

The Revision of the Adult Attachment Scale

by

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A thesis  
presented to the University of Manitoba  
in fulfillment of the  
thesis requirement for the degree of  
Doctor of Philosophy  
in  
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JUDITH SHANE

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

DOCTOR OF PHILOSOPHY

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## ABSTRACT

The development of a sufficiently sensitive instrument is a vital prerequisite for research exploring the intensity of attachment or bonding. The revision of an Adult Attachment Scale (AAS) a shortened 32-item measure of the intensity of attachment currently experienced is presented. There were 110 married adults who helped validate the revised AAS. It was thoroughly investigated for test-retest reliability, homogeneity, concurrent validity and construct validity. Construct validity was demonstrated by five analyses. The first compared the AAS scores for spouses with scores for best friends or confidants. A further comparison was made between scores for confidants with scores for casual friends. Data confirmed that the scores for spouses were significantly higher than for confidants, and scores for confidants were significantly higher than for casual friends. A third analysis established a confidence interval based on the mean score for spouses. The interval was fully contained within a null range, cross-validating the mean score. A fourth measure of construct validity was derived from two factor analyses, one for spouses and one for confidants, which supported the existence of two independent components of attachment found in this study as in the last. A fifth measure of construct validity was obtained by correlating the AAS with similar scales. Further analysis revealed that as the duration of marriage increases, the intensity of attachment or AAS score decreases. Thus the mean scores for marriages of varying duration were found to be significantly different as predicted. However, each subgroup mean did not

significantly differ from every other subgroup mean. Data did not support the final prediction, that there would be correspondence between childhood attachment to a parent and later bonding with a spouse. Recommendations for the future employment of this instrument and for future research were made.

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## CHAPTER I

### INTRODUCTION

An attachment is an affectional tie that one person forms to another specific person. It binds them together in space and endures over time. Attachment is discriminating and specific. One may be attached to more than one person, but one cannot be attached to a multitude of people (Ainsworth, 1973). Each member of a bonded pair tends to remain in proximity to the other. Ainsworth (1973) infers the existence of attachment from a stable inclination to seek proximity and contact with a specific figure over time. Such behavior has been hypothesized to have biological underpinnings because it serves the purpose of protection, contributing to the individual's chance of survival (Bowlby, 1969). It keeps him/her close to caregiver(s) who reduce the risk of harm, for example from cold, hunger or predators. Therefore attachment behavior is as functionally adaptive as feeding or sexual behavior.

Attachment during infancy has recently received much attention from the psychological literature. In view of the voluminous research on attachment, this review will concentrate on aspects of attachment that are relevant to adult bonding. The purpose is to develop a questionnaire that assesses an individual's intensity of attachment currently experienced in an adult relationship. In developing the questionnaire, comparisons will be made between individual responses given for a spouse, a confidant and a

casual friendship. One of the major aims of this research is to show continuity in the quality of attachment from childhood through to adulthood. Therefore issues that focus on continuity in the quality of attachment will be reviewed. These will include the following subtopics: a definition and description of attachment behavior, disrupted bonding, individual differences in attachment, continuity in adaptation, intergenerational effects, the reciprocal relationship between attachment and divorce, and attachment in ongoing relationships.

#### A Definition and Description of Attachment Behavior

Bowlby (1980) elaborated on the principal features of attachment theory. He defined attachment behavior as any form of behavior wherein a person attains or retains proximity to a preferred figure. As long as the figure remains accessible and responsive the behavior may consist of nothing more than checking the whereabouts of the person, such as the exchange of occasional glances and greetings. As a class of behavior with its own dynamic, attachment behavior is distinct from feeding behavior and sexual behavior and is at least of equal significance in human life. During the course of healthy development, attachment behavior leads to the formation of affectional bonds, initially between child and parent and later between adults. The various forms of the behavior and the bonds to which they lead are active and present throughout the life cycle.

The formation of a bond is described as falling in love, maintaining the bond as loving someone, and losing a partner as grieving over a loved one. Similarly, threat of loss arouses anxiety, and actual loss brings sorrow; while each of these situations tends to bring forth anger. The maintenance

of a bond is experienced as a source of security and the renewal of a bond can be a source of joy. Many of the most intense emotions surface during the development, the maintenance, the renewal and the disruption of attachment bonds. Because such emotions usually reflect the state of one's attachment relationships, the psychology and the psychopathology of emotion is to a large extent the psychology and the psychopathology of affectional bonding (Bowlby, 1980).

Psychopathology and disturbed patterns of attachment are not due to fixation or regression to an earlier stage of development. They are due to deviant psychological development. One form of the disturbance is partial or complete deactivation of attachment behavior, called "emotional detachment." The second form, the commonest disturbance, is the ever-ready elicitation of attachment behavior, resulting in "insecure or anxious attachment." Such behavior has often previously been regarded as overdependency (Bowlby, 1980).

Although some attachment behaviors closely resemble behaviors that have been defined as dependent, Bowlby's (1979) concept of attachment differs vastly from dependence. The goal of dependent behavior is not specifically related to maintaining proximity. In addition, it is not directed to a particular figure, it doesn't imply an enduring bond and it is not necessarily associated with strong emotion. No biological function is attributed to it. Furthermore, to refer to a person as dependent tends to have a negative connotation whereas describing him/her as attached is positive. Conversely, for a person to be detached when engaged in a significant relationship is less than admirable (Bowlby, 1979; Bretherton, 1985).



Rutter (1972) reviewed the literature and concurred with Bowlby. He claimed that both human and subhuman primates show a universal occurrence of attachment behavior. There is great individual variation in the strength and distribution of attachments; the main bond is not always with the mother and bonds are frequently multiple. Rutter concluded that attachment is an important crucial aspect of the mother-child relationship and it is also a characteristic shared with other relationships. Similarly, Yarrow (1972) said that in middle childhood and adolescence affectional bonding includes siblings, peers, and other significant adults, wherein there is a strong interdependence as well as a strong affective component. He viewed it as an interactional concept in which reciprocity is central. At different developmental periods it encompasses dynamically similar but phenotypically different behaviors. Consequently, it is more meaningful to view attachment as an organizing concept that indexes a broad range of behaviors extending across a wide developmental time span (Yarrow, 1972).

The primary bond or attachment is usually formed with the mother but it can be with anyone who is the principal caregiver. Ainsworth (1973) has reported that infants attach even to unresponsive or abusive mothers. However, infants reared in institutions may not become attached to anyone. This condition has been labelled "maternal deprivation," and its devastating effects on emotional and physical development, intelligence, social maturity, moral ability, and the ability to relate to significant others have been thoroughly documented (Goldfarb, 1955; Tizard & Tizard, 1971; Rutter, 1972, 1980). It has also been found that the repeated disruption of bonds during infancy is associated with psychiatric disturbances (Bowlby, 1965; Ainsworth, 1973).

### Disrupted Bonding

Two psychiatric disturbances preceded by disrupted bonding during early childhood are depression and suicidal tendency. Retrospective studies indicate that suicidal persons lost parents during the first five years of life three times more frequently than nonsuicidal persons. The loss usually included both parents through death or divorce (Bruhn, 1962; Greer, Gunn & Koller, 1966). In his review of the suicide literature, Adam (1982) examined the data comparing suicidal-ideation with nonsuicidal-ideation subjects for the quality of parental care they received before and after the loss. He concluded that attempted suicide and control subjects differed significantly in the consistency and quality of parental care prior to the loss, during the loss and after the loss. Apparently the suicidal-ideation groups received lower quality and less consistent care. Similar findings were reported for depressed patients. Dennehy (1966), Hill and Price (1967) and Brown and Harris (1978) all reported that parental death had occurred about twice as frequently among depressives as in the population at large. Early loss of mother as opposed to father increased the risk of later depression according to Brown (1982) who recently reviewed the literature.

Some researchers hold that disrupted bonding during childhood causally impairs the capacity for affectional bonding in adulthood. They turn to human infant behavior as evidence, wherein two disturbed patterns of attachment were observed. The first disturbance, "emotional detachment," was systematically documented by Heinicke and Westheimer (1966). They observed children aged 13 to 32 months during and following a stay in a residential nursery (three to twenty weeks) and compared them with children

who remained at home. Crying and screaming, mainly for mother, was a dominant response, especially during the first three days away from home. It was particularly common at bedtime and during the night. Initially they refused to eat, dress, be picked up or be comforted, but clung to their favorite object brought from home. After a few days they hurled the toy away exhibiting increased hostile reactions. They also showed a breakdown in sphincter control. Upon reunion with mother, only the separated children exhibited "emotional detachment." They did not recognize her, or else walked away from her and ignored her advances. This state persisted for days. In fact, the duration of the detached behavior correlated positively with the length of the separation,  $r = .82$ . Hostile and angry behavior was also recorded four times as frequently for the separated group.

The second childhood disturbance "insecure or anxious attachment," is also associated with disrupted bonding. The child displays clinging behavior after the attachment relationship is resumed. S/he cries and follows the caregiver wherever she goes and demands constant attention. Bowlby (1973) and Stayton and Ainsworth (1973) described the causal factors of insecure behavior as experiences that weaken a child's confidence that the attached person will be accessible and responsive when needed. Most anxiety or fear of separation was found to be reality-based, in that the children or their mothers had been hospitalized, or there was a history of separation, unresponsiveness or rejection. The separation, unresponsiveness or rejection evoked hostility towards the caregiver, while the hostile acts and thoughts further increased the fear of loss or rejection from the caregiver.

Bowlby (1979) described the aggressively demanding behavior exhibited by these children who had been separated from their parents as resembling the behavior of some psychopaths. However, he acknowledged that this did not demonstrate that "insecure attachment" or "detachment" are causally related to that personality disorder. Later Rutter (1980) revealed that bond disruption was one of the causal agents of "acute distress syndrome." He claimed that "affectionless psychopathy" results from the initial failure to form bonds, not from the breaking of relationships. Thus prolonged and repeated separation from a principal caregiver at an early stage of development can have the most detrimental effect on a child.

For the purpose of exploring the effects of bond disruption, the children of deceased and divorced parents have been retrospectively assessed. Rosenberg (1965) administered a self-esteem questionnaire to 5,024 adolescents aged 16 to 18 years. Adolescents whose mothers married young and were divorced by 24 years of age had lower self-esteem, as did the adolescent offspring of young widows. Low self-esteem correlated significantly with anxiety, depression, and sensitivity to criticism. Similarly, Megargee, Parker and Levine (1971) administered the CPI sociability scale to 488 university students. They discovered that scores correlated positively when students (a) lived with both parents, (b) parents' marriage was rated excellent, and (c) had a happy childhood. Scores correlated negatively with parental divorce. Seemingly, Peck and Havighurst's (1960) findings are in agreement with the above data. They found that a stable family base for the child and adolescent promotes stability, self-reliance, high leadership qualities, and high autonomy in adulthood (reviewed by Shane, 1982).

A recent study of 79 young women whose mothers died during their childhood and whose fathers had remarried were examined for state and trait depression. Parker and Hadzi-Pavlovic (1984) administered questionnaires which probed depression, parental bonding and marital affection. Lack of care from fathers and step-mothers were the parental variables most strongly associated with high trait depression, and almost all women who scored both of these parents as uncaring reported a life-time episode of depression. In a married sub-group of 63 subjects, low marital affection and low step-mother care accounted for 33% of the variance in trait depression scores, while low paternal care was no longer significant. Data for the married sub-group suggested that an affectionate husband largely corrected a tendency to greater depression exerted by uncaring parents. The women whose mothers had died during their childhood were more at risk for trait depression given an unaffectionate husband.

Bowlby (1979) stated that many men and women experience common deviations in the development of their attachment relationships such as (1) parental unresponsiveness or rejection, (2) discontinuity of parenting, (3) parental threats of withdrawing love, (4) abandonment or threats of committing suicide or inducing guilt in the child by claiming his deeds will kill the parent, or (5) reversal of roles where the child enacts the parental role. According to attachment theory any of these experiences can lead to constant anxiety lest s/he lose the attachment figure. Depending on the problems encountered, people experiencing such deviant patterns during childhood may later relate to others in a manner indicative of their deviant pattern. They may develop personality disorders or encounter difficulties when they marry and have children. They may likely become

over-conscientious and guilt-ridden as well as anxiously attached. The majority of school phobia and agoraphobia probably originate this way (Bowlby, 1979, reviewed by Shane, 1982).

A principal postulate of attachment theory is that there is a strong association between a child's relationship with parents and the later capacity to form affectional bonds during adulthood. The main variable is the extent to which parents provide a secure base and encouragement to explore from it. Children who are provided with this condition are described as "securely attached." They grow up secure, trusting, self-reliant, and cooperative. Such people are said to possess a strong ego or show "basic trust" (Erickson, 1950). Unfortunately, in many western populations approximately one third of the children do not receive these conditions (Bowlby, 1979, reviewed by Shane, 1982).

Bowlby's model of attachment stipulates that the representational models of attachment figures and of the self constructed during childhood and adolescence, tend to persist into adulthood. Consequently, a person's behavior may sometimes be more explicable in terms of her/his early experiences because one tends to assimilate a new person with whom one bonds (ie., spouse or therapist) to an existing model even though it is inappropriate. For example, a man who was threatened with abandonment during childhood may later fear his wife will abandon him, even though he believes she is loyal. Bowlby (1979, p. 142) thought that the stronger the emotions aroused in the relationship, the more likely it was that the earlier, less conscious models would become dominant. Therefore, patterns of interaction which became established between a child and the caregiver have a potent influence on the quality of his/her social relationships in adulthood (Shane, 1982).

### Individual Differences in Attachment

Attachment theory sheds light on individual differences in personality development. Bretherton (1985) reasoned that if an attachment figure frequently rejects or ridicules a child's need for comfort in stressful situations, the child may come to develop not only an internal working model of the parent as rejecting or uncaring, but also one of the self as not worthy of help or care. Conversely, if help or comfort is given, the child will tend to develop a working model of the caregiver as loving and of the self as worthy of such support. Individual differences appear to be closely tied to a person's working model of the self, others and the world. Therefore, the internal working model that an individual constructs of attachment figures and of the self becomes part of the personality structure and thereby influences later relationships. This formulation evolved from ethology, control systems, and cognitive and psychoanalytic theory (Bretherton, 1985; Bowlby, 1973).

Attachment research provides solid support for its claim of contributing to individual differences. Ainsworth, Blehar, Waters and Wall (1978) developed a lab scheme for classifying behavior as to the quality of attachment in one-year-old babies. This procedure was called the "strange situation" and it supplemented a longitudinal study of these same children and their caregivers. A host of independent investigators followed the children to ascertain whether their assessment was significantly related to later behavioral measures in the second to fifth year of life. Only a brief outline will be given here: for a more comprehensive review see Appendix G (reviewed by Shane, 1982).

Substantial differences were initially documented between the mothers. Mothers of the securely attached babies (Group B) were more sensitive, accepting, cooperative and accessible to their babies. Mothers of the insecurely attached groups (Groups A and C) were insensitive to infant communications, with Group A more angry, irritated, rejecting and also more aversive to bodily contact, while Group C was more neglecting and ignoring. Similarly, securely attached babies showed minimal disturbances at separation and no anger at reunion. They were the only group to show positive affect. The insecurely attached groups (Groups A and C) differed in the expression of their anxieties. Group A babies were not distressed at separation but avoided mother during reunion so they were referred to as "avoidant" babies. Group C clung to mother more prior to and following separation, and exhibited more anger during reunion periods. They were named "resistant" babies (Ainsworth et al., 1978).

By 2 years of age, as predicted, both groups of anxiously attached were less cooperative, competent and affectively positive than the securely attached. They were also more aggressive and/or avoidant toward their mothers and other less familiar adults. Continuity was also noted in maternal behavior: their mothers were less supportive and offered a lower quality of assistance than the mothers of the securely attached. Later, the insecure children emerged as less sympathetic with peers and less competent in exploration and problem-solving. They were less curious, less self-directed, less ego-resilient and scored lower in language development and developmental tests, although the differences were not due to D.Q. or temperament (Ainsworth et al., 1978; Matas, Arend & Sroufe, 1978; Pastor, 1981).



Upon reaching 5 years of age, the anxiously attached still exhibited poorer adjustment. They were less interested in learning new cognitive skills, new stimuli and were generally described as "spaced out." Moreover, they scored higher in dependency and lower in self-esteem. They became disorganized during a novel or stressful situation and were unable to meet the demands of a changing environment. In summary, the predictions demonstrated that insecure attachment correlated significantly with strikingly poorer adaptation, showing a marked decrement in emotional and social cognitive functioning. Thus, although there were vast individual differences in discrete behaviors, the quality of the affective bond generally remained stable (Arend, Gove & Sroufe, 1979; Sroufe, Fox & Pancake, 1983).

#### Continuity in Adaptation

Rutter (1980) felt that the quality of the affective bond with the caregiver can readily influence later social development. To support this claim he cited Tizard (1977) who studied institutionally-reared children and compared them with family-reared controls. Tizard noted continuity in adaptation. Excessive clinging and more diffuse attachment behavior at 4 years of age noted in the institutional group related to disobedient, attention-seeking, hostile behavior at school with poor task involvement at 8 years of age.

Continuity in social behavior was also reported by Bloom-Feshbach, Bloom-Feshbach and Gaughran (1980). They observed that some children did not resolve their separation distress after one month of school. They exhibited a direct expression of the distress which was associated with a

hostile, deficient mode of eventual adjustment. Similar continuity was reported by Kohn (1977) who showed longitudinal persistence of deficient social cognitive functioning. Children who were withdrawn and angrily defiant in kindergarten manifested the same impairment 5 years later. There appears to be coherence in personality development over time, and an emotionally impaired child may later become an emotionally impaired adolescent or adult, especially if treatment is not forthcoming (Thomas & Chess, 1985). However there is a paucity of longitudinal research to support the evidence of continuity in adaptation from childhood through to adolescence and adulthood.

The quality of the attachment bond with parents has received little attention during adolescence. Adolescence and early adulthood bring changes in the relationship with parents. Havighurst (1953) named becoming free from childish dependence on parents as an adolescent task. He proposed that the psychological basis for personal independence may stem from sexual maturation. Since the adolescent cannot find sexual satisfaction within the family, s/he must go outside the family to establish emotional ties with age-mates. This can not happen without some change in the emotional bonds that tie them to their parents.

Selecting a mate or marriage partner was identified by Erikson (1968) as the first task of early adulthood. He labelled this stage of development "intimacy"; it serves the need for a new and shared identity. If a young person fails in this stage, s/he will attain the opposite situation which he referred to as "isolation." The youth who is insecure about his identity shies away from "intimacy."

Sears (1972) outlined adolescent development in terms of attachment theory. He suggested that the primary attachment with a caregiver decays during adolescence and is normally replaced by a second major attachment during young adulthood. Pseudo-attachments, brief in duration but passionate in intensity, may occur intermittently along the way. These are indications that the youngster is trying to break the primary attachment and is experimenting with new attachments. Perhaps much of adolescent distress, disorganization, aimlessness, the search for new experiences and sexual partners, and alternating periods of euphoria with despair may exemplify the rootlessness of life with no attachment. These may be symptoms of searching for the second object. The contemporary adolescent's obsession with love may simply be an indication of this search (Sears, 1972, pp. 1-27).

In researching "loneliness," Peplau and Perlman (1982) sampled adolescent self-reports. They claimed that separation from parents as the primary attachment figures is a critical antecedent of "loneliness," which intensifies one's sense of isolation. Adolescents older than 16 felt more isolated from parents and spent less time with them than did younger adolescents. Separation from parents increased the need for affiliation and emphasized relationships with peers. Peplau and Perlman found much variation in the age at which separation began, and many adolescents frequently lapsed into childhood attachments and dependencies. They grounded much of their research on the theoretical underpinnings of Weiss (1973, 1982) who asserted that absence of an attachment figure can lead to feelings of emotional isolation. This can occur when individuals lose an important attachment figure through death or divorce, or at adolescence when parents decline as strong attachment figures.

Weiss (1982, p. 175) described the changing character of attachment during adolescence, basing his theory largely on research interviews. During this stage, relationships with parents changed. Many adolescents, not at all estranged from their parents, welcomed intervals of separation, such as when the parents were away from home. They still required confidence in their parents' commitment to them as allies, but they no longer felt anxious on coming home to an empty house. At this time their perceptions of their parents altered. They were no longer awesome or larger than life figures of strength, but were seen as ordinary people with frailties and problems.

Late adolescents who had been away from home returned to discover that they had left home emotionally. Intense attachment to parents had been relinquished without their awareness. Weiss thought that intense attachment to parents did not gradually diminish but became absent for longer and longer time intervals. After parents lose their position as strong attachment figures, an adolescent may become attached to a new figure. In the new relationship, all the indicators of attachment surface: desire for proximity, feelings of comfort in their presence and if there is a rift, separation distress follows. For example, adolescents frequently disclosed that they were more distressed at separation than they thought they should be, given that they knew the relationship was transitory. The similarity of this response to infant loss, together with absence of intense attachment both to parents and to peers, makes it likely that the process of attachment operates within a single perceptual-emotional system, with a shift in object relations (Weiss, 1982, p. 175).

What leads to particular new figures becoming objects for attachment? Perhaps the image of the figure chosen corresponds in some way to a previous image. Weiss (1982) believes that the parent with whom there were strong positive affective ties (not necessarily the parent of the opposite sex) influences mate selection. When attachment to the new figure occurs, he suggests it forms immediately rather than gradually. However, it can easily be interrupted during the early stage of its development. After the relationship becomes integrated into one's life, attachment becomes more constant.

One study compared the relative influence of peers and parents during adolescence (Greenberg, Siegel & Leitch, 1983). The quality of adolescents' attachments to peers and to parents was evaluated by the Inventory of Adolescent Attachments (IAA) scale. The impact of such relationships on self-esteem, life satisfaction (well-being) and on life stress was investigated. The sample consisted of 213 adolescents ranging from 12 to 19 years of age who attended high school. The adolescents were predominantly Caucasian, middle class and were participants in a larger cardiovascular study. Lower class adolescents were not represented.

The IAA was patterned on Bowlby's (1969, 1973) theory of attachment. Two dimensions of attachment were operationalized: (a) felt security which was based on the quality of affect towards attachment figures, and (b) proximity-seeking to the figures in times of stress and need. The quality of affect subscales consisted of 5 items: (1) although I trust my parents (or friends) sometimes I have my doubts, (2) my friends (or parents) understand me, (3) it bothers me that my parents have so much control over me, (4) I feel angry with my friends, and (5) I wish I had different

parents (or friends). The proximity-seeking subscales consisted of the sum of the frequency with which the respondents utilized mother, father, sibling(s), friends, steady boy- or girl-friends in times of need. These scales have not yet been fully validated. Test-retest reliability was only performed with older adolescents and was found to be moderate.

