0881 |
| SPEERS | 249 | 0.0880 | -0.0148 | 0.0483 | 0.0783 | -0.0351 | 0.0188 | 0.0405 | 0.0410 | -0.0221 |
| SSOCSK | 250 | 0.1714 | -0.0858 | 0.1825 | -0.0201 | -0.1318 | -0.0917 | -0.0270 | -0.0888 | -0.0085 |
| MSOCSK | 252 | 0.2110 | -0.2484 | 0.2227 | 0.1702 | -0.1885 | 0.0801 | 0.0078 | 0.2238 | -0.2178 |
| FSOCSK | 254 | -0.2305 | -0.0354 | 0.0831 | 0.0227 | -0.2002 | -0.0824 | -0.0823 | -0.0401 | -0.3082 |

| | | FSELFEST 242 | MPOSINV 243 | MNEGCON 244 | MLAXDIS 245 | FPOSINV 246 | FNEGCON 247 | FLAXDIS 248 | SPEERS 249 | SSOCSK 250 |
|---|---|---|---|---|---|---|---|---|---|---|
| FSELFEST | 242 | 1.0000 | | | | | | | | |
| MPOSINV | 243 | 0.1384 | 1.0000 | | | | | | | |
| MNEGCON | 244 | 0.0882 | -0.1833 | 1.0000 | | | | | | |
| MLAXDIS | 245 | -0.0337 | 0.0805 | -0.0110 | 1.0000 | | | | | |
| FPOSINV | 246 | 0.0548 | 0.7045 | -0.2281 | 0.0041 | 1.0000 | | | | |
| FNEGCON | 247 | 0.0812 | -0.0184 | 0.4884 | -0.1128 | -0.2266 | 1.0000 | | | |
| FLAXDIS | 248 | -0.1408 | -0.0584 | 0.1289 | 0.8477 | 0.0318 | -0.2087 | 1.0000 | | |
| SPEERS | 249 | 0.0807 | 0.2488 | 0.0182 | 0.0885 | 0.1851 | -0.0082 | 0.1557 | 1.0000 | |
| SSOCSK | 250 | 0.1473 | 0.1551 | -0.0353 | 0.0481 | 0.1849 | 0.1480 | 0.1478 | 0.0883 | 1.0000 |
| MSOCSK | 252 | 0.1587 | 0.0888 | 0.0542 | -0.0182 | 0.0845 | -0.0009 | -0.0388 | -0.0532 | 0.1080 |
| FSOCSK | 254 | 0.3281 | 0.1215 | -0.0888 | -0.0883 | 0.0205 | 0.0438 | -0.1076 | -0.0382 | 0.0404 |

| | | MSOCSK 252 | FSOCSK 254 |
|---|---|---|---|
| MSOCSK | 252 | 1.0000 | |
| FSOCSK | 254 | 0.0587 | 1.0000 |

# APPENDIX M

Means and Mean Differences on Student Variables, measured for Students whose Parents returned Questionnaires and Students whose Parents did not return Questionnaires.

# APPENDIX M

Means and Mean Differences on Student Variables, measured for Students whose Parents returned Questionnaires (Group I) and Students whose Parents did not return Questionnaires (Group II)

| Variable | Mean Group I (N=130) | Mean Group II (N=105) | Mean Difference |
|---|---|---|---|
| S-MPOSINV | 57.91 | 56.70 | 1.21 |
| S-MNEGCON | 27.51 | 28.86 | -1.35 |
| S-MLAXDIS | 17.02 | 16.86 | .16 |
| S-FPOSINV | 52.65 | 50.63 | 2.02 |
| S-FNEGCON | 24.55 | 26.24 | -1.69* |
| S-FLAXDIS | 17.04 | 16.66 | .36 |
| S-MCLOSE | 3.32 | 3.24 | .08 |
| S-MRELY | 4.49 | 4.38 | .11 |
| S-MTRUST | 4.44 | 4.43 | .01 |
| S-FCLOSE | 3.11 | 3.09 | .02 |
| S-FRELY | 4.26 | 4.09 | .17 |
| S-FTRUST | 4.25 | 4.21 | .04 |
| S-PEERS | 42.46 | 42.53 | - .27 |
| S-CLOSPAR | 8.63 | 6.98 | 1.65* |
| S-PARMAR | 3.79 | 3.40 | .39* |
| S-LONE | 36.28 | 36.56 | - .28 |
| S-DEPR | 34.00 | 34.24 | - .24 |
| S-SELFEST | 40.90 | 41.70 | - .80 |
| S-SOCSK | .28 | .75 | - .47 |

(Continued)

APPENDIX M - Continued

| Variable | Mean Group I (N=130) | Group II (N=105) | Mean Difference |
|---|---|---|---|
| S-CURFR | 57.61 | 56.26 | 1.35 |
| S-NUMFR | 3.02 | 2.92 | .10 |
| S-QUALFR | 3.95 | 3.88 | .07 |

* significant differences, $p < .01$

# APPENDIX N

## Eigenvalues for Factors in Principal Components Analysis

# APPENDIX N

## Eigenvalues and Cumulative Proportions of Total Variance for Factors derived from Principal Components Analysis

| FACTOR | Eigenvalue | Cumulative Proportion of Total Variance |
|---|---|---|
| I | 7.3137 | .2033 |
| II | 4.0322 | .3153 |
| III | 2.6380 | .3885 |
| IV | 2.2410 | .4508 |
| V | 1.8887 | .5033 |
| VI | 1.6483 | .5490 |
| VII | 1.5453 | .5920 |
| VIII | 1.3297 | .6289 |
| IX | 1.2135 | .6626 |
| X | 1.1118 | .6935 |