The results, according to Greenberg et al. (1983) indicated that adolescents utilize their parents more frequently than peers, even when their relationships were perceived as unsatisfying. This finding was thought to be consonant with infant attachment, wherein both secure and anxiously attached infants sought proximity with the caregiver. However the frequency of parental utilization was moderately related to peer utilization, so that those who sought proximity with parents more in times of need tended to utilize their peers more frequently as well. Although frequency of parent utilization was not related to well-being, the quality of affective attachments to parents was highly related to well-being and to self-esteem. The quality of peer attachments was much less predictive of adolescent well-being. In addition, the affective quality of the relationship with parents showed a moderating effect on self-esteem under conditions of high life stress but not with peers.

The IAA was increased to 28 items by Armsden and Greenberg (1987) and was employed in two studies. The subjects were 179 college students aged 16 to 20 years who were predominantly middle-class and Caucasian. The scale items were administered to 93 of the students and the responses were factor analyzed. The items were found to load onto two separate scales, one for parents and another for peers. Each scale consisted of three factors, trust, communication and alienation, and was found to be

internally consistent. A correlation analysis showed that there was a moderate correlation between the parent and peer scales.

The second study by Armsden and Greenberg (1987) employed the remaining 86 students who were a subsample of Study I. Test-retest reliability for the parent and peer scales was high. Convergent validity was demonstrated by obtaining moderate correlations between the parent and peer scales and other similar scales and measures. As hypothesized, the quality of parent and peer attachments was found to be highly related to well-being, particularly to life satisfaction and self-esteem. Quality of attachment also contributed to predicting adolescents' depression/anxiety and resentment/alienation scores. The subjects were subsequently categorized in terms of low, medium or high levels of attachment. Only the low and high attachment groups were compared on variables expected to distinguish them. As predicted, adolescents classified as highly secure on the parent scale scored significantly higher in self-esteem, life satisfaction and parent proximity-seeking in times of need. They also scored lower in depression/anxiety, resentment/alienation, irritability/anger and self-concept confusion than the insecure group. There were no differences between the groups on peer utilization or guilt. However females were found to utilize both parents more frequently and were more attached to peers than males.

Similar results were obtained with the peer attachment scale. Adolescents securely attached on the peer scale scored higher in self-esteem, life satisfaction, peer proximity-seeking and lower in depression/anxiety, resentment/alienation, irritability/anger and self-concept confusion than those low in security with peers. The findings

also suggested that adolescents who are insecurely attached to their parents may be more vulnerable to the damaging effects of life stress. This finding is consonant with Greenberg et al. (1983) who suggested that secure attachment to parents, but not to peers, has a moderating effect on well-being under stressful life events (Armsden and Greenberg, 1983).

A recent study by Kobak and Sceery (1988) tested Bowlby's (1973) theory, that internal working models of attachment figures formed during childhood shape later social relationships. The authors hypothesized that different working models are associated with differences in affect regulation and representations of self and others. The sample consisted of 53 first-year college students whose mean age was 18 years. The majority of them were from intact, two-parent, middle-class families. They were administered self-report measures regarding their perceptions of distress, loneliness, social competence and social support. They were also asked to obtain Q-sort descriptions of themselves from room-mates, friends and/or resident advisors. Then they were classified according to their responses in an Adult Attachment interview as either "Secure, Dismissing or Preoccupied" in attachment. These three patterns in which young adults organize thoughts and memories of their childhood attachment experiences were found to match infant classifications of secure, avoidant and resistant (or ambivalent) attachment respectively.

The results of Kobak and Sceery's (1988) study showed that the Secure group was rated as more ego-resilient, less hostile and less anxious by peers than the other groups. They reported little distress and described relationships with their family in an integrated, coherent way, perceiving others as more supportive than the Dismissing group. The Preoccupied group



was rated less ego-resilient and more anxious by peers than the Secure group. They reported higher levels of personal distress and perceived themselves as less socially competent than the other two groups. However, they viewed their family and friends as more supportive than the Dismissing group. The latter group was rated low on ego-resilience and higher on hostility than the other groups by peers. They also reported more loneliness and perceived their relationships with others as less supportive than the Secure and Preoccupied groups. It was interesting to note that there was a lack of congruence between the Dismissing group's peer ratings and self-report measures of social competence and distress. This was consistent with a pattern of "compulsive self-reliance" described by Bowlby (1973).

The hypothesis that different working models are associated with differences in affect regulation and representations of self and others was generally supported. An individual's working model seemed to be closely linked to rules for regulating distress. For example, secure attachment was organized by rules that acknowledged distress and the turning to others for support. Parents were represented as loving and available during distressing events. Although negative experiences were reported, coherence, good recall and absence of idealization of parents were characteristic of this group. In contrast, the Preoccupied group often recalled childhood events, but their recollections were less coherent and they tended to idealize their parents. Their feelings of anxiety appeared to be regulated by continuing efforts to gain parental support which could lead to dependent or clinging relationships. The Dismissing group on the other hand, had difficulty recalling distressing events. The failure to

remember appeared to regulate affect because it minimized distress associated with rejection. Feelings of rejection and lack of love from parents were thought to have fostered the displaced hostility they exhibited. Overall, the differing styles of affect regulation seemed to parallel the Strange Situation classifications of infants (Kobak and Sceery, 1988).

The findings of Greenberg et al. (1983), Armsden and Greenberg (1987), and Kobak and Sceery (1988) are incongruent with the notion of a major shift from parent to peer saliency. Their findings contradict Peplau and Perlman (1983) and Burke and Weir (1979) who reported that adolescents were more likely to turn to peers. Since these studies were the only studies that examined attachment during adolescence, much more research is required in this area.

The notion that people seek social support from persons other than caregivers was studied by Weinraub, Brooks and Lewis (1977). They argued that the concept of attachment is somewhat restrictive and recommended an alternate model wherein relationships with a wide variety of individuals are investigated. Kahn and Antonuci (1980) extended Weinraub et al.'s social network theory, proposing that the personal network is the structure in which social support is given and received. They suggested that the attachment relationship in infancy is a prototype and precursor of the personal network in adulthood. Their position is that this network is an important determinant of individual well-being because it buffers a person from changes and/or stresses in life. In reviewing the literature, Kahn and Antonucci concluded that social support has been shown to be extremely beneficial in moderating the effects of both chronic and acute stress. In

fact the reported availability of only one "confidant," someone to confide in and to share one's troubles with, was the single strongest predictor of well-being. Parents, spouse and good friends qualified as potential confidants within the social network. Social interaction and the social network become extended during adolescence.

### Intergenerational Effects

Carryover effects from childhood and adolescence may persist right through to adulthood. In fact, Rutter (1980) claimed that parents re-enact patterns of behavior they themselves experienced as children. He cited numerous studies wherein there were strong associations between childhood experiences and later parenting behavior. For example, people whose parents were unhappily married tended to show poor marital adjustment. Similarly, parents who batter their children were more likely to have had a seriously disturbed upbringing themselves, often associated with neglect, rejection or violence. The links are quite strong, so there appear to be intergenerational cycles wherein deprivation in one generation can lead to problems in the next. Rutter (1980) concluded that further research is required to determine the mechanisms involved.

Bowlby (1969, 1973, 1980) has attempted to clarify the mechanisms that link childhood bonding with attachment during adulthood. He referred to the mechanisms as representational models that exist outside of consciousness. Main, Kaplan and Cassidy (1985) later defined the mechanisms as mental representations that include affective as well as cognitive components. Although they tend to remain relatively stable, there is a potential for altering these internal models at certain stages in life, such as at the onset of formal operations.

A further explanation was offered by Bowlby (1973) and Bretherton (1985) who outlined why there are carryover effects from early attachments to later social relationships. Family environments tend to remain relatively unchanged. Consequently the pressures that induced a child to adopt a particular developmental pathway are likely to persist. However it is not only the family environment that remains stable but also the structural features of the personality, such as the internal model of the self and of significant others. Finally the environment and the personality interact, so that the environment is partially created by the individual.

Bowlby's (1973) epigenetic perspective was congruent with that of Kahn and Antonucci (1980). They named several longitudinal studies of children, such as the Berkeley Growth Study, the Terman Study and the Temperament Study that documented consistency in interpersonal behaviors over long periods of time. Therefore they felt it seemed reasonable to assume that early dyadic interaction may provide a child with a prototype for future relationships, both in receiving support and in developing an interactive style wherein information and gratification are actively acquired. Their hypothesis assumes a developmental sequence along the following lines: The child is not a passive recipient but responds actively to the caregiver and in doing so, affects the relationship. This dyadic relationship is altered as the child incorporates other members into his/her social world. Such relationships can be partly shaped by the initial attachment. As the developmental tasks are mastered, s/he enters adolescence and then the adult world in which the need for support and its availability are likely affected by organizational roles and their characteristics.

Intergenerational research especially relevant to attachment theory was recently reviewed by Ricks (1985). The research addressed two areas of investigation: (a) separation or disruption in the family of origin and (b) detailed recollections by parents of childhood relationships with their own parents. The studies purport to demonstrate that a parent's representational models of his/her own life history shapes the quality of the parent-child relationship. One study employed 233 women from the core area of London. Hall, Pawlby and Wolkind (1979) found that family disruption (divorce, separation, death, or separation from both parents for a month or more) prior to age 16, was an important determinant of parental behavior in the next generation. Mothers from disrupted homes were less likely to engage in close, stimulating and contingent interaction with their 5 month old infants than control mothers. They looked at, talked to and touched the infants less. They also responded to their vocalizations less frequently, spending more time in a different room away from the baby. The experience of short-term (less than one month) separation from parents was not linked with poor parenting.

Quinton, Rutter and Liddle (1984) undertook a prospective follow-up study of adult women who had experienced prolonged institutional care when young. The 94 girls lived in institutions for many years because of a breakdown in parenting and not because of disturbed behavior. Data were also obtained from a comparison group of the same age children who lived with their families in that same area in London. Both the comparison sample and the institutional sample were followed to the ages of 21 to 27 years and were later observed with their young offspring by "blind" raters.

The institution sample showed a markedly increased rate of poor psychosocial functioning and of severe parenting difficulties. These difficulties included parenting breakdown with children being looked after by someone other than the mother for long periods of time. Parenting breakdown was noted only in the institutional sample, with nearly 20% of them falling into this category. Poor parenting was also found in half the institutional sample as compared to 10% of the control group (Quinton et al., 1984).

"Poor parenting," such as a marked lack of warmth and sensitivity to their children (akin to Type A mothers) was more likely to occur in the institution sample irrespective of social circumstances. Although behavioral disturbances during childhood and adolescence played a mediating role, over a third without problems during those stages displayed "poor parenting," a rate more than three times higher than the control women. Evidently institutional rearing as a result of parenting breakdown predisposes one to poor parenting, even when the person appears free of psychosocial problems in childhood and adolescence. However, the support of a non-deviant spouse provided a powerful protective effect (Quinton et al., 1984).

A study by Morris (1980) investigated maternal attachment history as related to child outcome measures. A sample of 36 mothers and their infants was selected from the Minnesota project involving 267 economically disadvantaged mothers who were at risk for poor parenting. Child outcome measures included the quality of the mother-child attachment at 12 and 18 months (the strange situation) and performance on a problem-solving task at 2 years of age. Maternal history was obtained from a 160-item interview

which inquired about relationships in the family of origin, crises in childhood, current maternal relationship, social supports and marital harmony when the child was 2 years of age.

Morris (1980) found that scale scores derived from the interviews were all in the predicted direction, but no scale significantly related to child outcome measures. However, two clinically trained judges that reviewed the interviews were more successful. One judge assigned 31 out of 36 children to the correct attachment class (i.e., anxious/avoidant, anxious/resistant or securely attached). The second judge, although less successful, did predict child outcome. The first judge considered the quality of the mother's family relationships and how she dealt with severe crises in her childhood whereas the second judge did not. Other predictive criteria were the amount of severe crises as well as the current support network.

A recent intergenerational study of attachment was conducted by Main, Kaplan and Cassidy (1985). Their sample consisted of 40 mothers, fathers and their 6-year-old male children who had previously participated in the Berkeley project. They were white or Asian, college educated and predominantly upper middle class. Their children had been classified at 12 months of age as to security of attachment (strange situation) and were reclassified in this study at 6 years of age. The parents were also assessed as to adult security. They were asked to name five adjectives that best described their relationship with both parents and to explain the reason for their choices. They were then asked a number of specific questions, such as if their parents ever threatened separation or how they currently felt toward them. The Adult Attachment Interviews were subsequently rated for security with respect to experiences, ideas and feelings regarding attachment.

Parents who were rated as secure tended to value relationships with significant others and to regard such relationships as influential on personality. They showed a readiness in recalling parent-child relationships, a lack of idealization of parents, as well as ease in discussing relationships. Their most striking trait was their coherency in discussing their family history. Integration of positive and negative aspects of the history obviously took place long before the interview.

Conversely, the insecure parents described their relationships with parents in an unintegrated fashion. Contradictions and inconsistencies appeared in their disclosures. Main, Kaplan & Cassidy (1985) felt they did not fully recognize the nature of their relationships and experiences. Many in this group could not even recall their childhood. It was interesting to note that the insecure parents usually fell into one of three patterns. In one pattern the parent denied the importance or influence of parent-child relationships. These frequently turned out to have avoidant babies. In a second pattern the parents were preoccupied with dependency on their own parents and struggled to please them. These were most frequently parents of resistant babies. A third insecure group oscillated between negative and positive descriptions, were irrational or were unable to focus on the topic. Most of them had suffered unusual traumas in childhood. The "strange situation" behavior of their babies was similar to that of maltreatment samples and therefore represented a third type of insecurity. In total, the correlations of the adult attachment interviews with infant security were  $r = .62$  and  $.37$  for the mothers and fathers respectively.



Finally "blind" raters reclassified the children who were now 6 years of age, as to security of attachment. The correlation between security with mother at 1 year with security at 6 years was  $r = .76$ . For father, security at 18 months and at 6 years was lower,  $r = .30$ . Various other assessments of child behavior such as overall functioning, fluency of discourse, emotional openness and dealing with separation all correlated significantly with early security of attachment to mother,  $r = .46$ ,  $.63$ ,  $.59$  and  $.59$  respectively. However early security with father was generally not significant with the child behaviors listed (Main et al., 1985).

Another intergenerational study of attachment, the Amherst project, was reviewed by Ricks (1985). Predictions were based on Bowlby's attachment theory and on Epstein's personality theory. All 28 mothers who participated lived in stable, middle class families. They completed a self-esteem inventory and a mother-father-peer scale which includes dimensions of acceptance/rejection, independence/over-protection and defensive idealization. It was predicted that a mother's memories of childhood relationships and her current level of self-esteem would be related to her infant's security of attachment at one year of age.

Ricks (1985) found that mothers of securely attached infants scored higher in self-esteem and had more positive recollections of childhood relationships with parents and peers than did mothers of insecurely attached infants. The strongest predictor of child outcome was maternal acceptance (i.e. when I was a child my mother could always be depended on when I really needed her help and trust). There were no differences between the groups on defensiveness and on mother idealization scales, but mothers of secure infants tended to idealize their fathers more. Although

their recollections may not have been accurate, the results suggested that mothers of insecure infants felt less accepted by their parents than did mothers of securely attached infants.

Ricks (1985) followed up 20 mothers from the previous sample and included an additional 24 mothers and their children, who were now 4 to 5 years old. The 44 mothers were interviewed about their childhood experiences, current relationships and family stress. They also completed a self-esteem questionnaire and a mother-father-peer scale employed in the previous study. Child outcome measures rated self-esteem, social competence, perceived competence and observations of the child's affective state. Ricks reported that children who as infants had been securely attached showed more positive emotions than the anxiously attached. The child's affective state correlated positively with maternal support and maternal pleasure in interacting with the child. Affective state also correlated negatively with maternal scores in family stress. Consistent with the previous study, mothers of insecure infants were more defensive and likely to idealize both parents than were mothers of secure infants. Mother's self-esteem and her childhood recollections were significantly related to her child's affective state. As in the previous study, acceptance from their own mothers in childhood was the strongest predictor of child outcome at 4 to 5 years of age.

In keeping with the Minnesota and Berkeley projects, several mothers in the Ricks (1985) sample reported recurrent changes of attachment figures through loss or disruption, yet their children were doing well at 4 to 5 years of age. These mothers had successfully come to terms with a traumatic childhood during adolescence or even during adulthood. Others

whose children fared well had strong support systems, such as a stable marriage, strong ties to their husband's family, and positive self-esteem. Hence intergenerational discontinuity in the quality of attachment relationships is possible, and the mechanisms that promote discontinuity can be researched. However, intergenerational continuity is still the norm.

The findings of the aforementioned developmental and retrospective studies are strikingly similar to those of the outlined intergenerational studies. These studies all point to a direct association between the quality of a child's attachment relationships and his/her interpersonal relationships and personality during adulthood. The findings corroborate Bowlby's thesis, that the quality of early attachments will influence later adult-adult bonding as well as parental behavior. However, with increasing age, such as during adolescence, attachment behavior is more difficult to observe because it diminishes in frequency and intensity (Bowlby, 1973; Weiss, 1982). Consequently there are very few studies exploring attachment in ongoing marital relationships during adulthood. Nevertheless, the effects of attachment on divorce have been recently explored and most of the theoretical formulations were based on Weiss (1975, 1979, 1982).

#### The Reciprocal Relationship between Attachment and Divorce

Weiss (1975, 1979, 1982) subscribed to Bowlby's attachment paradigm, studying attachment in adult life. He specified three criteria which denote attachment in infants. These are applicable to attachment in adults as well and include: (1) a desire to be with the attachment figure, especially under stress; (2) deriving comfort and security from the figure;

and (3) protest at the threat of separation. However, adult attachment differs from infant attachment in three important ways. First, instead of appearing in relationships with caregivers, it develops with peers. Second, attachment in adults is not as capable of overwhelming other behavioral systems as it is during childhood. Whereas children are not able to attend to other matters when attachment bonds are threatened, adults can attend to other relationships and concerns, although they may experience difficulty concentrating. The third difference is that adult attachment often develops during a sexual relationship. However, reliable bonds can be formed in relationships that are not sexual. In accordance with the above criteria, Weiss felt that some significant adult relationships do not contain elements of attachment.

Attachment in adults appears only in relationships of central emotional importance. It is found regularly within well-functioning marriages and even within marriages that are not functioning well. Weiss (1982) explained that the experiences of individuals whose marriages were arranged by their parents suggest that under the right circumstances people can establish attachments toward a wide range of others. Indeed, the institution of marriage fosters attachment. It forces a couple to live in close proximity, imposes intimacy, and introduces barriers to forming a close relationship outside the marriage. However attachment should not be considered synonymous with love: it even appears unrelated to "liking, admiration or respect." Many couples who have ended unhappy marriages are still drawn to each other although they are certain their love has ended. Finally, Weiss (1979, 1982) claimed that most men and women going through a divorce continue to feel some attachment toward their spouses. Moreover he

noted that such individuals reported experiencing loneliness. He concluded that "separation distress" is a measure of their feelings of attachment.

Weiss' (1975) application of the concept of attachment to the process of marital separation led to several investigations into separation/divorce. Spanier and Casto (1979) Brown, Felton, Whiteman and Manela (1980) and Kitson (1982) all found that a substantial proportion of separated and divorced people still showed signs of attachment to their former spouses, while a smaller proportion did not.

Attachment theory provides an explanation for the ambivalent feelings found among the separated. Once established, attachment may continue even when the relationship is no longer rewarding because the predictably familiar is preferred over the unpredictably strange. All's right with the world and the self when the attachment figure is present. Thus the loss of a significant relationship, even one which has gone sour, disrupts the comfort and security which attachment figures provide for each other (Kitson, 1982).

Spanier and Casto (1979) examined difficulties in adjusting to separation and divorce in a small, non-clinical divorcing sample obtained from county records. They concluded that there are two distinct but overlapping adjustments: the dissolution of the marriage and the process of adjusting to a new life style. Adjusting to the dissolution of the marriage included dealing with the legal process, property settlement, custody arrangements of children, dealing with people in one's social network and coping with emotional aspects of the dissolution such as bitterness, guilt, anger and attachment (re: Weiss, 1975). Setting up a

new life style included finding a new residence, living on less money, getting a job or applying for welfare, adjusting to single parenthood, or to limited visitation, and finding new friends and establishing new heterosexual relationships.

As evidence of continued attachment Spanier and Casto (1979) looked for (1) expressions of affection or attachment; (2) thoughts about the spouse; (3) desire to contact the spouse; and (4) efforts to learn about his/her activities. On the basis of these criteria they found that 36% showed strong attachment, 36% mild and 28% showed no attachment. Overall adjustment to the separation was not found to be related to degree of attachment. However, it was noted that the initial emotional difficulty was positively related to how unexpected the separation was, although long-term effects varied. They also found that the more the separated individual interacted socially with relatives and friends, the fewer the adjustment problems. Similarly, those who had dating or cohabiting relationships had fewer adjustment hardships. They concluded that lingering attachment and adjustment to the marital dissolution is less crucial to overall adjustment than establishing a new life style. This conclusion contradicts Weiss (1975), Brown et al. (1980) and Kitson (1982).

Brown et al. (1980) investigated attachment and generalized distress following marital separation. They observed a relatively young, large sample (N = 429) that sought divorce counselling. Employing Weiss' (1975) concept of attachment, separation anxiety was considered to be an indicator of attachment. Attachment was indexed by 5 items: (1) Feelings of freedom or relief versus feelings of emptiness (2) looking toward the future versus thinking of the past; (3) feeling like a new person versus feeling in a

rut; (4) how much one misses the former spouse; and (5) rating the amount of positive or negative feelings toward the spouse. They also rated generalized distress, economic and social resources as well as parental responsibility.

Characteristics of the marital situation were found to be significantly associated with separation anxiety. Separation anxiety increased for those who did not initiate the divorce or for those who considered divorce for a shorter as opposed to a longer time period. It also increased if the person desired to remain married and if the person had more contact with the former spouse. In this study males exhibited increased separation anxiety, perhaps because they were less likely to initiate the divorce. Nevertheless, none of the marital characteristics accounted for much of the variance attributable to separation anxiety or continuing attachment.

Brown et al. (1980) did not find separation anxiety to be associated with length of marriage or with length of separation. The notion that length of marriage does not influence separation anxiety supports Weiss (1975) who asserted that it takes two years of marriage for an attachment to be fully formed. Once established, it tends to persist regardless of the length of marriage. Similarly, Shane (1982) reported that the intensity of attachment does not increase as the duration of the marriage increases. The finding that separation anxiety does not diminish as the length of the separation increased was explained by Brown et al. (1980) to relate to their sample. The median length of separation was only 4 1/2 months, not long enough to reflect the diminishing nature of attachment.

Brown et al. (1980) also tested Weiss' prediction that personal resources are associated with adjustment to divorce. They obtained some support for this hypothesis. Anticipated financial strain but not income contributed to generalized distress. Paradoxically, acquiring new friends and frequency of socializing did not seem to significantly reduce generalized distress for this sample. However, presence of children served women as a resource in adjusting to divorce. Finally, separation anxiety or attachment accounted for most of the variance in generalized distress as Weiss suggested. Brown et al. (1980) concluded that non-separated adults are needed to determine the role attachment plays in the continuation of marriages, and to determine if there are sex differences in attachment.

Kitson (1982) explored Parkes (1972) theory in which "bereavement" explains the feelings of distress in divorce. All 209 respondents were obtained from county records. In developing a scale, bereavement or continuing attachment was measured by four items: wondering what the spouse is doing; thinking a lot about the spouse; disbelief regarding the divorce; and a feeling that the person will never get over it. Of the 209 interviewed, 25% showed strong bereavement, 42% mild, 17.5% moderate and 16% reported no signs of bereavement. Although a factor analysis was performed, no test-retest reliability or validity measures of the scales were given. Still, the results were consistent with Weiss' (1979) claim that most persons undergoing divorce feel some attachment to their spouses.

Conflicting results were obtained by Shane (1982); most separated subjects in that sample indicated low levels of attachment. The difference appears to stem from the different measure employed. Shane's items did not explore "bereavement" but assessed the intensity of attachment in married



and divorced persons. Consistent with Shane, Kitson (1982) noted that attachment or bereavement was not significantly associated with the duration of the separation. Respondents in both studies had been separated for at least 6 months. Nevertheless, the duration of the separation was thought to influence attachment in couples who were separated for less than 6 months (Brown et al., 1980; Shane, 1982). Kitson (1982) also found the passing of time to be significant because bereavement was associated with the time when the divorce was first suggested. It was greater for respondents who had faced divorce for the first time less than a year ago as opposed to more than a year ago.

Some of the results of Kitson's (1982) study correspond with those of Brown et al. (1980). Both showed that highly bereaved or attached respondents were less likely to have initiated the divorce, although both the initiator and the person who wanted it less experienced feelings of attachment. Not surprisingly, the higher the bereavement, the greater was the generalized distress and the more likely was the person to report difficulties in adjusting to the divorce. Furthermore, those who felt more bereaved reported feelings of loneliness, single parenthood and independence as the most difficult adjustments, followed by accepting rejection from the spouse, the stigma of divorce and the reality of the marital dissolution. Those with lower levels of bereavement were more likely to mention role changes, children and new relationships as difficult adjustments. Therefore the highly bereaved seemed more self-absorbed with the pain of divorce and their changed personal situation. Only when bereavement is less intense are respondents able to focus greater attention on children, role changes and other issues. Wallerstein and Kelly (1980)

and Good (1965) also reported that highly traumatized divorcing parents showed greater impairment in their parental and interpersonal functioning.

Kitson's (1982) findings were in accord with Weiss (1975) and Brown et al. (1980) in demonstrating that attachment or bereavement is the primary cause of the subjective distress experienced by the divorced. As in the former study, bereavement was less affected by resources and social supports than was subjective distress, although the relationship between bereavement and distress was not clear. Distress was modified by resources such as higher self-esteem and a higher income. If the respondent was living with a new partner, or if the respondent was female, bereavement was not as intense, although divorced women experienced more subjective distress. This may be due to the fact that even though more women initiated the divorce, they had diminished resources such as lower income, employment, help from the family and fewer supportive friends than men in Kitson's sample.

Although legal issues were not probed, Kitson (1982) inquired about the difficulty in reaching agreements on practical matters such as property, alimony and custody. Those who were moderately bereaved (attached) had an easier time reaching agreement with spouses than those who showed high or low levels of bereavement. This finding appears consistent. Shane (1982) suggested that married persons who showed high or low levels of attachment may be insecurely attached, and Bowlby (1979) asserted that the insecurely attached have more emotional difficulty when they lose an attachment figure. Finally, Kitson recommended that it would be useful to explore attachment in ongoing marital relationships and in social relationships.

A study by Stephen (1984) attempted to investigate why some people are less emotionally distressed at separation than others. He theorized that a person's feelings of attachment are an outcome of how much the couple shares the same world view, called "symbolic interdependence." He hypothesized that the couple's level of "symbolic interdependence" would predict whether the relationship broke up and the amount of separation distress felt by the premarital couple. To test his theory, 130 unmarried volunteer couples who were primarily white college students, around 20 years old, and of middle to upper class were assessed. The average couple went steady for 1.4 years but the range was one week to over nine years. Thirty-six out of the 130 couples were in "long-distance" relationships.

The couples were followed for six months and tested for "symbolic interdependence" every 6 weeks. This was accomplished by a 60 item Q-sort which was correlated for each couple from their scores on two dyadic adjustment scales and from a questionnaire that assessed the amount of separation distress experienced. The questionnaire was completed by 83% of the 30 couples that broke up by the end of the study.

In predicting break-up, relationship commitment was the best single predictor accounting for 13% of the variance. Being in a long-distance relationship was a significant predictor; surprisingly, persons who attended a different college from their partner broke-up less frequently. However, "symbolic interdependence" was not significant in predicting couple break-up. More fruitful results were obtained in predicting separation distress or feelings of attachment. Relationship commitment accounted for 7% and "symbolic interdependence" explained 11% of the variance in separation distress. Stephen (1984) claimed that "symbolic

interdependence" provided a couple with personal support which they lacked after their separation. His explanation of "symbolic interdependence" indicates it is similar to social support or resources, which did not account for much variance in separation distress in the previous studies.

In view of the limited number of investigations into separation/divorce, it is difficult to draw firm conclusions about divorcing populations. Nevertheless there appears to be some consensus among the investigators. Firstly, if the separation is unexpected, or if it is considered only for a short period of time, separation distress or feelings of attachment will be greater. It is logical to assume that those who do not initiate divorce or desire to remain married will show increased levels of separation distress. Contact with the former spouse would likely delay the process of detachment. It is also likely that highly bereaved persons would have more difficulty adjusting to divorce. Finally, Weiss' (1979) claim that the majority of persons undergoing divorce feel some attachment to their former spouses appears valid. More research into the effects of attachment or separation anxiety on adjustment to divorce is necessary.

#### Attachment in Ongoing Relationships

Several studies attempted to develop scales that indicated the presence of attachment in ongoing relationships. However the studies do not appear to probe the intensity of attachment. The first study was instituted by Hirschfeld, Klerman, Gough, Barrett, Korchin, and Chodoff (1977). They devised a scale to measure interpersonal dependency in adults using normal and psychiatric samples. The mean ages of the samples were 24 and 34 respectively, and the large majority were single. After the scale items

were administered, three factors emerged: (1) emotional reliance, (2) lack of social self-confidence, and (3) assertion of autonomy. Emotional reliance consists of elements of generalized dependency as well as attachment built into the items. Hence generalized dependency and attachment are confounded in this scale. Most items that were thought to assess attachment appear to gauge how much the respondent needs an attachment relationship. Several examples of this are, "I would be completely lost if I didn't have someone special," and "I must have one person who is very special to me." Moreover, the large majority of their sample was single. Therefore the intensity of attachment in marital relationships was not assessed by this study.

The second study evaluated social relationships using an interview schedule (the ISSI). Henderson, Duncan-Jones, Byrne and Scott (1980) based their questions on Weiss and Bowlby's notion of attachment. They administered the ISSI items to a large random sample and to a psychiatric subsample. Respondents were 18 to over 65 years of age. The sample consisted of 584 married and 172 single, widowed, separated and divorced respondents.

The ISSI consists of four subscales, two of which probe (1) the availability of attachment and (2) the adequacy of attachment. To assess these measures each respondent was asked if s/he had someone to share the future with; that knows him/her well; to lean on; who feels close to him/her; to share private feelings with; and can comfort him/her by embracing. Then the respondent was asked if s/he would like more or less of these provisions either from the main person or from additional ones (Henderson et al., 1980, p 729). These items purport to evaluate the

availability and adequacy of attachment. This paper suggests the items primarily query the availability but not the intensity or magnitude of attachment.

After Henderson et al. (1980) completed their interviews, they administered the ISSI to randomly obtained informants who were named by the respondents as knowledgeable about their interpersonal relationships. The replies of the respondents were correlated with those of the informants, and these correlations were cited as evidence of the validity of the ISSI. The correlations between respondents and informants for the availability of attachment were .42 and for the adequacy of attachment they were .39. Unfortunately, these correlations demonstrate that the differences between respondents and informants were greater than their similarities in their perceptions regarding their attachment relationships.

Although the ISSI has not been fully validated, it is used in the U.K. to determine how deficient social relationships contribute to the onset and course of morbidity. It may be a very useful instrument, but it does not include a broad sample of attachment behaviors or items. Therefore it does not appear to be sufficiently sensitive to detect impaired bonding or to locate where the impairment lies.

To date, research exploring the intensity of adult bonding in an interpersonal relationship is non-existent. Further, there are no instruments to assess marital problems as a function of bonding; marital problems are examined solely in the context of the interpersonal relationship. Without an attachment scale it is impossible to determine if and how adult bonding corresponds with childhood attachment, or if it

relates to marital, psychiatric, or behavioral disorders. Clinicians must rely solely on interview data to pinpoint a problem, and therefore it could readily remain unnoticed. Consequently, the need for a scale that can measure the intensity of a bond in an adult relationship is vital.

A research instrument assessing bonding must meet the psychometric standards of a sound measurement device, and should be clinically useful as well. To be maximally useful, the instrument should include a broad sample of behaviors which are characteristic of affectional bonding, as well as items which can denote impaired bonding. For example, it is more useful to know whether a person would feel depressed if the loved one chose to go away without him/her for several days, than to know that s/he wants to be near the loved one. A therapist needs to know the specificity and intensity of the emotions felt by the client in order to plan an effective intervention (as outlined by Shane, 1982).

A standardized measure of the intensity of attachment in a relationship would not only impart vital information about a particular person, but would also serve an important research function by providing direct comparisons of the intensity of affectional bonding in different populations. The use of such a scale would enable researchers to identify and correlate impaired bonding with specific disturbances across populations, and perhaps eventually the scale could aid in revealing the causal mechanisms of these emotional disturbances (as outlined by Shane, 1982).

The adult attachment scale (AAS) was designed to meet the needs of therapists and researchers for an instrument which measures the strength or

intensity of attachment in an intimate adult relationship. In devising the instrument, an item pool of 50 questions was written by the author. The items purport to represent the domain of the attachment construct as recommended by Cronbach and Meehl (1966). Attachment during childhood was shown to consist of emotional and social cognitive components. Therefore, the scale items were devised to consist of these same components.

Since proximity-seeking is the set goal of attachment behavior, approximately two-thirds of the items queried this function. However, proximity-seeking cannot be assessed without separation from an attachment figure (Ainsworth et al., 1978). In adults, attachment seems to be a dimension that one is most aware of when the significant other is absent (Kitson, 1982). Hence questions were posed to elicit responses to varied hypothetical separation periods.

The responses to separation probed the emotional component of attachment because separation or threat of separation from an attachment figure evokes strong negative affect during childhood. Anger, depression, and apprehension or fear are common emotional responses to separation (Robertson & Robertson, 1971; Ainsworth et al., 1978). Consequently these emotions were scaled according to their intensity by indicating the frequency of their occurrence. If the responder is accurate the scale should give a clear perspective of his/her emotional involvement.

The remaining items of the scale addressed the social cognitive component of attachment. Social cognitive development during childhood leads to the formation of a "goal-corrected partnership" wherein consideration and understanding of others develop (Marvin, 1972). The



adult bond approximates the same model (Bowlby, 1973; Weinraub, Brooks & Lewis, 1977) and supposedly parallels the mother-child relationship, wherein each pair member tries to accommodate the other. Therefore, questions in the social cognitive domain of the scale were intended to determine how much one functions in unison with one's partner (as outlined by Shane, 1982).

### Pilot Study and Previous Research

The initial data for the adult attachment scale (AAS) was collected during a pilot study. The study was comprised of 17 men and women between the ages of 19 and 51 years. They were of lower, middle and upper-middle SES. Since affectional bonding develops over time, it was hypothesized that relatively long-term bonds would yield more intense attachments than short-term bonds. It was expected that persons engaged in long-term bonds would score higher on the scale than those in short-term bonds. Similarly, persons involved in short-term bonds were expected to score higher than those with broken bonds, who in turn would score higher than those who were not involved in an intimate relationship at all.

The relationship between attachment scores and marital status was examined. Marital status was defined for each subject as being either (1) married for a relatively long time, (2) living together for a shorter time, (3) going steady for a very short time period, (4) separated and divorced, or (5) no steady date or special friend. When the results were correlated, attachment scores were significantly related to marital status,  $r = .81$ ,  $p < .01$ ,  $n = 17$ .

During the pilot study, certain variations in score were noted among the married subjects. The initial stage of attachment appeared to show increases in intensity for approximately two years until a peak was reached. Then a decrease seemed to occur over time. For example, individuals whose relationships spanned 7 to 10 years scored lower than those of two years, but higher than those of 20 years. Thus the intensity of attachment appeared to be curvilinear. In view of this phenomenon, it was decided to separate the married subjects into different categories in accordance with the duration of their relationship. Therefore the findings of the pilot study were very helpful in determining the design of the previous study which will now be presented.

The development and preliminary validation of the AAS was obtained from a study employing 155 subjects. This sample consisted of two matched groups, a married and a separated group of men and women. Most of the 64 separated people were recruited at "Parents Without Partners" in Winnipeg. Married subjects were matched in age, sex and socio-economic status (according to income) with the separated group. Additional married and a few living-together people were obtained, increasing the total of the attached group to 91. Each of the 155 subjects completed the AAS as well as the Miller Social Intimacy Scale (Miller & Lefcourt, 1980).

The 155 participants consisted of 95 females and 60 males. Most respondents resided in Winnipeg. Nineteen of the 91 married persons were previously divorced. Hence, they were able to fill out two questionnaires, one for the ex-spouse and one for the current spouse. Persons in distressed relationships were also recruited for the married sample. Unfortunately all participants were middle or upper-middle class, so low SES was not represented.

During the administration of the AAS, the experimenter was present to explain the procedure and answer questions. This method led to a high rate of return. Each participant that received the AAS completed and returned it. They recorded their answers directly onto a computer sheet which alleviated their concerns regarding confidentiality.

The high rate of return is explicable. Most of the separated respondents independently completed the AAS en masse at meetings. Then the questionnaires were collected immediately after completion. Similarly, all the questionnaires distributed to the married participants were retrieved by the experimenter after contacting them by telephone. All in all, several married persons that were recruited refused to participate.

After the subjects were categorized into two groups, the married respondents were classified according to the length of their relationship. Relationships encompassing 6 months to 2 years were coded 1, those 2 to 5 years were coded 2, 5 to 10 years were 3, 10 to 20 years were 4 and those over 20 years were coded 5. Thus there were five married subgroups. Divorced persons were categorized by the same method, yielding 5 separated subgroups classified according to the length of their separation.

The validation data consisted of assessing reliability and validity. Reliability was assessed by retesting a subset of 20 subjects. In keeping with the theory that attachment remains more or less constant over time, retesting was performed three months later. A Pearson product-moment correlation analysis indicated that there was strong stability in attachment score over time,  $r = .98$ ,  $p < .01$   $n = 20$ .

In addition to reliability, many types of validity were investigated. These included internal consistency, construct validity, concurrent validity, convergent validity and predictive validity. The data from each of these validating procedures will be presented.

Internal consistency was explored by examining item to total score correlations employing Pearson's  $r$ . High correlations were obtained for most items which assessed attachment to the partner. More than half of the correlations were over .80, ten were over .70, seven were over .60, and two correlated over .50 with the total score. This method was consistent with Cronbach and Meehl (1966) who suggested that the validity of an instrument can be assessed by examining its homogeneity. The high correlations obtained for most items supported the homogeneity of the AAS.

As expected, lower correlations were obtained for validity items from a competing theory that queried emotional responses toward others. The lower correlations indicated that responses toward others were less intense than to one's partner, as attachment theory implies. The validity items were then deleted and fifty items were retained. The retained items assessed the intensity of attachment to the partner and provided initial support for the construct of attachment.

Construct validity was examined by employing four different analyses. The first analysis compared the mean of the married with the mean of the divorced participants. The mean of the married sample (152) was significantly greater than the mean of the divorced sample (59) and the standard deviations of the married and separated groups were 28.67 and 3.87 respectively. Marital status correlated significantly with attachment

score,  $r = .90$ ,  $p < .001$ ,  $N = 155$ . This data established concurrent validity as well.

Additional validity was collected from the 19 previously divorced and remarried respondents. Their mean attachment score for their current partner was 165 and their score for their divorced partner was 58. These scores supported the mean scores of 152 and 59 obtained for the married and divorced groups respectively. Since these subjects served as a control group for themselves, the differences in score they obtained appeared to be due to the independent variables attachment and detachment. The procedure also indicated there was homogeneity of variance among married and divorced groups.

A third analysis consisted of measuring the proportion of variance in scores accounted for by marital status (married or separated). Multiple Regression Correlation (MRC) analysis showed that all but 3 of the 50 items explained 96% of the variance in score between the married and separated respondents. A step-wise regression revealed that 95% of the variance in score was accounted for by only 16 AAS items.

A fourth measure of construct validity was gained by performing a factor analysis on the items of the scale. As previously outlined, the item pool investigated responses to separation and how much one functions in unison with one's partner. Since these items were not thought to be highly interrelated, the principal factor technique with a varimax rotation was employed. The rotation identified which items in the scale were highly correlated with each other.

An eight factor structure emerged with most items loading highly on one factor. Only items that dealt with relatively long separation periods (i.e., months or weeks) loaded onto Factor 1, while Factor 2 contained items dealing primarily with weekend separations. Since proximity is the set goal of attachment, it was appropriate that long and short-term separations accounted for the largest proportion of variance (40%) in score as theorized.

Factors 3 to 8 were hypothesized to assess how much one functions in unison with a partner. The factors "Communication with Partner, Independent Functioning, Cooperative Functioning, Security/Insecurity without Partner, Trust, and Sensitivity to Partner's Whereabouts" all assessed how much one functions in unison with a partner. These factors evaluated the social-cognitive component of attachment as predicted, and accounted for 24% of the variance in the responses to the questionnaire. All of the eight factors identified had an eigenvalue of 1.5 or more.

Convergent validity was investigated by comparing the AAS scores of both the married and separated subjects with their scores on the Miller Social Intimacy Scale (MSIS) developed by Miller and Lefcourt in 1980. The MSIS assesses the level of intimacy or closeness in marital relationships, distressed marriages and in friendships. It has a combined test-retest reliability of  $r = .90$  over a two month period. This correlation was obtained from two administrations of the MSIS to subjects within the unmarried student sample. In addition, convergent validity was demonstrated by correlating the MSIS scores of an unmarried sample with their scores on an interpersonal relationship scale,  $r = .71$ ,  $p < .001$ ,  $n = 45$ . A second group of subjects, who described themselves as lonely on the

UCLA Loneliness Scale, predictably scored low on the MSIS,  $r = .65$ ,  $p < .001$ ,  $n = 59$ . Construct validity was also demonstrated by the MSIS. The married subjects scored significantly higher in intimacy than unmarried subjects,  $t = 8.17$ ,  $p < .001$ , and significantly higher than those in distressed marriages,  $t = 6.41$ ,  $p < .001$ . The unmarried sample scored higher in the context of their closest friend than the distressed marriage group,  $t = 2.56$ ,  $p < .02$ , and significantly higher than for their casual friends,  $t = 9.18$ ,  $p < .001$ .

The MSIS consists of 17 items which are scored from 1 to 10 using a Likert-type scale (see Appendix C). The mean scores on the MSIS for the married sample was 154.3; the unmarried sample in the context of close friendship was 137.5, and the distressed married clinical sample was 126.3. Scores ranged from a low of 66 to a high of 170. The asterisked items, numbers 2 and 14, are scored in the opposite direction so that a rating of 10 is scored as a 1 and vice versa. The lowest possible score is 17 and the highest possible is 170. The AAS scores had a broader range than the MSIS, with a minimum low of 50 and a maximum high of 250.

A correlation analysis was performed on the AAS and MSIS scores of both married and divorced groups. Respondents who scored high on the AAS scored high on the MSIS, while those who scored low on the AAS also scored low on the MSIS. The results were significant,  $r = .91$ ,  $p = .001$ ,  $N = 155$ , demonstrating that the constructs are very similar when comparing attachment and detachment with high and low social intimacy.

In order to determine if attachment differs from social intimacy, the AAS scores of only the married respondents and the AAS scores of only the

divorced respondents were compared with their MSIS scores. This provided a comparison between attachment and high social intimacy and between detachment and low social intimacy. Moderate positive correlations were observed when comparing the AAS scores of each group with their MSIS scores. The correlations between the AAS and the MSIS for the married and divorced groups were .48 and .56 respectively. These correlations should be moderately high but not too high or the test would provide needless duplication (Anastasi, 1976). The aforementioned findings indicated that attachment is distinct from social intimacy.

Some married participants who scored at or above the mean in attachment, scored far below the mean of respondents in distressed marriages in the MSIS sample. Many in this category were recruited as respondents. This indicated that people in distressed relationships may still remain attached to their partner. In fact the intensity of their attachment helps explain why some remain in relationships that have deteriorated. Furthermore, the attachment bond may be as important in keeping couples together as is social intimacy.

Other married participants, who scored near the mean in social intimacy, scored well above or below the mean in attachment. Thus, one's attachment relationship appears to relate to interpersonal measures in a general way but this relationship is also governed by other factors.

The divorced respondents all scored far below the mean of respondents in distressed marriages in the MSIS sample. There was greater variation among their scores in social intimacy with their ex-spouse than in attachment. This was reflected by their standard deviations of 13.66 in social intimacy



and 3.87 in attachment. The above comparisons between the AAS and MSIS indicated that even though the two constructs are similar, attachment is distinct from interpersonal intimacy.

The overall AAS mean and SD were similar to the descriptive statistics reported by Oczkowski (1981) who employed the AAS. He administered it to 56 unmarried nursing students who obtained a mean of 135 and an SD of 27.8. Perhaps their lower AAS scores reflected the impermanence of their relationships. The Oczkowski study and the AAS data both found the intensity of attachment normally distributed.

Predictive validity was exhibited by the hypothesized findings based on data from the pilot study. The findings indicated that the intensity of attachment is higher for persons engaged in short-term bonds as compared to those in long-term relationships. Thus an analysis was performed on the attachment scores to find the means for each of the 5 marriage duration groups. The 6 month to 2 years duration group had a mean of 175, the 2 to 5 year group had a mean of 158, 5 to 10 years had 155, 10 to 20 years had 144, and relationships over 20 years (up to 35 years) had the lowest mean of 141.5.

An ANOVA performed on the mean scores verified that the differences between the 5 subgroups were significant,  $F(4, 86) = 3.465$ ,  $p < .012$ . The significant factor appeared to be marriage duration, because age differences between the groups were ruled out. It was noted that middle aged subjects in new relationships scored as high as young persons in the same marriage duration group. These predicted findings attenuated the likelihood that experimental demands and social desirability were issues that significantly influenced scoring.

A step-wise regression analysis was conducted on marriage duration with the items in the scale. Numerous items emerged as significant predictors of marriage duration. The analysis showed that 72% of the variance in score among married respondents was accounted for by the duration of the relationship. By reducing the scale to 28 items, 70% of the variance in score still accounted for or predicted the duration of the relationship. However, the small size and cultural limitations of the 5 subgroups did not permit the use of each subgroup mean score to serve as a standardized measure of attachment.

Although the duration of the marital relationship was a significant predictor of score, the duration of the separation was not. This finding was congruent with the theory that when detachment sets in, affective responding does not vary, it ceases. Another non-significant finding was sex differences. Even though females did score somewhat higher, the differences were not significant. However the limitations of the sample did not allow for firm conclusions regarding sex differences.

### Research Design

The first purpose of the current study was to cross-validate the AAS and provide a standardized measure of an affectional bond in a marital relationship. This measure was based on a sample of married adults. They completed the revised AAS three times, once to depict their marital relationship, a second time for their closest friend or confidant, and a third time for a casual friend. The first comparison determined whether the instrument was sufficiently sensitive to discriminate between marital relationships and close friendships. If it was sensitive, it could help to

delineate the properties and functions of these relationships. Weiss (1982) claimed that attachment becomes more directed toward a figure who is also an object of sexual contact. Therefore, it was hypothesized that the subjects would score significantly higher on the revised scale in regard to their marital relationship as opposed to their closest friend or confidant.

The mean score obtained for a spouse based on 29 items taken from the previous study was 90.12. On this basis it was predicted that the mean score based on these same items obtained for spouses in the current sample would not differ significantly from the previous sample. If the difference was not significant, this mean score or measure would show some generalizability across populations and would serve as a standardized measure of an affectional bond in a marital relationship. Clinicians would be able to administer the AAS to assess individuals with marital problems. It could also be used for research purposes with emotionally disturbed populations.

The second purpose of the research was to ascertain whether the revised AAS can differentiate between attachment relationships and significant relationships wherein there is no attachment. Weiss (1982) claimed that many significant adult relationships do not contain elements of attachment; attachment appears only in relationships of central emotional importance. Casual friends are not believed to satisfy all the criteria that denote attachment (e.g., protest at the threat of separation). Thus if the AAS can differentiate between confidant relationships and casual friendships it will demonstrate that the scale can differentiate between relationships of relatively strong bonding, moderate bonding and absence of bonding.

The score that signifies absence of bonding was derived from the mean score for casual friends. It was compared with the mean score for close friends or confidants. For this comparison it was predicted that the mean score for the casual friends would be significantly lower than the mean for confidants. If this prediction was verified, additional construct validity would be gained.

The third purpose of this research was to determine if the intensity of bonding alters over time. If it does, the intention was to develop standardized measures of attachment for different married subgroups. These measures or scores were to be derived from the same sample of married adults (which was comprised of young and middle-aged married persons) classified into subgroups according to the duration of their relationships. The previous study found that as the duration of a marital relationship increases, the intensity of attachment (score) decreases. It was therefore hypothesized that the AAS scores would significantly decrease as length of marriage increases. Length or duration of marriage would be identical with the previous study; it would consist of the total number of years they went steady, were engaged and were married.

The hypothesized decrease in intensity of bonding over time in marital relationships is based on the work of Bowlby (1973). Bowlby theorized that adult bonding approximates the same model as infant bonding. Hence, after the bond is firmly established (a process of about two years) there is a decrease in proximity-seeking and the child manifests less distress at separation. An ongoing decrease in attachment behavior can be observed from childhood to adolescence. Although the reason for the decrease is different for children than for adults, the shape of the behavior appears

to be the same. However the change does not imply a weaker attachment (Marvin, 1972; Maccoby & Feldman, 1972). To ensure that decreasing intensity in bonding over time is a phenomenon, subjects were asked if they find being away from their spouse easier or more difficult today as opposed to 2 to 10 years earlier.

The fourth and least important purpose of this study was to discern if childhood attachment to a parent is associated with later bonding with a spouse. Bowlby (1979) specified that there is a strong association between these attachment relationships. Weiss (1982) extended the concept by suggesting that mate selection is more influenced by the parent with whom there was a stronger, positive affective tie. To test their theories, each informant was requested to answer a bonding questionnaire in the context of the parent for whom s/he felt a more positive, intense emotional tie.

The Parental Bonding Questionnaire (PBQ) was developed by Parker, Tupling and Brown in 1979 (see Appendix F) and is based on retrospective information. This instrument has not been completely validated; the test-retest reliability three weeks later was only moderate ( $r = .76$ ) and the concurrent validity of the scale scores with interview data was  $r = .77$ . It is comprised of two factors, a parental care and an overprotection factor. Care is defined as affection, emotional warmth, empathy and closeness. Overprotection is defined as excessive control, excessive contact, intrusion, infantilization and prevention of independent behavior.

In keeping with Bowlby (1979) and Weiss (1982) it was hypothesized that respondents who score high in spousal bonding will also score high on the overprotection dimension in parental bonding. It has been noted, however,

that recall of past events does not necessarily provide a veridical reconstruction of these events. Nevertheless some studies such as the Berkeley Guidance Study found considerable veridicality in memories of childhood from early to advanced adult years (Ricks, 1985). If the hypothesis had been supported, an attempt would have been made in this study to determine if the data obtained from the parental bonding scale is consistent with memory of childhood events. Each person was asked to record ten adjectives that best described his/her relationship with a parent up to 16 years of age (a method employed by the Berkeley project). These adjectives (see Appendix E) were to be subsequently scrutinized by a "blind" reviewer and rated as to quality of affect (secure or insecure). Then the ratings were to be compared with the retrospective responses on the Parental Bonding Questionnaire. If the ratings were consistent, and if the AAS score for spouses showed a significant association with the PBQ scores, it would indicate that childhood attachment with a parent is related to bonding with a spouse.

The cross-validation procedure of the revised AAS began by assessing test-retest reliability. A randomly chosen subsample which consisted of 24 married respondents was retested. In accordance with the theory that marital bonding remains stable over time, the scores from their first presentation were correlated with their scores obtained four months later using Pearson's  $r$ . It was predicted that an  $r > .8$ ,  $n = 24$  would be obtained.

In addition to exploring reliability, various types of validity were investigated. Test items were examined to evaluate internal consistency or homogeneity by constructing a Pearson product-moment correlation matrix

with the data obtained for spouses. Moderate to very high correlations of each item with AAS score signify that a scale is internally consistent, and that each item is a measure of the same construct. In addition, each of the 32 items was expected to show higher mean values for marital relationships than for close friendship or confidant relationships. If this is demonstrated, the scale will have concurrent validity because it can predict the existing status of a relationship (Anastasi, 1976).

A second assessment of the internal consistency of the AAS was conducted by multiple correlation regression analysis. The best items are weighted by a regression equation and combined to yield the predictive value of the given battery, according to Anastasi (1976). The multiple correlation (R) indicates the highest predictive value that can be obtained from the battery, when each test is given optimum weight for predicting the criterion. Therefore the AAS items were administered to predict the criterion "spousal attachment score."

All correlations were then examined to determine if there were any significant relationships with attachment score. Sex differences, age differences, SES differences, educational differences and number of children were all investigated to see if they were significantly associated with AAS score in married and confidant relationships. Many of these variables were not found to be significant in the previous study.

Cronbach & Meehl (1966) and Anastasi (1976) stated that the construct validity of a test battery is dependent on the extent to which the test measures a theoretical construct, showing correspondence between test scores and other indications of the attribute. The validation consists of

demonstrating that the scores vary from person to person as the theory implies and is consistent with deductions from the theory. Such consistency was obtained from the previous study. Anastasi (1976) suggested that the battery should later be cross-validated by correlating the predicted criterion scores with the actual criterion scores in a new sample. To maximize the validity of the test, items that showed high validity with the criterion should be chosen. Cross-validation is usually undertaken by the same investigators that developed the prediction formula. The procedure of cross-validation presumably indicates validity generalization (Anastasi, 1976).

In this cross-validation study, construct validity was probed by many different analyses. The first was a repeated measures analysis of variance (ANOVA). It compared the mean score derived from the married relationships with the mean derived from the confidant relationships (within subjects' design). It was hypothesized that the mean obtained for spouses would be significantly greater than for confidants at the .05 level of significance. If the hypothesis is confirmed, the AAS will be sufficiently sensitive to discriminate between relatively strong bonds and moderate bonds.

The repeated measures ANOVA attempted to show additional construct validity. It compared the mean score for confidants with the mean for casual friendships. It was hypothesized that the mean score for confidants would be significantly greater than for casual friendships, at the .05 level of significance. If this hypothesis were confirmed, it would demonstrate that the revised AAS can differentiate between relationships of relatively moderate bonding and absence of bonding, thereby enriching the nomological net. (A nomological net was defined as an interlocking set of



laws wherein a theoretical construct is shown to relate to some other valid theoretical construct or to observable properties by Cronbach and Meehl, 1965).

Another analysis consisted of comparing the mean AAS score for spouses obtained from the previous study with the mean for spouses in the current sample on the first 29 items. It was hoped that this comparison would result in finding no significant differences between the two samples. In statistical terms this consists of accepting the null hypothesis, which most often refers to the hypothesis of no differences between treatment conditions, or of no association between variables (Greenwald, 1975, p. 2). However, many behavioral scientists believe that conclusions about relationships among variables should be based only on rejection of the null rather than on acceptance of the null hypothesis (Greenwald, 1975). Greenwald discussed how to avoid accepting the null hypothesis when it is false (a Type II error). He suggested that prior to data collection, researchers should decide the largest effect size that is trivial in importance. This effect size, together with smaller effect sizes, constitute a null range. Greenwald suggested that the null hypothesis be transformed into a range hypothesis by having the null hypothesis assert that the treatment effect falls within the null range. One can decide to accept or reject the range null hypothesis by computing a confidence interval for the magnitude of the treatment effect. The range null hypothesis would be accepted only if the confidence interval was fully contained within the null range.

Greenwald (1975) recommended that  $N$  be chosen on the basis of obtaining a standard error (SE) that is 10-20% of the null range's width. This would

produce a confidence interval that is 40-80% of the null range's width. It is necessary for the confidence interval to be substantially shorter than the width of the null range or there would be considerable bias in favor of rejecting a true null hypothesis. Thus, one should calculate N in advance of data collection, so that N is large enough to produce a sufficiently short confidence interval.

The mean attachment score for a spouse based on 29 items taken from the previous study was 90.12. The SD for those 29 items is unknown. However, because this sample is presumed to be equivalent to the previous sample, it was assumed that the current SD would be the same. Although the choice of the largest trivial effect was somewhat arbitrary, any value within 1/2 SD from the mean ( $M \pm 1/2$  SD) would be considered trivial.

In calculating N, Greenwald (1975) recommended that the standard error (SE) of the confidence interval should be 10% of the null range's width. The formula for the standard error is:  $SE = SD/\sqrt{N}$ . To find the N that will make SE 10% of 1 SD (the null range is  $M \pm 1/2$  SD = 1 SD) let  $SE = .10$  SD.

Rewriting the formula:

$$.10 \text{ SD} = 1\text{SD}/\sqrt{N}$$

$$\sqrt{N} = 1 \text{ SD}/.10 \text{ SD}$$

$$\sqrt{N} = 1 / .10$$

$$\sqrt{N} = 10$$

$$N = 100$$

Consequently, a sample size of 100 will produce an SE that is 10% of the SD. However, the null range could not be computed until the SD was obtained.

A fourth assessment of construct validity was derived from a factor analysis. The data for spouses and confidants were utilized to identify items that correlate highly with each other. The item pool in this study assessed "affective responses to separation" and "functioning in unison with a partner." These appear to be independent components of attachment so an orthogonal rotation such as varimax was chosen. Factors with eigenvalues between 1 and 1.5 were rotated. If the same components are found to exist in this study as in the last, the revised AAS will appear to measure affectional bonding in the new sample.

The same sample of subjects completed three questionnaires. One was for the spouse, another was for a confidant or best friend and a third was for a casual friend. Consequently score differences for these three different relationships should be due to differences in intensity of attachment, not to other variables such as age, sex, SES, etc.

Correspondence between attachment and similar types of constructs was investigated by two Pearson product-moment correlation analyses. The first analysis compared the AAS scores with the Miller Social Intimacy Scale (MSIS) scores obtained for spouses (see Appendix C). Reliability and validity data of the MSIS were previously presented. It was predicted that the correlation between the AAS and MSIS would be between .30 and .60. If this finding is validated, it will be cited as evidence that the AAS measures a construct similar to, but not identical with, social intimacy. The second correlation analysis compared the scores for spouses on the AAS with the Dyadic Adjustment Scale (DAS) scores, a scale developed by Spanier in 1976 (see Appendix D).

The DAS is a valid instrument, the internal consistency and four assessments for construct validity are significant at the .001 level. It has an overall reliability of .96 using Cronbach's coefficient alpha. The item pool is an extension of the Lock Wallace and other marital adjustment scales and it was normed on a purposive sampling (married and divorced people) whose mean age was 35 for the married and 30 for the divorced. A factor pattern from an earlier sample that described dyadic consensus, dyadic satisfaction, dyadic cohesion, and affectional expression was verified in the new sample. Each of these factors can be used independently as a subscale (Spanier, 1976).

One factor of the DAS, the Dyadic Satisfaction Subscale, has an internal consistency of .94. Since this subscale is more relevant to middle-aged respondents, it was used for the current study. The subscale measures a construct which is similar to attachment because it assesses the level of adjustment in a marital relationship. Therefore if the correlation between this subscale and the AAS is between .30 and .60, it will provide evidence that the AAS measures a construct similar to dyadic adjustment. The purported moderate correlations will indicate that the AAS is not the same as the DAS or the MSIS. Campbell & Fiske (1959) and Anastasi (1976) stated that such correlations should be moderately high, but not too high.

The above analyses completed the validation procedure for the revised AAS as well as the first and second objectives of this study. Additional statistical procedures were implemented to address the third and fourth objectives of this study. The third objective was to determine if bonding alters as the duration of a marital relationship increases up till 35 years of marriage. The previous findings indicated that the intensity of

attachment is greater for persons in short-term bonds than for persons in long-term bonds. Thus a correlation analysis was performed on the scores for the spouses (of the five married subgroups) with duration of marriage to determine if duration significantly correlates with AAS score. A regression analysis was then conducted to determine the amount of variance in AAS score that is attributable to the duration of a marriage. In the former study duration of marriage showed a multiple R of .70 for 28 items. Data taken from the same items will again be assessed in the current study.

A related objective was to determine if there are significant mean differences among marital relationships of varying duration. Hence an analysis of variance was performed on the means of the five married subgroups to discern if they are significantly different at the .05 level of significance. Retrospective information regarding an alteration in affective responding to separation over the last 2 to 10 years should be consistent with the statistical data. This information will help rule out an alternative explanation if the predicted findings are accurate. Obtaining various subgroup means for confidant relationships does not seem feasible because the duration of such relationships can not be experimentally controlled.

A final analysis was conducted to address the fourth purpose of the research, namely to discover whether childhood attachment to a parent is associated with later bonding with a spouse. Consequently, a Pearson product-moment correlation analysis was performed on the subjects' AAS scores for spouses and their scores in parental bonding. It was hypothesized that the AAS scores for spouses will show a correlation of  $r =$

.5 with the Parental Bonding Scale scores. If the prediction is supported, the data from the Parental Bonding Scale was to be correlated with ratings by a "blind" reviewer and show an  $r > .5$ . This would ensure that the data from the Parental Bonding Scale is consistent with memory of childhood relationships. Therefore, if both the AAS scores for spouses and the scores of the "blind" reviewer obtain an  $r > .5$  with the Parental Bonding Scale scores, it would indicate that attachment to a parent is associated with adult bonding to a spouse. Campbell & Fiske (1959) used correlation  $> .5$  to illustrate a significant level of validity. These correlations were obtained when comparing a single personality trait (mono-trait) using different methods (hetero-method) of assessment.

## CHAPTER II

### METHOD

#### Instrument

The revised Adult Attachment Scale (AAS) is comprised of 32 questions. Twenty-nine of these items were previously found to be the most significant predictors of marital status and accounted for 70% of the variance in score due to marriage duration. Three additional items, #30, 31 and 32 obtained from the divorce literature were added. All items purport to assess the intensity of attachment experiences and behaviors (see Appendix B). They are scored according to the frequency of their occurrence which ranges from not at all, or never (1) to always (5). For the purpose of controlling tendencies to respond in a positive or negative direction, the keying direction of the asterisked items is reversed. The score for each person is obtained by summing the ratings of the 32 questions. Each person's score has a potential range of 32 to 160.

#### Participants

The original number of participants that was to be recruited for this study was 150. However, during recruitment it became apparent that the cost of obtaining such a large sample would be prohibitive. Most questionnaires had to be individually delivered and picked up and the subjects usually lived 8 to 16 kilometers away. Consequently, the size of

N had to be reduced. A calculation was outlined in the section called "Research Design," to determine how many subjects were needed to produce a short confidence interval. The calculation showed that a sample size of 100 would suffice. In order to insure that 100 subjects would complete the data, only 125 questionnaires were distributed. A high return rate was anticipated in accordance with the previous study.

The participants of this study that completed the AAS consisted of 110 married men and women. Sixty-nine participants were females and 41 were males. An attempt had been made to obtain more males but males were more reluctant to participate than females. All the respondents resided in Winnipeg, Canada, with the exception of one respondent who resided in Calgary.

The respondents lived in various locations and suburbs of Winnipeg. Many were recruited at their place of employment, such as at a bank, a travel agency, a nursing home and a book store. Others were recruited at churches, club meetings, exercise gyms and at a marriage counselling agency. Church ministers, club presidents, gym instructors and social workers were phoned to recruit participants. Participants in distressed as well as in harmonious marriage were recruited in order to ascertain how or if the disharmony affects bonding. People in distressed relationships were recruited by marriage counsellors and by their friends who were in contact with the author.

It was presumed that people in problematic marriages may shy away from answering the questionnaire. This may have been the case in some instances because several people refused to participate, claiming it was too



personal. (Ten weeks later two persons separated from their spouses.) However, people were generally accommodating, and more often than not they agreed to participate. The primary drawback was in obtaining participants for the newlywed subgroup. Most people did not qualify for this subgroup because they had lived together for several years prior to their marriage. Thus the duration of their relationship was longer than the 2 years required. To recruit newlyweds, the author contacted several churches to obtain lists, and the newlyweds were subsequently telephoned.

Both young and middle-aged participants were selected in order to obtain persons who were in short-term and long-term relationships. Therefore random sampling was not employed. Instead, Cronbach and Meehl's (1966) empirical approach of "contrasted groups" was utilized. This involved selecting married participants who were willing to fill out three questionnaires to assess attachment, one for a mate, another for a confidant, and a third for a casual friend. In each case, only marriages and friendships of more than six months duration were included. This time period was believed to ensure that the process of attachment had set in (Weiss, 1975).

The sample was primarily comprised of white respondents, but it included a small number of blacks and Chinese participants as well. Although there were no inquiries regarding religious affiliation, there appeared to be a large number of various religions represented, consistent with the multicultural mosaic of Winnipeg. Demographic data regarding age, SES, education, and number of children were collected. A description of these variables follows.

### Age

The age range in this study was very wide. It ranged from 22 to 65 years. The mean age of the respondents was 36.43 years, and the SD was 11 years. Fifty-six percent of the sample was between 22 and 36 years of age while 44% were between 36 and 65 years. The sample was slightly weighted in favour of younger subjects, 42% were 31 and under, 46% were between 31 and 50 and 12% were between 50 and 65 years of age.

### Socio-economic Status (SES)

Socio-economic status was based on income, which ranged from less than \$20,000 to over \$75,000 annually per family. Low SES was indexed at \$20,000 or less per family. This income level comprised the first SES group. There were four other SES categories, a \$20,000 to \$30,000 category, a \$30,000 to \$40,000 category, a \$40,000 to \$50,000 category and a \$75,000 and over category.

The mean income per family was found to be between \$30,000 and \$40,000 annually. Ten percent of the sample did not disclose their annual income. Twelve percent fell in the low SES category as they earned \$20,000 or less per year. Two-thirds of them consisted of young people who were not yet established in successful careers, and half of this proportion were college graduates. Consequently, they do not appear to be representative of low SES in the general population. The next group which comprised nearly 15% of the sample, earned between \$20,000 and \$40,000 per year. The largest proportion of the sample (43%) earned between \$40,000 and \$50,000 per year, while close to 20% earned \$75,000 or more per year. Thus the family incomes of the sample were relatively quite high.

### Education

This sample was highly educated. Forty percent of the respondents had attained a college degree and less than 4% had not completed grade school. Fifty-two percent had graduated high school and four percent failed to specify their educational level. The mean level of schooling attained was a year of college education.

### Number of Children

The number of children a respondent had ranged from 0 to 5. The mean number of children calculated for each respondent was 1.64. The percentages were as follows: Thirty-one percent of the respondents had no children. Nine percent had one child, while 30% had 2 children. Twenty percent had 3 children and 5.5 % had 4 children. Finally, close to 2% had 5 children, and 2.7% or 3 respondents did not specify how many children they had.

### Procedure

An attempt was made to clarify the purpose of the study. All the participants were informed that the aim was to develop a questionnaire that would provide standardized measures of affectional bonding for individuals who have been married for different periods of time. They were told that it is expected that these measures will be used for research with different populations as well as for clinical purposes with specific cases.

Informants were requested to complete a cover sheet containing a brief demographic data list regarding family income, age, sex, education, and

number of children (see Appendix A). Included with the demographic data were questions inquiring about the duration of the marriage and the friendship. A retrospective question asked whether the informants found being away from their spouse more or less difficult today as opposed to 2 to 10 years ago. Finally, a range of annual family incomes denoted socio-economic status.

After completing the demographic data, participants were requested to choose the appropriate frequency for each question (Q) in the AAS. They were told that three copies of the AAS should be filled out, one which describes how they feel about their spouse, the second how they feel about their closest friend, and the third how they feel about a casual friend. Their closest friend could be anyone (even a relative) that they confide in and turn to most in times of need for emotional support. A casual friend could be a co-worker or neighbor with whom a person spends time at work or near home, but the relationship should not go beyond the specific setting (Kahn & Antonucci, 1980). This means that if a co-worker were chosen, s/he should be seen only at work. The participants were asked to restrict their selection to people with whom they had been friendly with for 6 months or more. This time period was consistent with the onset of their spousal relationship.

It was pointed out that the questions provide a context for the separation events. For some questions the context was in terms of business or visiting a sick relative, which is described as "had to" go away, while in others it is "chose to" go away. The latter case suggests the separation is for purposes of pleasure. The participants were asked to keep the context in mind when answering the questions. Then it was

stressed that answers should describe the relationship as it is right now in the present, not the way it was in the past. These instructions were repeated because it was previously found that some participants tended to describe the relationship in terms of the past.

In addition to three copies of the AAS, the participants were asked to answer both the MSIS (see Appendix C), and the Dyadic Satisfaction Subscale of the DAS (see Appendix D) in the context of their spouse. They were also asked to complete the Parental Bonding Scale (see Appendix F) to describe their relationship with the parent whom they perceived as closer, more supportive, and more accepting of them. To determine if the information regarding the parent were accurate, each person was requested to record ten adjectives that best described the relationship with the parent or parent substitute prior to age 16 (see Appendix E).

The order of these various scales was alternated when administering them to different people to control for order effects. Initially, the experimenter was present to explain the procedure and to answer questions. To alleviate concerns regarding confidentiality, subjects were able to mark their answers directly on a computer sheet without divulging their name. Each subject was assigned a number for identification purposes. The questionnaires were then collected after completion.

In most cases individual testing was mandatory. This occurred because many respondents were recruited at work. Individual testing was also necessary when additional respondents who were married for a specific number of years were needed. Consequently, the subjects requested to take the questionnaires home. When they did so, the author took their phone numbers and arranged to call them at a later date.

Unfortunately, many subjects did not complete the questionnaires for 3 weeks. A few respondents took as long as 5 or 6 weeks. The experimenter contacted these people several times and in many cases arranged to come to their homes to help them complete the questionnaires. Despite these difficulties, most of the questionnaires (around 85%) were collected. The high return rate was attributed to the fact that the subjects were telephoned and the data were subsequently picked up, instead of having them returned by mail.

At a later point in time, the subjects were categorized into subgroups according to the duration of their marital relationship. Relationships encompassing 6 months to 2 years were coded 1, those 2 to 5 years were coded 2, 5 to 10 years were 3, 10 to 20 years were 4, and 20 to 35 years were coded 5. Thus there were 5 married subgroups with 20 to 24 subjects in each.

### Critical Issues

The single method employed by this study was an inadequate explication of the "attachment" construct. It is important to supplement self-reports with observational research in order to bolster construct validity. Perhaps future studies could employ observational methodologies. However, prior to utilizing a more experimental approach issues of measurement, reliability, validity, etc. have to be addressed.

Another issue that was not addressed by this study was social desirability. Social desirability items can only be answered true or false; they do not fit in with the 5-point frequency ratings of the

attachment items. However, it is unlikely that social desirability or demands of the experiment significantly influenced scoring in both the previous and current study. This is because of the predicted findings, that the intensity of attachment decreases over time. This means that it is not socially or experimentally desirable for people in relatively longer-term relationships to show less intense attachment. Moreover, it is not socially desirable for newlyweds to frequently be depressed at weekend separations from their partner, exhibiting an intense level of attachment, especially in our culture where "toughing-it-out" is the socially desirable response! Thus it can be concluded that social desirability or experimental demands did not significantly influence scoring.

A third limitation involved the use of the Parental Bonding Instrument which provided retrospective data. Retrospective data is not considered to be as reliable as current information and should be interpreted with caution. However, the Berkeley Guidance Study found consistency in memories of childhood from young to old adulthood (Ricks, 1985). Therefore retrospective data can be reasonably reliable.

A final limitation incurred by this study was the age and education level of the low SES group. Two-thirds of them were young people who were not yet established in successful careers and half of this proportion were college graduates. Thus they do not appear to be representative of low SES in the general population. Consequently the findings of this study should not be generalized to low SES persons.

## CHAPTER III

### RESULTS

#### Test-retest reliability

A randomly chosen subset of 24 subjects was retested around 4 months later. Since one subject was out of town when the questionnaires were collected only 23 subjects were included in the retest data. The data were analyzed by Pearson product-moment analyses. The first analysis retested responses toward spouses and the second retested responses toward confidants. The correlation analysis for spouses demonstrated that marital bonding remains stable over time,  $r = .91$ ,  $p < .001$ ,  $n = 23$ , as predicted. Although there was no prediction made for confidants, the correlation analysis showed considerably less stability in confidant bonding,  $r = .47$ ,  $p = .011$ ,  $n = 23$ .

#### Internal Consistency

By employing the data gleaned for individual spouses, a correlation matrix (using a Pearson product-moment correlation analysis) was computed. It was obtained from the responses of 102  $\underline{S}$ 's because the data from eight subjects were incomplete. Each item was examined to assess internal consistency or homogeneity. It was expected that moderate to very high correlations of each item with total score would be obtained. This would verify that each item is a measure of the same construct.



The correlation coefficients for the items (as shown in Table 1) range from low to high. Sixteen, or one half, of the items show correlations greater than .40. The remaining half of the items range between .20 and .40, with the exception of item Q11. It shows a very low, non-significant correlation of  $r = -.003$ . This item does not appear to be a measure of the same construct.

In reference to the 16 items over .40, two items are greater than .70, four are between .60 and .70 and six are between .50 and .60. The remaining four items are between .40 and .50. In reference to the 15 items ranging between .20 and .40, ten are between .30 and .40, and five are between .20 and .30. All the item-to-total score correlations, except Q11 and Q16 have probability values  $< .01$ ,  $n = 102$ .

Cronbach's alpha was computed for the 32 reliability coefficients. The obtained alpha = .893. This verifies that the items measure a single construct when evaluating marital relationships.

A correlation matrix using Pearson's formula was also constructed for confidants. The item-to-total score correlations for confidants are generally lower than for spouses (see Table 2). Six items are greater than .60, two are greater than .50, ten are over .40, six are over .30, and four are under .20. Out of the 32 items, 28 have probability values  $< .01$ ,  $n = 90$  (only 90S's had complete data in this analysis). Cronbach's alpha was also computed for these 32 items. It indicates that the scale items measure a single construct when assessing close friendships, alpha = .855.

TABLE 1

AAS Scale Item-Total Correlations for Spouses

Item	Corrected Item-Total Correlation	alpha if deleted
Q1	.49	.89
Q2	.30	.89
Q3	.52	.89
Q4	.36	.89
Q5	.30	.89
Q6	.52	.89
Q7	.33	.89
Q8	.42	.89
Q9	.71	.88
Q10	.29	.89
*Q11	-.0034	.90
Q12	.69	.88
Q13	.27	.89
Q14	.70	.88
Q15	.69	.89
*Q16	.21	.89
Q17	.56	.89
Q18	.45	.89
Q19	.55	.89
Q20	.26	.89
Q21	.34	.89
Q22	.45	.89
Q23	.39	.89
Q24	.27	.89
Q25	.30	.89
Q26	.65	.89
Q27	.32	.88
Q28	.52	.89
Q29	.62	.89
Q30	.38	.89
Q31	.42	.89
Q32	.37	.88

Cronbach's alpha = .89

\* All items except Q11 and Q16 have  $p$  values  $<.01$ ,  $n = 102$ .

TABLE 2

AAS Scale Item-Total Correlations for Confidants


---

Item	Corrected Item-Total Correlation	alpha if deleted
Q1	.39	.85
*Q2	.04	.86
Q3	.39	.85
Q4	.33	.85
Q5	.28	.85
Q6	.60	.84
Q7	.47	.85
Q8	.40	.85
Q9	.66	.85
Q10	.25	.86
*Q11	-.03	.87
Q12	.48	.85
*Q13	.18	.86
Q14	.68	.85
Q15	.69	.84
Q16	.25	.85
Q17	.33	.85
Q18	.48	.85
Q19	.49	.85
*Q20	.06	.86
Q21	.37	.85
Q22	.44	.85
Q23	.26	.85
Q24	.34	.85
Q25	.41	.85
Q26	.66	.84
Q27	.49	.85
Q28	.41	.85
Q29	.61	.84
Q30	.51	.85
Q31	.57	.85
Q32	.40	.85

---

Cronbach's alpha = .855

\* All items except Q2, Q11, Q13 and Q20 have  $p$  values  $< .01$ ,  $n = 90$ .

---

### Regression Analysis

Another assessment was carried out by a step-wise regression analysis. It was performed on spousal attachment score with the 32 items in the scale. When all 32 items of the scale were entered into the equation, an  $R^2$  of .995 emerged. Thus all the items contributed to the variance in score, accounting for 99% of the total variance.

Over 90% of the variance in score is accounted for by only seven items. These items are Q9, Q15, Q32, Q17, Q12, Q10 and Q25 (see Table 3). Item 9 is the first variable to enter the equation, and accounts for over 50% of the variance in score.

An attempt was made to partial out the effects of the MSIS and DAS on AAS score. These variables did not contribute any additional variance and did not enter into the equation. Therefore the MSIS and DAS were not found to be significant predictors of attachment score for spouses.

A step-wise regression analysis was also performed on the attachment scores for confidants with the AAS items. Twenty-three items entered into the equation, yielding an  $R^2$  of .999. Therefore 99% of the variance in score for confidants was accounted for or predicted by 23 of the AAS items. Nine items were not included in the equation and did not contribute any additional variance to relationships with confidants or best friends. These items were Q2, 7, 8, 12, 16, 17, 19, 25 and 29.

The best predictors of the 23 items that evaluate attachment to a confidant are Q15, Q31, Q14, Q6, Q13, Q10 and Q32 (see Table 3). These seven items account for 90% of the variance in score. Item 15, the first item to enter the equation accounts for 55% of the variance in score.

TABLE 3

Regression Analysis Predicting AAS Score for Spouses and ConfidantsSpouses

Predictor	Beta Coefficient	T value	Significance
Q9	.32	7.48	.000
Q15	.23	5.65	.000
Q32	.21	6.26	.000
Q17	.27	7.62	.000
Q12	.21	4.82	.000
Q10	.17	5.40	.000
Q25	.15	4.48	.000

The above seven items account for over 90% of the variance in attachment score for spouses.

Confidants

Predictor	Beta Coefficient	T value	Significance
*Q15	.23	5.09	.000
Q31	.17	3.84	.002
Q14	.36	8.38	.000
Q6	.23	5.81	.000
Q13	.19	5.60	.000
*Q10	.20	5.79	.000
*Q32	.20	4.94	.000

The above seven items account for 90% of the variance in score for confidants.

Note.

The asterisked items, Q15, Q10 and Q32, are the best predictors for both spouses and confidants

### Construct Validity

In this cross-validation study, construct validity was tested by many analyses. All tests of significance were set at  $\alpha = .05$ . The first analysis was a repeated measures analysis of variance (ANOVA). The Anova compared the mean score for spouses on the 32 AAS items with the mean for close friendships. Then it compared the mean for close friendships with the mean for casual friendships.

The mean score for spouses was 101.52. The corresponding mean for close friends or confidants was 62.28. The difference between the two means was significant,  $F(107, 1) = 426.16$ ,  $p < .001$ . Therefore, this test passed the test of significance at  $\alpha = .05$ . Furthermore, inspection of the data indicated that the mean value of each AAS item for spouses was greater than the mean of each item for confidants. This finding demonstrates that the AAS has concurrent validity, according to Anastasi (1976), because it can determine the existing status of a relationship.

The range of AAS scores for spouses fell between a minimum value of 64 and a maximum value of 141. Only 10% of the values were under 81, while 10% of the values were over 123. Therefore 80% of the scores fell between 81 and 123.

The range of AAS scores for confidants fell between 34 and 106. Eleven percent of the scores was under 47 and 10% was over 81. Consequently 80% of the scores fell between 47 and 81. Since only 10% of the scores for spouses was under 81, there was very little overlap between the two distributions of scores. In fact only the bottom 10% of the scores for spouses overlapped with the top 10% of the scores for confidants.

As previously stated, the mean score for a confidant was 62.28. The corresponding mean for a casual friend was 45.24. Thus the mean difference between close friends and casual friends was also significant,  $F(107, 1) = 224.34$ ,  $p < .001$ . Therefore, this test also passed the test of significance at  $\alpha = .05$ . Inspection of the data indicated that the mean value of each AAS item for confidants was also greater than the mean of each item for casual friends.

The standard deviation (SD) of the AAS for spouses was 16.82 and the corresponding SD for confidants was 13.52. Therefore response differences for spouses were greater than differences for confidants. Similarly, the SD for casual friends was 7.31, considerably smaller than the SD of 13.52, denoting response differences for confidants.

Within the total sample of 110 respondents, there was a subsample of 48 husbands and their wives or 24 married couples. To determine if there is an association between husbands and wives in attachment, a Pearson Product-Moment Correlation analysis was computed. The correlation between husbands and wives was found to be significant,  $r = .60$ ,  $p < .001$ ,  $N = 24$ . The mean of the husbands was found to be 98.46 and the SD was 14.60. The corresponding mean for their wives was 106.50 and the SD was 18.04. The correlation indicates that there is a relatively strong association between spouses in attachment. However, this analysis does not provide any construct validity.

A third measure of construct validity was derived from a predicted mean score. The mean score obtained for spouses in the previous study was 90.12 but the SD is unknown. The previous mean was calculated using the first 29

items of the AAS. The current mean for the 29 items was 89.68 and the SD was 15.867. Therefore it was predicted that a confidence interval based on the current mean of 89.68 would be fully contained within the null range ( $M \pm 1/2$  SD). For the purpose of calculating the null range the previous SD must be calculated.

Marascuilo & Serlin (1988, p. 71) provide a formula for calculating a sample SD using a constant multiplier. By dividing the mean of the current sample by the mean of the previous sample one obtains the required constant (B).

$$B = \bar{X}_{\text{new}} / \bar{X}_{\text{old}} = 89.68 / 90.12 = .995$$

The assumption that justifies the use of this formula to derive the constant, is that the observations in the new sample could have been obtained by multiplying each observation in the previous sample by the constant. This assumes that the samples are otherwise equivalent except for the fact that they have slightly different means. In the case where the SD of the new sample is known and the constant is known (as computed above), the SD of the previous sample can be computed by dividing the SD of the new (transformed) sample by the constant.

$$\begin{aligned} \text{SD old} &= \text{SD new} / B = \\ 15.867 / .995 &= 15.947 \end{aligned}$$

Therefore the SD of the previous sample is calculated to be 15.947.



Having obtained a current mean of 89.68 and SD of 15.867 a 95% confidence interval can be computed.

$$\begin{aligned} CI &= [ \bar{X} \pm (Z_{\alpha/2})(SD / \sqrt{N}) ] = \\ CI &= [89.68 \pm (1.98)(15.867 / \sqrt{110})] = \\ CI &= [89.68 \pm 2.996] \end{aligned}$$

The 95% confidence interval is 86.684 to 92.676. The null range ( $M \pm 1/2$  SD) =  $90.12 \pm 15.947 / 2$ , which is 82.147 to 98.093. Therefore both the lower (86.684) and the upper (92.676) bound of the 95% confidence interval fall within the null range based on the previous sample (Greenwald, 1975).

#### Factor Analysis (re: Spouses)

A fourth assessment of construct validity was derived from a factor analysis. It was predicted that the same components would be found to exist in this study as in the last. The data for spouses was only utilized for this analysis as the previous study did not use confidants or acquaintances. Unities were placed in the diagonal elements of the correlation matrix and a varimax rotation was specified. A nine factor structure was extracted. However, Factor 9 contained only a single loading or item. This factor was not well defined and had little basis for interpretation. Consequently, a "scree test" was plotted to estimate the number of factors that should be retained, as recommended by Gorsuch (1974).

A scree test is considered to be the most accurate procedure for determining the number of factors to retain. Applying the scree test is

relatively simple. All the roots are plotted with the value of the root along the ordinate and the root's factor number at the abscissa. A ruler is laid across the bottom portion of the roots to see where they form an approximately straight line. The point where the factors curve above the straight line formed by the smaller roots gives the number of factors (Gorsuch, 1974).

One complication that can occur is the presence of several breaks and several straight lines. For example, it is often apparent that the last few roots drop off rather sharply. Since it is not desirable to extract almost the same number of factors as variables, this drop is ignored and the straight line is based upon all the roots except those in that last drop (Gorsuch, 1974, p 153).

As is shown in Figure 1, the dominant factors are Factors 1, 2, and 3. They account for most of the variance and are large. Factors 4 to 8 form a straight line that slopes downward. These factors are more dominant than the trivial factors and should be retained. Between Factors 8 and 9 there is a dramatic drop in the size of the roots, and they form an approximately straight line between Factor 9 and 11. Factors 9, 10, and 11 are trivial factors because they account for very little variance. In this case, where there are several straight lines, the number of factors that should be retained is based upon all the roots except those in that last drop. It was therefore determined that eight factors should be retained.

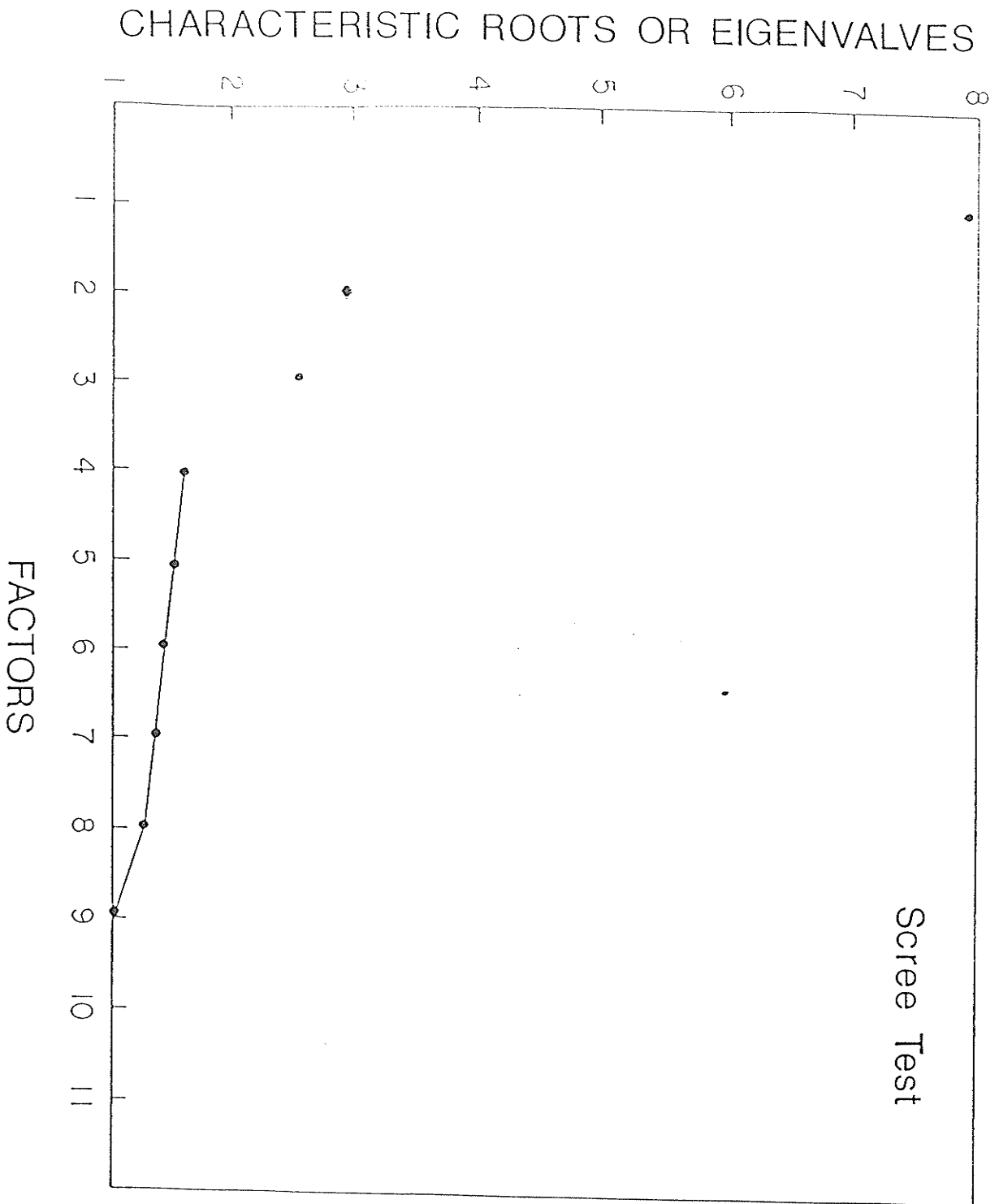


FIGURE 1.

After the scree test was plotted, the eight factors were orthogonally rotated to a terminal solution (see Table 4). The eight factors accounted for 62.4% of the variance in score. (Nine factors accounted for 66% of the variance.) The first factor accounted for 24.5% of the variance, the second accounted for 9.2%, and the third for 7.6%. The fourth, fifth and sixth factors accounted for over 4% each, while the seventh and eighth accounted for more than 3% each. All of the eight factors had eigenvalues greater than 1 but less than 1.5.

Loadings. As is shown in Table 4, all of the loadings are above .40 in magnitude. This is desirable because Gorsuch (1974) recommended that a lower boundary of .30 for a loading may promote "meaningfulness." It can be noted that two-thirds of the loadings are .60 or greater in magnitude. Moreover, there are at least three items loading onto each factor, with the exception of Factor 7. Factors which do not have several salient loadings are poorly defined and have little basis for interpretation (Gorsuch, 1974). The eight factors shown in Table 4 were named: (1) Long-term Separations, (2) Independent Functioning (3) Harmonious Functioning, (4) Sharing, (5) Apprehension or Concern, (6) Mental Closeness, (7) Fear of Replacement and (8) Security/Insecurity. The item composition of the factors will now be presented.

TABLE 4

Factor Structure for Spouses

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Q14	.78							
Q12	.74							
Q9	.73							
Q15	.69							
Q19	.68							
Q26	.64							
Q29	.61							
Q22	.52							
Q6	.46							
Q23		.86						
Q25		.82						
Q7		.81						
Q1		.43						
Q11		-.48						
Q13			.65					
Q20			.63					
Q32			.57					
Q21			.56					
Q18				.66				
Q27				.63				
Q16				.45				
Q24					.76			
Q17					.60			
Q28					.57			
Q31						.78		
Q30						.67		
Q5						.40		
Q2							.78	
Q8							.70	
Q10								.62
Q3								.56
Q4								.48

Factor 1 Long-term Separations; Factor 2 Independent Functioning;  
 Factor 3 Harmonious Functioning; Factor 4 Sharing; Factor 5 Apprehension  
 or Concern; Factor 6 Mental Closeness; Factor 7 Fear of Replacement;  
 Factor 8 Security/Insecurity.

Item Composition of Factors

TABLE 5

Factor 1: Long-Term Separations

Item #	Loading	Item-Content
Q14	.78	If you had to go away for several weeks without him/her, would you feel apprehensive?
Q12	.74	If you had to go away for several weeks without him/her would you feel angry?
Q9	.73	If s/he chose to go away for several weeks without you would you feel angry?
Q15	.69	If s/he had to go away without you for several months, would you feel depressed?
Q19	.68	If s/he had to go away for several weeks without you, would you feel angry?
Q26	.64	If s/he chose to go away for several weeks without you would you feel apprehensive?
Q29	.61	If you had to go away without him/her for several months, would you be upset?
Q22	.52	If s/he chose to go away without you for several months, would you feel apprehensive?
Q6	.46	If s/he chose to go away without you for several months, would you feel depressed?

Factor 1 has nine items; it accounts for the largest amount of variance (24.5%). Each item refers to relatively long-term separation periods. These same items clustered together in the previous study (see Table 13).

TABLE 6

Factor 2: Independent Functioning


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Item #	Loading	Item-Content
Q23	.86	If s/he was away for several weeks, could you carry on with your usual activities?
Q25	.82	If s/he was away for several months could you carry on with your usual activities?
Q7	.81	If s/he as away for several days, could you carry on with your usual activities?
Q11	-.48	If s/he occasionally arrived late would you accept his/her explanation for being late?
Q1	.43	If you had to go away for a weekend without him/her, would you feel angry? (This item has a loading of .38 on Factor 1 as well.)

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The first three items in Factor 2 are highly correlated with each other as they were in Factor 4 in the previous study (see Table 13). In that study, Q11 loaded positively onto a factor named "Trust." Here it shows a negative loading. It can be inferred that respondents who reply negatively to this item show more independence than respondents who reply positively. It can also be inferred that respondents who reply positively to Q1 show a lower level of independence.

Factor 3 is comprised of three items taken from the previous study plus one new item, Q32. Q13 and Q21 directly involve harmonious functioning and clustered together in the previous study in Factor 5. Q32 does not directly involve harmony, but a reasonable level of couple harmony is required in order to respond positively.

TABLE 7

Factor 3: Harmonious Functioning

Item #	Loading	Item-Content
Q13	.65	Do you purchase a new garment, car, or expensive item without his/her approval?
Q21	.56	Do you commit yourself to a regular activity without first consulting him/her?
Q32	.57	Does s/he seem to understand your needs and wants?
Q20	.63	When s/he comes home, do you kiss, hug or greet him/her?

TABLE 8

Factor 4: Sharing

Item #	Loading	Item-Content
Q18	.66	When you have a problem, do you discuss it with him/her?
Q27	.63	When you have an interesting thought or a new idea, do you look forward to sharing it with him/her?
Q16	.45	How many evenings a week do you spend away from him/her?

The first two items in Factor 4 refer to "shared" communication with the spouse. The last item examines how many evenings a week are "shared" with the spouse. All three items loaded onto Factor 3 in the previous study (see Table 13).



All of the items loading on Factor 5 were taken from the previous study. Two items, Q24 and Q28, were highly correlated with each other in that study. Q17 loaded onto Factor 1 in the former study. Since each item describes feelings of apprehension or concern, this factor is named

TABLE 9

Factor 5: Apprehension or Concern

Item #	Loading	Item-Content
Q24	.76	If s/he was late and didn't phone would you be upset?
Q17	.60	If s/he had to go away for several weeks without you, would you be apprehensive? (This item also has a loading of .44 on Factor 1.)
Q28	.57	If s/he chose to go away for a weekend without you would you feel apprehensive? (This item has a loading of .32 on Factor 1.)

accordingly.

Factor 6 contains two new items, Q31 and Q30, which were not administered in the previous study. If all three items comprising this factor are answered with a high frequency response such as "frequently" or "always," it would be indicative of an intimate relationship.

Factor 7 is comprised of only two items, but each loading is relatively high. Both of these items were highly correlated with each other in the previous study.

TABLE 10

Factor 6: Mental Closeness

Item #	Loading	Item-Content
Q31	.78	Do you desire comfort or security from him/her?
Q30	.67	Do you have thoughts pertaining to him/her during the day?
Q5	.40	Do you and s/he go over the day's events?

TABLE 11

Factor 7: Fear of Replacement

Item #	Loading	Item-Content
Q2	.78	If s/he had lunch with a friend of the opposite sex would you be upset?
Q8	.70	If s/he occasionally kissed or hugged friends of the opposite sex, would it disturb you?

TABLE 12

Factor 8: Security/Insecurity

Item #	Loading	Item-Content
Q10	.62	If you were on a plane that was being hijacked, would the presence of him/her reduce your anxiety more than if another friend was there?
Q3	.56	If s/he chose to go away for a weekend without you would you feel angry? (This item has a loading of .47 on Factor 1.)
Q4	.48	Are you comfortable at a party when s/he is: 1. not there. . . 5. next to you.

Factor 8 consists of three items which did not cluster together in the previous study. Q10 and Q4 examine a person's level of anxiety or insecurity in specific situations wherein the spouse is absent. The interpretation of Q3 is less obvious. However, respondents who would feel angry when the spouse is absent for a weekend may be less secure than respondents who would not. The item cluster suggests that this factor examines a respondent's level of security or insecurity. A summary of the factor analysis will now be presented.

The factor analysis was predicted to yield the same components of attachment existing independently in this study as in the previous one. The two separate components are: 1. "affective responses to separation" and 2. "functioning in unison with a partner". From the item composition of the factors, it can be seen that Factor 1 in this study deals with items that address "responses to separation." This occurred with Factor 1 in the previous study as well. As is shown in Table 13, Factor 1 contains nine items that address the first component.

The second component, "functioning in unison with a partner," was assessed by Factors 3 to 8 in the previous study. The separation of the two components is not maintained by Factors 3 to 8 in this analysis. Several items assessing "responses to (weekend) separations" load on factors that address "functioning in unison with a partner," the second component. Hence the two components of attachment are not totally independent of each other in this study as they were in the last.

Previously mentioned in regard to the item composition of the factors, Factors 3 and 5 contain two items each that clustered together in the

TABLE 13

Loadings

Factors	Spousal Loadings	Previous Study	Confidant Loadings
1	Q14 Q12 Q9 Q15 Q19 Q26 Q29 Q6 Q22	Q14 Q12 Q9 Q15 Q19 Q26 Q29 Q6 Q22	Q14 Q12 Q9 Q15 Q19 Q26 Q29 Q6 Q8 Q28 Q3 Q2
2	Q23 Q25 Q7 Q11 Q1	Q8 Q28 Q3 Q2 Q1 Q24	Q18 Q27 Q5 Q24 Q30 Q31 Q32
3	Q13 Q20 Q32 Q21	Q18 Q27 Q5 Q24 Q16	Q23 Q25 Q7
4	Q18 Q27 Q16	Q23 Q25 Q7	Q17
5	Q28 Q24 Q17	Q13 Q21	Q13 Q22

Note. Factors 6,7 and 8 are omitted because many items used in the previous study that correlated with these factors were deleted.

previous study and one item that did not. Factor 8 is comprised of items that did not previously cluster together at all, and Factor 6 contains new items that were not administered in the previous study. However, Factors 1, 2, 4 and 7 contain items that clustered together in both studies. The item composition of the factors shows that most factors with the exception of Factor 8 and Factor 6 (the factor with new items) are comprised of items that clustered together in the previous study. Therefore, the factor analysis provides additional construct validity.

#### Factor Analysis (re: Confidants)

A factor analysis was also performed with the data for confidants. A varimax rotation was used to extract the principal components. A nine-factor structure emerged explaining 67% of the variance in score. The first factor accounted for 25% of the variance, the second for 9.5%, the third for 7.3% and the fourth for 5.5%. The fifth and sixth accounted for over 4% each, while the seventh, eighth and ninth accounted for more than 3% each. All of the nine factors have eigenvalues greater than 1.

The factor loadings, as shown in Table 14, exceed .50 in magnitude except for two. Many even exceed .60 in magnitude. However, Factors 4 to 9 primarily are doublets (2 items) and singlets (one item). Thus the data are not sufficiently reduced by these factors. If a new factor adds little to the information already extracted, it is not worth extracting and interpreting, according to Gorsuch (1974). Even though Factor 6 contains three items, it accounts for less variance than Factor 4 (which is a singlet). Therefore Factors 4 to 9 will not be extracted and interpreted. Since three factors will be retained, a scree test is not useful for this analysis.



Factor 1 in this analysis includes twelve items, of which eight were found in Factor 1 in the previous study (see Table 13). The remaining four items loading on Factor 1 loaded on Factor 2 in the previous study, and are Q8, Q28, Q3 and Q2. These items do not refer to "long-term separations" but Q28 and Q3 refer to weekend separations. Items Q8 and Q2 loaded onto "Fear of Replacement" in the spousal analysis. The inclusion of the latter items makes the interpretation of this factor extremely difficult.

Factor 2 in this analysis for confidants, is comprised of entirely different items than Factor 2 for spouses. The item loadings in this analysis are Q18, Q27, Q5, Q24, Q30, Q31 and Q32. These items load on Factors 3, 4 and 6 in the factor analysis for spouses. The items describe "Mental Closeness," "Sharing", and "Harmonious Functioning." It is interesting to note that with the exception of the new items, Q30, Q31 and Q32, the items loading on this factor previously correlated with Factor 3, called "Communication" in the last study.

Factor 3 in this analysis contains three highly correlated items that are found in Factor 2 for spouses (see Table 13). These items are Q25, Q7 and Q23. These same items comprised Factor 4 in the previous study and were labelled "Independent Functioning" in that study as well. This finding is desirable because a replication of a factor is a demonstration of its robustness or hardiness (Gorsuch, 1983).

The remaining Factors 4 to 9 were not worth extracting and interpreting because they consisted of doublets and singlets. Therefore they will not be discussed. A summary of this analysis will now be presented.

The factor analysis for confidants was predicted to yield the same components of attachment as were found to exist in the previous study. This prediction is not supported by Factor 1. It contains a few items that did not load on Factor 1 in the previous study. Therefore Factor 1 is not as robust in this analysis as it is in the factor analysis for spouses.

Conversely, the prediction is upheld for Factors 2 and 3 which are more robust in this analysis as compared to the analysis for spouses. Factor 2, with the exception of the new items, consists of items that correlated with Factor 3 in the previous study. Factor 3 also contains the identical items that comprised Factor 4 in the previous study. Thus Factors 2 and 3 appear to be robust and are replicated in this analysis. Therefore, the findings from this analysis provide further support for the construct validity of the revised AAS. A factor analysis was also performed with the combined data for spouses, confidants and acquaintances, but the analysis failed to rotate. Therefore the data were not reduced to a meaningful solution.

#### Comparison of AAS with MSIS and DAS

A fifth assessment of construct validity involved correlating the AAS with similar scales. Such correlations should be moderately high but not too high or the new test would represent needless duplication (Anastasi, 1976). The first correlation consisted of a Pearson product-moment analysis which compared the AAS scores with the MSIS scores for spouses. The correlation between the two scales fell between .30 and .60 as predicted,  $r = .44$ ,  $p < .001$ ,  $N = 110$ . The results indicate that the AAS measures a construct that is similar to social intimacy, as measured by the MSIS but only in reference to this sample.



A second Pearson correlation analysis compared the AAS scores with the DAS scores for spouses. This correlation did not fall in the predicted range of .30 to .60. The correlation was slightly lower than predicted,  $r = .25$ ,  $N = 110$ . This coefficient was still significant,  $p < .004$ . However, the results for this sample indicate that attachment appears to be more distinct from dyadic adjustment than was predicted. To generalize these results to other samples, the population correlations were computed.

To evaluate the sample correlations between the AAS and both the MSIS and DAS, the confidence interval for  $\rho$  must be computed. The procedure for determining the  $1-\alpha$  percent confidence interval for  $\rho$  is outlined by Marascuilo and Serlin (1988, p. 355, Box 24-4). The Fisher  $z$  for the lower limit ( $z_L$ ) of the  $1-\alpha$  percent confidence interval for  $\rho$  is equal to the Fisher  $z$  value ( $z_r$ ) for the sample correlation ( $r$ ) plus the product of the critical value for  $Z$  ( $Z_{\alpha/2}$ ) and the standard error for Fisher  $z$  scores ( $\sigma_z = 1/\sqrt{n-3}$ ). To apply this formula, the sample correlation must be converted to Fisher  $z$  scores (using the appropriate table) and the critical value of  $Z$  must be obtained from the normal  $Z$  table. Once the Fisher  $z$  values for the upper and lower bounds of the confidence interval have been computed by substituting the appropriate  $z_r$  and  $Z$  values into the formula, they must be converted back to correlations ( $\rho_U$  and  $\rho_L$ ) by using the Fisher  $z$  table in reverse.

For example, the sample correlation between the AAS and the MSIS is  $r = .44$  ( $N = 110$ ).

The lower limit ( $\rho_L$ ) of the 95% confidence interval for  $\rho$  is:

$$z_L = z_r + Z_{\alpha/2} \left( \frac{1}{\sqrt{N-3}} \right)$$

$$Z_L = .472 + (-1.98) (.09667) = .2805$$

$$\rho_L = .27$$

The Fisher  $z$  for the upper limit ( $z_U$ ) of the  $1-\alpha$  percent confidence interval for  $\rho$  is equal to the Fisher  $z$  value ( $z_r$ ) for the sample correlation ( $r$ ) plus the product of the critical value for  $Z$  ( $Z_{1-\alpha/2}$ ) and the standard error for Fisher  $z$  scores ( $\sigma_z = 1/\sqrt{(n-3)}$ ).

The upper limit ( $\rho_U$ ) of the 95% confidence interval for  $\rho$  is:

$$z_U = z_r + Z_{1-\alpha/2} \left( \frac{1}{\sqrt{N-3}} \right)$$

$$Z_U = .472 + (1.98) (.09667) = .6634$$

$$\rho_U = .58$$

Therefore for  $r = .44$  and  $N = 110$  one can have 95% confidence that  $\rho$  is between .27 and .58. Thus the population value for the correlation between the AAS and the MSIS is in the moderate range and is roughly within the

predicted range of .30 to .60. This confirms that the AAS measures a construct that is related to social intimacy as measured by the MSIS. Since the correlation is only moderate, the AAS does not merely represent a redundant measure of what is assessed by the MSIS.

Similar computations for the sample correlation between the AAS and the DAS ( $r=.25$ ,  $N=110$ ) produce the following results:

$$Z_L = .255 + (-1.98) (.09667) = .064$$

$$p_L = .06$$

$$Z_U = .255 + (1.98) (.09667) = .446$$

$$p_U = .42$$

Therefore for  $r=.25$  and  $N=110$  one can have 95% confidence that  $\rho$  is between .06 and .42. Thus the population value for the correlation between the AAS and the DAS is low and partially overlaps the predicted range of .30 to .60. This does not confirm that the AAS measures a construct related to dyadic adjustment as measured by the DAS.

Additional construct validation was subsequently performed with the separate factor composites. Firstly, the eight factor composites of the AAS were correlated with the DAS employing Pearson's method. The correlation between Factor 3, Harmonious Functioning and the DAS was found to be significant,  $r = .47$ ,  $p < .001$ ,  $N = 110$ . The correlation between the DAS and Factor 4, Sharing, was even higher,  $r = .50$ ,  $p < .001$ ,  $N = 110$ . The correlation between Factor 6, Mental Closeness and the DAS was somewhat lower, but was still significant,  $r = .37$ ,  $p < .001$ ,  $N = 110$ . There were no other significant correlations found between the DAS and the AAS factor composites. However the reported significant correlations indicate that Factors 3, 4 and 6 of the AAS measure a construct that is similar to the DAS.

Similar correlations were computed with the MSIS and the eight factor composites. In this analysis the correlation between Factor 1, Long-Term Separations and the MSIS was found to be significant,  $r = .32$ ,  $p < .001$ ,  $N = 110$ . Factor 3, Harmonious Functioning, was also found to correlate significantly with the MSIS,  $r = .57$ ,  $p < .001$ ,  $N = 110$ . Factor 4, Sharing, was found to have the highest significant correlation with the MSIS,  $r = .61$ ,  $p < .001$ ,  $N = 110$ . The correlation between Factor 6, Mental Closeness and the MSIS was also found to be significant,  $r = .55$ ,  $p < .001$ ,  $N = 110$ . There were no other significant correlations found between the MSIS and the AAS factor composites. These findings indicate that only Factors 1, 3, 4 and 6 of the AAS measure a construct that is similar to the MSIS.

### Demographic Data Analysis

Pearson product-moment correlation analyses were computed with the demographic data. The data for spouses and confidants were used independently to construct the correlation matrices. Sex differences, age differences, SES differences, educational differences, number of children, MSIS scores and DAS scores were all examined to determine if any of these variables correlated with AAS scores.

The data yielded unexpected results. Education was found to be positively related to AAS scores for spouses, and people who had more education scored higher in attachment to the spouse than people who had less education,  $r = .19$ ,  $p = .027$ ,  $n = 105$ . However, education did not appear to be a significant factor in determining strength of attachment to one's best friend or confidant.

The reverse finding occurred with sex differences. Sex of the subject was not related to attachment scores for spouses, but was significantly related to AAS scores for confidants. This finding indicated that females scored significantly higher than males toward a confidant,  $r = .20$ ,  $p = .018$ ,  $n = 108$ . Other demographic variables such as age, SES and number of children were not found to be significantly correlated with AAS scores in married or confidant relationships.

The AAS scores for confidants or best friends showed interesting correlations. There was a small but significant negative correlation between AAS scores for confidants and MSIS scores for spouses,  $r = -.21$ ,  $p = .014$ ,  $n = 108$ . Therefore people who scored high in attachment with a confidant scored low in social intimacy with a spouse. Similarly, there

was a significant negative correlation between AAS scores for confidants and DAS scores for spouses,  $r = -.37$ ,  $p = .001$ ,  $n = 108$ . People who scored high in attachment with a confidant also scored low in marital satisfaction. However, the correlation between the AAS scores for confidants and AAS scores for spouses was positive, but small,  $r = .163$ ,  $p = .046$ ,  $n = 108$ . Therefore, people who scored high in attachment with a spouse, tended to score high with a close friend as well.

#### Relationship Between AAS Score and Marriage Duration

Additional statistical procedures addressed the third objective of this study; to determine if the intensity of bonding diminishes over time. To probe this question, a Pearson product-moment correlation analysis was computed with the scores for spouses (of the five married subgroups) and duration of marriage. There was a small but significant negative correlation between spousal attachment score and duration of marriage,  $r = -.363$ ,  $p < .001$ ,  $N = 110$ , as predicted. The correlation indicates that as duration of marriage increases, AAS score decreases.

It was hypothesized that because the intensity of marital bonding decreases over time, there would be significant mean differences among the subgroups (who were married for diverse time periods). Hence an ANOVA was performed on the means of the five subgroups (see Table 15). Group 1 (relationship extending from 6 months to 2 years) has a mean of 111.50 and an SD of 16.12. Group 2 (2 to 5 years) has a mean of 106.14 and SD of 13.46. Group 3 (5 to 10 years) has a mean of 99.20 and SD of 20.09. Group 4 (10 to 20 years) has a mean of 95.67 and SD of 15.35. Finally, Group 5 (20 to 35 years ) has a mean of 95.41 and SD of 13.94. The ANOVA

verified that there are significant mean differences among the groups,  $F(4, 105) = 4.38, p = .0026$ . Two tests for homogeneity, the Cochran's C and the Bartlett-Box F test, showed that there were no significant differences between the group variances. This validated the finding that there are significant mean differences among the subgroups.

One aim of the present research was to develop standardized measures of attachment for the different marriage duration subgroups. However the size of each subgroup was reduced from 35 to as low as 20 subjects when the research became too costly. Therefore there were not enough subjects in each subgroup to provide standardized scores for each marriage duration period.

In determining whether each subgroup mean significantly differed from every other subgroup mean, multiple comparisons are frequently employed. However, to control against the high error rate incurred with multiple comparisons, the Student Newman-Keuls analysis was implemented. The significance level dictated by the Newman-Keuls analysis is equivalent to a two-tailed test. The significance level called for is actually equivalent to a one-tailed test, because the direction of the difference was specified. (It was predicted that scores would decrease as duration of marriage increased.)

TABLE 15

Descriptive Statistics for the Married Relationships

Group	Marriage Duration	Sample Size	Mean	SD	Range
1	(6 mos. - 2 yrs)	22	111.50	16.12	83 - 136
2	( 2 - 5 yrs)	22	106.14	13.46	87 - 129
3	(5 - 10 yrs)	20	99.20	20.09	68 - 141
4	(10 - 20 yrs)	24	95.67	15.35	65 - 136
5	(20 - 35 yrs)	22	95.41	13.94	64 - 121
	Total	110	101.52	16.82	64 - 141

Descriptive Statistics for the Confidant Relationships

Group	Friendship Duration	Sample Size	Mean	SD	Range
1	(6 mos - 2 yrs)	7	55.43	13.14	34 - 70
2	(2 - 5 yrs)	11	69.91	13.60	50 - 97
3	(5 - 10 yrs)	27	62.26	10.70	44 - 88
4	(10 - 20 yrs)	18	64.56	16.66	45 - 106
5	(20 - 35 yrs)	22	65.45	12.75	44 - 98
	Total	85	64.00	13.38	34 - 106



The Newman-Keuls analysis indicated that Group 1 mean was significantly different from Group 3, 4, and 5,  $p < .05$ ,  $N = 110$ . However, there were no other significant differences among the group means.

To substantiate the finding that the intensity of bonding diminishes over time, several procedures were implemented. Firstly, the questionnaire asked: "Do you find that being away from your spouse is easier or more difficult today as opposed to 2 to 10 years ago?" Most subjects in Groups 2 to 5 responded that they found it easier. Subjects who had small infants sometimes responded "more difficult." Subjects in Group 1 could not respond because many had not been together for 2 years.

The second procedure consisted of computing a Pearson product-moment analysis, comparing age differences with AAS scores. The correlation was not found to be significant,  $r = -.07$ ,  $p < .233$ ,  $n = 107$ . This indicates that the significant differences found between the subgroups are not related to age. Thus the finding that the intensity of bonding diminishes over time appears to be valid.

For the purpose of discerning which AAS items are significant predictors of marriage duration, a step-wise regression analysis was conducted on duration of marriage with the scale items. Four items entered into the equation. These significant items are Q29, Q17, Q11, and Q26. The regression equation obtained a multiple R of .56 and explained 31% of the variance in score. Thus 31% of the variance in score is accounted for by the duration of a marital relationship. The beta coefficients and t values for these four items are given in Table 16.

TABLE 16

Regression Analysis Predicting Marriage Duration

Predictor	Beta Coefficient	T value	Significance
Q29	-.41	-4.41	.000
Q17	-.38	-3.82	.000
Q11	.24	2.87	.005
Q26	.28	2.58	.011
Multiple R = .56		R <sup>2</sup> = .31	

Relationship Between AAS Score and Friendship Duration

A similar statistical procedure was implemented with confidant relationships to determine if the intensity of bonding changes with the duration of a friendship. An ANOVA was performed on the means of the five friendship duration groups, although no predictions had been made (see Table 15). Group 1 (friends for 6 mos. to 2 yrs.) has a mean of 55.43, Group 2 (2 to 5 yrs.) has a mean of 69.91, Group 3 (5 to 10 yrs.) has a mean of 62.26, Group 4 (10 to 20 yrs.) has a mean of 64.56 and Group 5 (20 to 35 yrs.) has a mean of 65.45. The ANOVA indicates that there are no significant differences among the groups,  $F(4, 80) = 1.475$ ,  $p = .217$ . Therefore friendship bonds are not found to alter in intensity over time.

### Comparison of AAS with Parental Bonding Scale

The fourth and final purpose of this research was to see if childhood attachment to a parent is associated with later bonding with a spouse. To test this hypothesis, a Pearson product-moment correlation analysis compared the mean scores in spousal attachment with the subjects' mean scores on the "overprotection" dimension of the Parental Bonding Scale. The correlation between the means was not found to be significant,  $r = -.0076$ ,  $n = 107$ . Therefore the prediction was not supported by the data.

In view of the many analyses performed, a brief summary of the results follows: Test-retest reliability was obtained by retesting a random subsample of 23 subjects four months later. The retest data confirmed that the AAS is very reliable when measuring spousal relationships. Internal consistency or homogeneity was examined by computing item-total score correlations and Cronbach's alpha to determine if the reliability coefficients assess a single construct. Additional support for internal consistency was obtained from regression analysis. Construct validity was demonstrated by five analyses. The first compared the mean score for spouses with the mean for confidants and established concurrent validity. The second analysis compared the mean for confidants with casual friends. The third analysis established a confidence interval based on the mean for spouses to determine if it fell within a null range. A fourth measure of construct validity was derived from two factor analyses. Lastly, a fifth measure of construct validity was substantiated by correlating the AAS with similar scales, the MSIS and DAS. The above reliability and validity assessments will now be discussed.

## CHAPTER IV

### DISCUSSION

#### Test-Retest Reliability

The coefficient obtained for test-retest reliability in the previous study was very high,  $r$  was .99. Consequently, a period of at least four months was chosen for retesting this time. Although the current correlation was lower, ( $r = .91$ ), the temporal stability of the AAS still appears to be high. The stability obtained by the AAS is consistent with the theory that attachment (for offspring and mates) remains more or less constant over long periods of time. This did not appear to hold true for confidants or close friendship relationships.

Bonding in confidant relationships showed considerably less stability over time. Although the correlation of .47 was significant, it was not as high as one might wish. However, many of the subjects did not appear to have a bonded relationship with a close friend. Their AAS scores for the confidant reflected this because they were in the range of the scores for acquaintances. One would not expect emotional responses in unbonded relationships to remain stable over time. Therefore the low correlation obtained for confidant bonding can be explained by the fact that many showed distant relationships with confidants.

### Internal Consistency

The item analysis on the data for spouses was expected to yield moderate to very high correlations of each item with total score. However, only half of the items fell in the moderate to high range. The remaining half of the items fell in the low to moderate range. Despite these low correlations, the analysis attained a Cronbach's alpha of .89. Therefore, an overall high degree of internal consistency was obtained, indicating that the scale measures a single construct.

One item, Q11, had a negative correlation with total score; it did not appear to be a measure of the "attachment" construct. The item was therefore evaluated for its contribution to the regression equation and to the factor analysis. It appeared to account for a small but significant proportion of the variance in the scores for spouses in the equation. It also showed a salient loading in the factor analysis, accounting for some of the variance in Factor 2, Independent Functioning. Thus Q11 appears to measure a respondent's level of independence, and respondents who did not accept a spouse's explanation for being late showed more independence. This accounts for its negative correlation. On this basis it is recommended that the item be retained in the questionnaire.

The item analysis comprising the data for confidants was subsequently inspected. It was expected that smaller correlations would be found for confidants than for spouses. This was generally the case with many items but not with all. Therefore some items yielded higher correlations for confidants. This analysis also indicated a high overall degree of internal consistency because it attained a reasonably high Cronbach's alpha (.855).

The analysis demonstrated that the scale measures a single construct when assessing one's relationship with a close friend.

The following discussion offers an explanation why some items showed higher correlations with AAS score for confidants than for spouses. Many of the respondents' marriages were known to be turbulent because of their low scores on the MSIS and DAS. Hence scores for spouses were lower than scores for confidants on certain items, such as Q30, 31 and 32. On the other hand, confidant relationships are thought to be relatively conflict-free. Perhaps because it is easier to dissolve a confidant relationship than a marriage. Consequently the respondents usually scored high on items such as Q30, 31 and 32 with respect to their confidant. This explanation helps clarify why some items correlated higher with AAS score for confidants than for spouses.

#### Regression Analysis

A second assessment consisted of a step-wise regression analysis. The analysis was performed on spousal attachment score. It showed that all 32 items contributed to the variance in score and accounted for almost all of the variance (over 99%). The analysis also uncovered the best predictors of spousal attachment score. The best predictor was Q9; it had the highest beta coefficient, t value and item-total correlation with AAS score. Item 9 asks: "If s/he chose to go away for several weeks without you would you feel angry?" Separations of several weeks may be too long for some individuals, and people are more likely to feel anger if a spouse chooses to go away than if s/he had to go away. Perhaps the reason Q9 was the best predictor of AAS score was because it elicited more negative affect than

most items. Therefore it correlated highly with other items that elicited negative affect to predict high score.

Other significant predictors of AAS score, such as Q15, Q12 and Q17 also had high item-total correlations for spouses. Several significant predictors, Q32, Q25 and Q10, had low item-total correlations for spouses. This suggests that the low correlating items are just as important because they increased the breadth of criterion coverage adding unique variance (Anastasi, 1976, see p. 177). The findings of the regression analysis lent additional support for the internal consistency of the AAS when assessing spousal attachment.

A step-wise regression analysis was subsequently performed on the attachment scores for confidants. In this analysis, only 23 of the 32 items entered into the regression equation to predict AAS score for confidants. Nine items did not significantly predict attachment to a confidant because they did not account for any additional variance in assessing such relationships. Still, these nine items all showed high loadings in the factor analysis for confidants. Therefore the items helped to interpret the variance accounted for by the factors.

Of the 23 items that entered the regression equation for confidants, seven items were found to be the best predictors because they accounted for the most variance. Three of the seven items, Q15, 10 and 32, were found to be the best predictors of both spousal and confidant attachment scores. The four remaining items, Q31, 14, 6, and 13, which were the best predictors of confidant attachment score were not the best predictors of spousal attachment score. Perhaps the items are interpreted differently

for confidants than for spouses. This may be because different behavior is expected from confidants than from spouses.

The notion that different behavior is expected from a confidant than from a spouse can be illustrated by examining some of the items themselves. Most items, such as Q9, 12, and 17 which were among the best predictors of attachment score for spouses (but not for confidants) refer to separations of several weeks. On the other hand, some of the best predictors for confidants such as Q15 and Q6 refer to separations of several months. Perhaps 2 or 3 week separations are generally considered acceptable for confidants but not for spouses.

A primary function of a confidant may be to provide additional support when needed. This is exemplified by Q31, "do you desire comfort or security from him/her?" and Q13, "do you purchase a new garment, car, or expensive item without his/her approval?" These were among the best predictors of attachment to confidants but not to spouses. The best predictors of AAS score for spouses were primarily items addressing proximity. It appears that close proximity is less important in confidant relationships than in spousal relationships where "togetherness" is the norm.

### Construct Validity

The first analysis evaluating construct validity was a repeated measures ANOVA. The ANOVA first compared the mean score for spouses with the mean obtained for confidants. The mean difference was highly significant as predicted. It demonstrated that the AAS can significantly discriminate



between spousal and confidant relationships and it established concurrent validity as well. This finding supports Weiss (1982) who claimed that adult attachment is more directed toward a figure who is also an object of sexual contact. Such bonds are greater in intensity or magnitude.

A second measure of construct validity was also provided by the ANOVA. It compared the mean score for confidants with the mean score for casual friends. The mean score difference between close friends and casual friends was also highly significant as predicted. It indicated that the AAS can significantly discriminate between confidant relationships and casual friendships, thereby enlarging or enriching the nomological net. It demonstrated that the AAS can differentiate between relationships of relatively strong bonding, moderate bonding and absence of bonding.

The differences between strong bonding, moderate bonding and absence of bonding is not only observable in mean score differences between spouses, confidants and casual friends, it is also observable in the size of their SD's. The SD for spouses exhibited a large variation in the frequency or the intensity of the responses. The SD for confidants exhibited somewhat less variation in the frequency or the intensity of the responses. This is understandable because spousal relationships can range from harmonious to distressed. This was observed when visually inspecting the scores for spouses. Confidant relationships are more likely to be terminated if they become distressed.

The SD for casual friends showed smaller differences in responding; it appeared to suggest absence of bonding. The respondents generally showed no concern regarding separation from casual friends, unless they were

co-workers. A co-worker's absence would increase their work load. Thus if the definition of casual friends had excluded co-workers, the size of the SD may have even been smaller.

As reported previously, the range of the scores for spouses extended from 64 to 141. The percentages were as follows. The mean score was 101.52 and 58% of the respondents scored at or below the mean score. Eighty-two percent scored at or below 118. The remaining 18% scored above 118. The wide range of scores illustrates that individual differences in the magnitude or intensity of attachment to a spouse vary greatly as the theory implies.

The range of scores obtained for confidants was also wide, falling between 34 and 106. Fifty-eight percent of the respondents scored at or below the mean score. Seven percent of this group scored at or below 45.24, the mean score obtained for a casual friend. It was inferred that they showed an absence of attachment. Ten percent scored over 80, which was as high as some of the scores obtained for spouses. This group presumably showed a high level of attachment to a confidant. The remaining 32% scored between the mean and the top 10%. Their scores fell between 62.28 and 80, which was thought to be a moderate level of attachment to a confidant. The wide range of scores found for confidants demonstrates that the magnitude or intensity of friendship bonds vary greatly.

Fifty-eight percent of the subjects obtained a mean score of 62.28 or less when they described their relationship with a confidant. They responded on average with a rating of "infrequently" or "a little" to each of the 32 items. Their low frequency responses suggest that a large

percentage of people have a minimal level of attachment to their best friend or confidant. Nevertheless, their emotional attachment to a confidant was found to be significantly greater than to a casual friend.

The mean score obtained for a casual friend was 45.24. The lowest possible score on the AAS is 32, a score of 1 for each item. This is not much lower than the mean of 45.24 for a casual friend. The majority of items assessing casual friendships were rated as "not at all" or "never." Therefore most items did not elicit perceived feelings of negative affect at separation, nor did they signify harmonious communication with a friend. The extremely low frequency responses attained for casual friends implied absence of attachment for these relationships.

Within the sample of 110 respondents, there was a subsample of 24 married couples. To determine if there is an association in attachment between husbands and wives a correlation analysis was computed. The correlation indicated that there is a relatively strong association between spouses in attachment. On average, the scores of the spouses were quite similar, around  $1/2$  SD apart. When visually inspecting their scores it was noted that the wives usually scored somewhat higher (but not significantly higher) than their husbands. However there were eight cases where the husbands scored higher. The inspection also revealed that the scores of some couples were very close, less than  $1/2$  SD apart, whereas the scores of others were more than 1 SD apart. Therefore some couples' feelings of attachment were in unity and there appeared to be a strong interrelationship between them whereas other couples seemed to show disparity.

A third confirmation of construct validity came from a stringent validity test recommended by Greenwald (1975). A confidence interval computed on the current mean score (for the first 29 AAS items) was established. The 95% confidence interval was fully contained within the null range. Therefore the null hypothesis can be accepted with confidence according to Greenwald. It can be concluded that the difference between the previous and current mean scores for spouses is trivial, as predicted. This procedure cross-validated the mean score. The process of cross-validation indicates that the mean score shows generalizability across populations (Anastasi, 1976). As a result of the cross-validation, the mean score for spouses can be utilized as a standardized measure of an affectional bond in a marital relationship.

#### Factor Analysis (re: spouses)

The items of the AAS were hypothesized to consist of two separate components of attachment: 1. "affective responses to separation" and 2. "functioning in unison with a partner." In the previous study, the first component accounted for the largest proportion of variance; it comprised Factors 1 and 2. This was desirable because proximity is the set goal of attachment. Factor 1 assessed affective responses to long-term separations and Factor 2 primarily assessed short-term separations (weekends).

Unfortunately Factor 2 was not replicated at all in this study. Gorsuch (1983) claimed that if a factor has variables deleted it may not occur in the next analysis, and it is difficult to replicate factors with fewer than five or six salient variables. Since only three items dealing with weekend separations were retained by this study, it helps explain why Factor 2 was not replicated.

Factor 1, however, was replicated. The nine items loading on this factor clustered together in the previous study. Three more items, Q1, Q3 and Q28, which deal with weekend separations, showed secondary, smaller loadings ranging from .32 to .47 on Factor 1. Thus both the primary and secondary loadings address "affective responses to separation," the first component of attachment. In view of the replication of this factor, the first component of attachment shows some stability across populations.

The second component of attachment displayed less stability than the first because the factors indexing it shifted their position from the previous study. A second sign of instability was that the item composition of some factors had altered from the previous research. The shift in the position of the factors and the change in item composition can readily be explained. The item pool was reduced from 50 items in the former study to 32 items in this research. Gorsuch (1974) stated that principal factors shift with the addition or deletion of a few variables. Most of the factors that address the second component of attachment contain three items or variables. Gorsuch (1983) found that it is difficult to replicate factors with less than five or six salient variables. Therefore, the reduction of the item pool may explain why the second component of attachment was less stable than the first. The factors that comprise the second component of attachment will now be discussed.

The first factor that addresses the second component of attachment is Factor 2, Independent Functioning. The first three items loading on this Factor ask the same question: "If s/he was away for several days (weeks or months) could you carry on with your usual activities?" Note that only the time period of the spouse's absence varies in these items (see Table 6).

The loadings of these items are high with correlations of .86, .82 and .81. In the previous study the same items had loadings of .84, .81 and .64 respectively, and they comprised a factor with the same name. Although this factor acquired two additional items in the current study, because of its replication it still appears to be robust.

It is presumed that Factor 2 is an important criterion as to how secure a person feels in his/her spousal relationship. Secure persons are believed to function more independently than insecurely attached people, who are presumably more dependent on a spouse. Thus a low score on this factor should indicate a high degree of independence. "Independent Functioning" has a strong impact on "functioning in unison with a partner." Therefore this factor is an important one.

A person who shows excessive independence with respect to a spouse may fail to take the spouse's needs or feelings into account when doing "his/her own thing." Such behavior may be characteristic of persons who avoid attachment because it resembles the behavior of "avoidant" children. The opposite extreme can be illustrated by a person who is so dependent on a spouse that s/he cannot carry on with many usual activities without the spouse. Excessive dependence might be burdensome because the less dependent spouse might always be expected to remain in close proximity. Even short separations would be problematic for dependent persons as shown by their responses to Q1. This resembles the clingy behavior of "resistant" children. Complaints regarding clingy behaviour were voiced by several participants. Both extreme cases exemplify how "Independent Functioning" affects the second component of attachment "functioning in unison with a partner." Therefore this factor is an important one.

Factor 3, Harmonious Functioning, contains two items, Q13 and Q21, which correlated with a factor named "Cooperative Functioning" in the previous study (see Table 7). However, Factor 3 is less robust than Factor 2 because it contains two, as opposed to three items that previously clustered together. A third item contained in this factor, Q20, previously loaded on a factor labelled "Communication." Although Q20 appears to relate to communication, it is more indicative of couple harmony because respondents who would not greet a spouse who enters the home are usually in disharmony. The new item, Q32, which correlated with this factor, is also relevant to couple harmony. The four items evaluate the level of harmony in a relationship. Since harmony is a crucial aspect of "functioning in unison with a partner," this factor is also essential.

Factor 4, Sharing, consists of three items that clustered together in the former study in a factor labelled Communication. Since it retained the same item cluster in this study, Factor 4 appears to be robust. Two items loading on this factor, Q18 and Q27 (see Table 8), involve communication, but Q16 does not. Hence a broader title of "Sharing" was chosen for the factor. Note that items Q18 and Q27 are quite similar to items loading on Factor 6, Mental Closeness (see Table 10). Perhaps these two factors could be combined in future studies? Sharing is an adaptive element of "functioning in unison with a partner". It can lighten the burden of labour and responsibility. This factor, to a lesser degree than Factor 6, is helpful in exploring feelings of closeness to a spouse.

Factor 5, Apprehension or Concern, consists of three items, two of which were located in Factor 2 in the previous study (see Table 9). The former factor was not replicated in the current study. Since the two items, Q24

and Q28, formed a new factor in the current study, the responses to these items may only be representative of the current sample. Concern or apprehension did not function as the common element in a factor in the former study, although it is assumed to be the common element in Factor 5. Moreover, Apprehension or Concern is not thought to be an important aspect of "functioning in unison with a partner." Consequently this factor requires further verification or replication in future studies.

Factor 6, Mental Closeness, contains two new items, Q31 and Q30, which were not included in the previous study. The two items show fairly high loadings on this factor (see Table 10). A third item, Q5, also loads on this factor. In the last study, Q5 clustered with the items found in Factor 4, labelled "Sharing." Although Q5 would be equally at home in the factor called "Sharing," it takes on a different meaning when grouped with items Q31 and Q30. The marital relationship this factor describes is not only one in which sharing may occur, but it is one of intimacy or "Mental Closeness." In view of the similarity between this factor and "Sharing," the combining of the two factors into one would be desirable.

Factor 7 is a doublet; it is the only factor which contains two items. However, it may not be "trivial," as Gorsuch (1983) has described such factors, because its loadings are above .30. In fact, it has relatively high loadings of .78 and .70 for Q2 and Q8 respectively (see Table 11). Q2 asks if it would upset the respondent if his/her spouse had lunch with a friend of the opposite sex. Q8 asks, would it disturb the respondent if the spouse occasionally kissed or hugged friends of the opposite sex. If the items are answered with a high frequency response such as "quite upset or very upset," one can infer that the respondent may feel that the



relationship is threatened. This explains why the factor is named Fear of Replacement. In view of the fact that this factor did not previously exist as a separate component, it may not be as important as some other factors which did. This factor also requires verification or replication in future studies.

Factor 8, Security/Insecurity, contains three items, Q10, Q3 and Q4, which did not cluster together in the previous study at all (see Table 12). Item 4 was previously located in a factor named "Security/Insecurity" with another item that was dropped. Item 3 previously correlated with a factor labelled "Short-Term Separations" which was not replicated in this study. Item 10 previously correlated with a factor called "Trust." Since none of the items loading on this factor previously clustered together, Factor 8 appears to be the least robust factor. The items comprising Factor 8 examine a respondent's level of security or insecurity. However, this task is also performed by Factor 1, which assesses affective responses to separation. Therefore Factor 8 may be redundant. A summary of this discussion will now follow.

The items of the AAS were hypothesized to consist of two separate components of attachment. The two components of attachment were not found to be totally independent of each other in this study as they were in the last. Although the first component was independent, the second component was not. Therefore, the hypothesis was only partially supported.

The second component displayed less stability than the first. It showed a change in the position of the factors that address this component, and the item composition of several factors was altered from the previous

study. This finding was accounted for by the large reduction of items from the previous study. In order to have retained all 50 items, the questionnaire would have been too lengthy.

Even though the hypothesis was only partially supported, three factors were found to be robust across populations. The robust factors which were replicated in this study were Factors 1, 2 and 4; they retained the same item clusters in this study as in the last. Factor 3 was less robust, but it showed partial stability as two of its items were previously correlated. The stability of Factor 6 has not been tested because it contains new items which were not included in the previous study. In view of the similarity between Factor 4 and Factor 6, it was recommended that the two factors be combined. The aforementioned factors were all considered to be important aspects of "functioning in unison with a partner," the second component of attachment.

The remaining factors were considered to be less important. They are Factors 5, 7 and 8. Since they did not exist as separate components in the previous study, they were not considered to be a critical aspect of "functioning in unison with a partner." Their instability was partially explained by the paucity of salient variables loading on these factors. Therefore the replication of the robust factors coupled with their high loadings and interpretability provide ample evidence that the revised AAS appears to measure affectional bonding in this new sample of respondents.

Factor Analysis (re: Confidants)

In the factor analysis for confidants, the data were not significantly reduced by Factors 4 to 9. The aforementioned factors were primarily singlets and doublets. Gorsuch (1974) stated that factors that do not have several salient loadings are poorly defined and have little basis for interpretation. It is not desirable to extract the same number of factors as variables. Since the data were not significantly reduced by the singlets and doublets comprising Factors 4 to 9, these factors were not retained. Apparently the items loading on Factors 4 to 9 were not as meaningful in the context of friendships as they were in the context of marital relationships. This is explicable because the items of the AAS were primarily designed to assess spousal relationships. Nevertheless, the findings of the confidant analysis compliment the findings of the spousal analysis. In the spousal analysis the second component showed less stability than the first component, whereas in the confidant analysis the second component showed more stability than the first.

The first component was indexed by Factor 1. This factor was not robust for confidants but was robust for spouses. The two items that rendered Factor 1 in this analysis less interpretable loaded onto "Fear of Replacement" in the spousal analysis. Perhaps "Fear of Replacement" poses the same threat to confidant relationships as does separation. For example, respondents may feel their relationship can be hindered by the inclusion of a third party, one whom the confidant "occasionally kissed or hugged." Similarly, they may feel their confidant might replace them with a third party during a lengthy separation. However, this interpretation is highly speculative and will have to be investigated by future research.

The second component of attachment was addressed by Factors 2 and 3 in this analysis. These factors were found to be more robust than the corresponding factors in the analysis for spouses. They retained the same item clusters in this study as in the previous study. It appears that the items loading Factors 2 and 3 are more critical to "functioning in unison with a partner" than many items loading on Factors 4 to 9. Moreover, the items comprising Factors 6, 7, 8 and 9 appear to have little bearing on one's relationship with a close friend.

The replication of Factors 2 and 3 in this analysis support the existence of the second component of attachment, "functioning in unison with a partner." The replication of Factor 1 in the analysis for spouses supports the existence of the first component of attachment, "affective responses to separation." Taken together, the findings of the two factor analyses compliment each other. The findings combine to support the existence of two independent components of attachment found in this study as in the last.

#### Comparison of AAS with Miller Social Intimacy Scale (MSIS) and Dyadic Adjustment Scale (DAS)

A fifth measure of construct validity was obtained from a Pearson product-moment correlation analysis. The first analysis compared the AAS and the MSIS scores for spouses. The confidence interval for the population correlation ( $\rho$ ) consisted of values in the moderate range. Therefore the correlation between the two scales was moderate as predicted. This confirmed the hypothesis that the AAS measures a construct that is similar to social intimacy. The moderate correlation found between the two

scales also indicates that attachment differs from social intimacy. The previous study showed a similar moderate correlation of .48 between the scales. These findings support the construct validity of the AAS.

Additional construct validation was subsequently performed with the AAS factor composites. When comparing the composites with the MSIS it was found that only half of the factors (i.e., Factors 1, 3, 4 and 6) measure a construct that is similar to social intimacy. The remaining half of the factors bear no similarity to social intimacy whatsoever. It was apparent by the names of the three related factors, "Harmonious Functioning, Sharing and Mental Closeness", why these factors were found to be closely associated with social intimacy. Although its relationship is less apparent, Factor 1, Long-Term Separations was also found to be significantly associated with the MSIS, but to a lesser degree. This finding shows that people who are socially intimate perceive long separations from their spouse to be more aversive than people who are less intimate.

The third analysis compared the AAS with the DAS scores for spouses. The correlation was slightly lower than predicted. The confidence interval obtained for rho consisted of values ranging from low to moderate. Therefore it cannot be concluded that there is more than a modest similarity between attachment and dyadic adjustment in the population. The correlation indicates that attachment is less similar to dyadic adjustment than it is to social intimacy.

The DAS was also correlated with the factor composites of the AAS. In this analysis three factors showed a stronger association with the DAS than

did the AAS as a whole. Therefore the three factors measure a construct that is similar to marital adjustment. These factors were Factor 3, 4 and 6, Harmonious Functioning, Sharing and Mental Closeness, respectively. The similarity between these factors and marital adjustment is obvious. Individuals who function more harmoniously and are mentally closer, sharing their problems and thoughts with their spouses, are more likely to show better marital adjustment than individuals who do not. Despite the similarities between the correlated factors and the DAS or MSIS, the differences between them were greater than their similarities.

Since the differences between the AAS and DAS were greater than the similarities, respondents who scored near the mean in attachment did not always score near the mean in dyadic adjustment. Correspondingly, those who scored considerably above or below the mean in attachment, did not necessarily score above or below the mean in dyadic adjustment.

It was assumed that respondents who scored low on the MSIS and DAS were having marital difficulties based on the normative data. Some even disclosed that they were having serious problems in their relationships and were recruited by marriage counsellors. Therefore each subject's MSIS and DAS scores were visually compared with the MSIS and DAS mean scores. It was interesting to find that 35 subjects scored as low as the MSIS clinical sample mean. In fact 28 of the 35 scored far lower than the clinical mean. The DAS scores were not quite as low as the MSIS scores. Twenty-four subjects scored low, which was defined as 1 SD below the DAS mean. Six of this group scored near the mean of the DAS divorced sample. The inclusion of a fair number of subjects in the distressed marriage category allowed for a better comparison between the AAS and the other marital scales.

The distinctions between the AAS and DAS or MSIS were sharply illuminated when perusing the aforementioned scale scores. Only 10 of the 35 respondents who scored at or below the clinical sample mean of the MSIS, scored low on the AAS (low was around 1 SD below the AAS mean). Similarly, of the 24 subjects who scored low on the DAS, only 7 subjects scored low on the AAS. Both comparisons imply that the majority of people in distressed marriages may not have attachment problems. Even when major dyadic maladjustment is present and interpersonal intimacy wanes, more than half of the respondents maintained fairly stable levels of attachment. This was found in the previous study as well (Shane, 1982). Therefore spousal attachment seems to be highly resilient to disturbances in social intimacy and to dyadic adjustment.

In total, out of 40 respondents who scored low on the MSIS, DAS, or both, only 10 scored low on the AAS. Since 30 people in the impaired marriage category scored at or above the AAS mean, their bonds appeared to be intact. Therefore, it seems that interpersonal intimacy and dyadic adjustment usually deteriorate well in advance of the attachment bond. This finding was also noted in the previous study (Shane, 1982).

There are several reasons why interpersonal intimacy and dyadic adjustment deteriorate well before the attachment bond. Firstly, attachment may develop independently of social intimacy or dyadic adjustment. This was demonstrated by infants who became attached to abusive mothers (Ainsworth et al., 1978) and by adults who became attached to their spouses even though their marriages were arranged by their parents (Weiss, 1982). Secondly, attachment is enduring over time and space whereas social intimacy and dyadic adjustment are not necessarily enduring.

For example, dyadic adjustment can change if an individual alters his/her values, attitudes or beliefs because changes in one member of a pair can have an immediate, dramatic effect on the marital relationship. Attitudinal changes would have far less of an immediate impact on attachment because they are not necessary elements for the development of attachment. What is necessary in fostering attachment, is that a couple live together in close proximity (Weiss, 1982). This factor in addition to the former reasons, explain why spousal attachment is so resilient to disturbances in social intimacy and dyadic adjustment and why these elements are less enduring.

Perhaps friendship bonds are less resilient than spousal bonds because of their lesser intensity or magnitude. It was shown that the respondents did not exhibit as intense attachments to confidants as they did to their spouses. This was illustrated by the mean of 101.52 obtained for spouses as compared with the mean of 62.28 obtained for confidants. However, high levels of social intimacy were found for both spouses and confidants. This was shown by the MSIS mean of 154 for spouses and 138 for confidants. There appear to be larger differences between spouses and confidants in attachment than in social intimacy. Unlike the MSIS, the AAS strongly discriminates between responses to spouses and confidants.

The resilience of the attachment bond in primary relationships is adaptive. Even though a relationship may deteriorate it keeps mates together in order to protect children, thereby promoting survival (Bowlby, 1969). If spousal bonds were as fragile as friendship bonds, relationships among spouses would be even less permanent than they are today. After a few major disagreements marriages would likely be broken. However, because



of the resilience of the attachment bond many people in distressed marriages are intensely attached to their spouses. In fact the intensity of their attachment helps explain why some people remain in distressed marriages. It appears that the attachment bond is as important a factor in keeping spouses together as is dyadic satisfaction or social intimacy. When all of these elements become severely impaired, separation is predicted. This comparison of spousal bonds with the MSIS and DAS concludes the validation procedure of the AAS.

The validation procedure completed the first purpose of this research. The first purpose was to cross validate the AAS and provide a standardized measure of an affectional bond in a marital relationship. The predicted findings confirmed that the AAS is sufficiently sensitive to discriminate between marital and confidant relationships. As a result of the cross-validation, the mean score for spouses can be utilized as a standardized measure of attachment in a marital relationship.

The validation procedure also completed the second objective of the study, to ascertain whether the AAS can differentiate between attachment relationships with confidants, and relationships with casual friends wherein there is no attachment. The predicted findings showed that the AAS can significantly discriminate between relationships of strong bonding (re: spouses), moderate bonding (re: confidants) as well as absence of bonding (re: casual friends). This finding enriched the nomological net as Cronbach and Meehl (1966) recommended. Moreover, it was demonstrated that attachment is similar to social intimacy but it differs from both social intimacy and dyadic satisfaction vis-a-vis a spouse.

### Demographic Data Analysis

Seven demographic variables were correlated with AAS scores for spouses as well as for confidants to determine whether they were significant. These variables were sex, education, SES, age, number of children, and MSIS and DAS scores. Each variable will be discussed in turn.

The first demographic variable, namely the sex of the respondent, was not found to be a significant factor associated with marital bonding. Thus males and females did not differ significantly in intensity of attachment to the spouse. Moreover, the difference between the male and female attachment scores was found to be very minimal ( $r = -.03$ ). This finding supports the finding from the previous research, wherein no significant difference was found (Shane, 1982).

The notion that males are as intensely attached to a spouse as are females, is consistent with the attachment literature. Bowlby's case histories of children separated from their parents indicated that there were no sex differences in magnitude or intensity of attachment. Similarly, Ainsworth et al. (1978) who assessed the quality of infant attachment did not find sex differences in attachment to the caregiver. Thus the finding that there are no significant sex differences in the magnitude of bonding to a spouse appears to be valid.

The second variable tested for significance was education. As detailed in the method section, this sample was highly educated and 40% had attained a college degree. Education was found to be significantly correlated with attachment score for spouses. People who received more education (i.e., college grads) exhibited a higher level of attachment to the spouse than

those who received less education (i.e. high school grads). This finding was unexpected. One would expect highly educated people to hold more responsible jobs and earn more money, which would foster independence in their marital relationships. In this study, people who functioned more independently scored lower in attachment. Consequently, it was expected that increased education would result in lower attachment scores. However, this was not the case in this research.

Perhaps highly educated people perceive that it is socially desirable to show strong attachment to a spouse. They may be aware of the importance of bonding in cultivating the permanence of their relationship. Less educated people may equate bonding with dependency and therefore may perceive it as undesirable or even as negative.

The negative connotation of bonding is grounded in an historical tradition. Not so long ago, there was a traditional norm which encouraged the segregation of men and women. Males congregated with each other in business, politics, sports, private clubs and bars. Women formed close-knit groups with family members and other women. At that time, it was considered a sign of weakness to be tied to a spouse, and it was looked upon as dependent behavior. Dependent behavior in men was considered to be a feminine trait and was frowned upon by both sexes (Tavris and Offir, 1977). Perhaps the less educated are still influenced by this traditional perception.

The third variable tested for significance was SES. Unlike education, there was no significant correlation found between SES and attachment scores for spouses. This may seem surprising because SES is sometimes

based on education, and level of education was shown to correlate with attachment score. However in this study, SES referred only to income, which ranged from less than \$20,000 to over \$75,000 annually per family.

Perhaps the reason that SES was not found to be significant, was a function of the characteristics of this particular sample. The lower income groups attained the same level of education as the higher income groups because a large proportion of the lower income groups had college degrees. People with college degrees were found to exhibit stronger attachment to a spouse than high school graduates. The lower income groups in this study may not be representative of lower income groups in the general population because many were young college graduates who had not yet established successful careers for themselves. This may clarify why there were no significant differences in attachment found among the various SES groups in this sample. However, there may be differences found in other samples.

The fourth demographic variable tested for significance was age. The age range in this study was very wide, ranging from 22 to 65 years. Nevertheless, it was found that the age of the subject was not significantly associated with attachment score, and older subjects did not score higher or lower in attachment to the spouse than younger subjects. The finding that age is not a significant factor is consistent with the finding of the previous study (Shane, 1982).

The presence or number of children a respondent had did not appear to correlate with bonding. It might be expected that people who have children would be more intensely attached to their spouses than people who do not.

This expectation comes from the attachment literature itself. Bowlby (1969) stated that mate bonding serves to protect a child. His statement can lead to the inference that the presence of a child fosters attachment. In fact many people believe that children bring spouses closer together. The data in this study revealed no relationship between number of children and attachment score.

In a way this finding is consistent with other data. If children tied spouses closer together there would be fewer divorces among couples who have children. This is obviously not the case. It is common knowledge that children can bring additional stress into a relationship. For some, the parent-child bond is perceived as threatening to the mate bond. Perhaps it is not the presence of children, but rather the propagation of children that fosters attachment. The act of procreation imposes intimacy in a relationship irrespective of the begetting of children.

The correlations of the demographic variables with AAS scores for confidants were subsequently inspected for significance, and will now be discussed. Sex differences in score, which were not found to be different with regard to spouses, were significantly correlated with attachment scores for confidants. The correlation revealed that females were significantly more attached to a confidant than were males. This finding is congruent with other research. In a review of the literature, Buunk (1983) outlined the differences between the sexes in friendship. He concluded that emotional attachment, expressiveness and self-disclosure of intimate information are often more characteristic of female relationships. Male friendships have, in general, a more instrumental and action-oriented nature. Female friendships are based more often on the affective

characteristics of the "other." Similarly, Berndt (1982) declared that females have more intimate and exclusive friendships than males.

Other variables such as education, SES and age were not found to be significantly associated with attachment to a confidant or best friend. Whereas education significantly correlated with attachment to a spouse, it showed a nonsignificant correlation with attachment to a confidant. This finding is understandable. Social norms portray relationships with friends as desirable, especially with friends of the same sex. It is not considered to be a sign of weakness or dependency, but rather a sign of good character to display closeness to a friend. Moreover, the need for affiliation is developmental and universal; it applies to people in all walks of life. There is an abundance of literature outlining the benefits of a single close friend for both young and old as well as for rich and poor. Therefore it is not surprising that age, education and SES were not found to be significantly associated with attachment to a confidant.

The next demographic variable inspected for significance was the presence or number of children a respondent had. Some respondents (i.e., 28%) had 3 or more children. Although this variable was not found to correlate significantly with attachment to a confidant, the correlation between number of children and attachment score did approach significance,  $r = -.16$ ,  $p = .052$ ,  $n = 105$ . Hence people who had more children were less attached to a confidant than people who had fewer children, but the difference was not significant.

If a larger percentage of the sample had had more children, perhaps the difference between respondents who had more children and respondents who

had less children would have been significant. People who have more children have less time for social activities or for friends. Housework time increases up to 10% with each child (Tavris and Offir, 1977). Therefore the association between number of children and attachment to a confidant may be different for other samples.

The correlations between the AAS scores for spouses and the two marital scales administered, the MSIS and DAS, were discussed in the previous section. The correlation between attachment to a confidant with these marital scales will now be discussed. It was noted in the results section that a small but significant negative correlation was found between the attachment scores for confidants and the MSIS scores for spouses. This indicated that people who are more intensely attached to a confidant show a lesser degree of interpersonal intimacy with a spouse. A similar but stronger negative association was found with the DAS. People who are more intensely attached to a confidant also tend to show poorer marital adjustment.

The hypothesis that people become more attached to a confidant if they have marital problems is tenable. Marital problems are known to be one of the primary stressors in life. Consequently, turning to friends for support appears to be a highly adaptive response. Social network theory argues that social support has been shown to be extremely beneficial in moderating the effects of both chronic and acute stress. In fact the availability of only one confidant, someone to confide in and to share one's troubles with, was the single strongest predictor of well-being (Kahn and Antonucci, 1980). This is consistent with the divorce literature. It also advocated that turning to friends for support lessens the problems of

adjusting to marital separation (Spanier and Casto, 1979). The reverse is also conceivable: A close attachment to a confidant may, through jealousy, cause marital problems.

A positive association was also found with attachment score. Attachment to a confidant was positively correlated with attachment to a spouse for people in harmonious marriages. Thus the happily married people who are more intensely attached to their spouses tend to be more intensely attached to their closest friends as well. It follows that people who are happily married and are less intensely attached to their spouses tend to be less intensely attached to their closest friends. This finding is substantiated by the attachment literature. Schaffer and Emerson (1964) initially documented that attachment generalizes across social relationships during childhood. The generalizability of attachment was also documented by Greenberg et al. (1983). They found that adolescents who sought proximity with their parents more frequently, tended to seek proximity with peers more frequently as well. The generalizability of attachment across social relationships attests to its importance as a facilitator of good adjustment and adaptation to life.

#### Relationship Between AAS Score and Marriage Duration

The third objective of this study was to demonstrate that the intensity of bonding diminishes over time. This hypothesis was predicted on the basis of findings from the pilot study and from the former research. A correlation analysis showed that a small but significant, negative correlation exists between spousal attachment score and duration of marriage. The correlation indicated that as the duration of a marital



relationship increased, the intensity of bonding decreased. It was interesting to find that the size of the correlation coefficient between spousal attachment score and duration of marriage was the same in this study as in the last,  $r$  was  $-.36$ . The combined findings strengthen the hypothesis that spousal attachment decreases in intensity over time. The notion of a decrease in intensity over time generated the succeeding hypothesis.

The hypothesis stated that significant mean differences would be found among the five subgroups (who were married for different time periods). The ANOVA performed on the subgroup mean scores showed that the hypothesis was supported. Subsequently, to determine whether each group mean significantly differed from every other group mean, a Newman-Keuls analysis was performed. This analysis indicated that subjects in Group 1, whose relationships encompassed 6 months to 2 years, scored significantly higher in attachment than subjects in Group 3, 4 and 5. However, no other significant differences were found among the group means.

Note that the mean attachment scores of Groups 4 and 5 are very similar; they are 95.67 and 95.41 respectively (see Table 15). The minimal difference between the two group means may relate to the larger proportion of problematic marriages found in Group 4. Thus marital disharmony appears to have decreased the attachment scores somewhat in that group.

Although each subgroup mean did not significantly differ from every other subgroup mean, the theorem that the intensity of bonding diminishes over time was supported by the findings. The findings were consistent in three studies, the pilot study, the previous study and the current research.

The validity of this theorem was further corroborated by responses to the questionnaire. The respondents primarily claimed that they found it easier to be away from their spouse today as opposed to 2 to 10 years ago. The theorem was also substantiated by the nonsignificant correlation found between age and attachment score. Thus the significant difference in score among the 5 subgroups could only be due to duration of marriage and not to age. It was noted that older respondents in new marriages scored as high as young respondents in the same marriage duration group. However, to fully address issues of causality, and to assess changes in attachment rather than differences in attachment, longitudinal research is desirable.

The finding that spousal attachment decreases in intensity over time supports Bowlby's (1973) theory of attachment. He claimed that mate bonding approximates the same model as infant bonding. It was therefore proposed that during the development of attachment, adults as well as infants engage in increased touching, looking, listening, smiling and vocalizing behaviors. These behaviors are directed toward seeking or maintaining a high degree of proximity to the loved one. Short separations at these stages evoke emotional distress and clinging behavior. Finally, after the attachment is firmly established, less distress is manifested at separation and proximity-seeking decreases. Thus, the intensity of both adult and infant attachment decreases over time (Shane, 1982).

The finding that people in short-term marriages are more intensely attached than people in long-term marriages is explicable. People in short-term marriages may feel less secure in their relationships because their spouse has not yet had sufficient opportunities to demonstrate his/her loyalty. Therefore temporary separation is more anxiety provoking

for people in short-term marriages and they respond with more intense negative affect (Shane, 1982).

It should not be inferred that people who show more intense attachment (high scores) are more attached to their spouse. They appear to be more intensely attached because they respond with more negative affect to threat of separation. The negative affect is a manifestation of their insecurity in the relationship, and not necessarily an indication of a stronger bond. Some are insecure about separation because they may lack trust. Others feel insecure because their bonds are in an early stage of development, and it takes two years of marriage for an attachment to be fully formed (Weiss, 1975). So they cling to a spouse like an insecure child clings to her/his mother. It may not be a quantitative difference (because insecure children are not more strongly attached than secure children), but rather a qualitative difference in attachment. Hence people in short-term and long-term marriages may be equally attached to their spouses. This hypothesis could be tested by future studies.

The notion that persons in short-term marriages are as intensely attached as those in long-term marriages was supported by the divorce literature. Brown et al. (1980) found that people who were married for a short period of time had the same amount of separation anxiety as people who were married for a longer period of time. Their finding supports Weiss(1975) who claimed that it takes two years of marriage for an attachment to be fully formed. Once established, it tends to persist regardless of the length of marriage. Apparently Weiss' theory of attachment is congruent with Bowlby's (1973) theory.

To probe the finding that spousal attachment decreases in intensity as marriage duration increases, a step-wise regression analysis was performed. The analysis was conducted with the scale items to determine which items are significant predictors of marriage duration. Four items entered into the equation accounting for 31% of the variance in score. In the previous study 28 items entered into the equation and accounted for 70% of the variance in score.

The four significant predictors of marriage duration, as presented in Table 16, were included in the 28 items that predicted marriage duration in the previous research. Still, the four items did not have the highest beta coefficients in the former research. The significant predictors with the highest beta coefficients were Q20, Q24, and Q22. These items did not even enter into the equation in this analysis because they had no additional variance to contribute. However, the third item, Q22, was very similar to three of the four significant predictors found in the current research, Q29, 17 and 26. The former items along with Q22 evaluate responses to long-term separation.

Perhaps the reason Q20, Q24 and Q22 did not provide any additional variance in the current research relates to this specific sample. The respondents in this study had far more questionnaires to complete. The previous sample received three whereas the current sample received six questionnaires. The current sample may have been less discriminating in their responses because of the lengthy time taken by the extra questionnaires. Another possible reason is that this sample was more heterogeneous than the previous sample. The extent of the heterogeneity was indicated by the description given of the sample in the Method section.

In the current sample, three of the four significant predictors of marriage duration assessed responses to long-term separation. The first predictor, Q29, indicates that the more recently married respondents would feel more upset than longer married respondents if they had to go away without their spouse for several months. The second predictor, Q17 indicates that more recently married respondents would feel more apprehensive than longer married respondents if their spouse had to go away without them for several weeks. However, the responses to Q26, the third predictor, are contradictory. They show that the longer married respondents would feel more apprehensive if their spouse chose to go away for several weeks without them than the more recently married respondents. The longer married subjects responded with more apprehension to this item in the former study as well. This data does not support the finding that spousal attachment decreases in intensity as marriage duration increases.

It is plausible that the more recently married respondents had difficulty identifying with Q26. They may have felt it is unlikely or even inconceivable for their spouse to choose to go away for several weeks without them. It is also unlikely that any of their recently wed friends or acquaintances had gone on holidays without their spouses. Conversely, the longer married respondents may have had many opportunities to experience temporary separations from their spouses. If the opportunities were not personal ones, then they likely knew about people in their milieu who went on a skiing, golfing or shopping holiday without their spouse. Longer married people are usually more financially able to do so. Therefore, longer as opposed to shorter married subjects would likely perceive that their spouse might choose to go away for several weeks

without them. If this is the case, than it is understandable why the longer married subjects responded with more negative affect to this item.

Although responses to Q26, the third predictor were contradictory, responses to the fourth predictor were consistent with the data. The fourth significant predictor of marriage duration, Q11, did not assess responses to separation. It asked, "if your spouse occasionally arrived late would you accept his/her explanation for being late?" The responses indicated that the more recently married subjects were less likely to accept a spouse's explanation. Their responses are consistent with the findings that people who are married for a shorter duration feel less secure in the relationship than people who are married for a longer period of time. They feel less secure and perhaps less trusting because their spouse has not had the opportunity to demonstrate his/her loyalty.

A brief review of the results of the step-wise regression will now be presented. The four best predictors of marriage duration were significant predictors in the previous study as well, but they did not have the highest beta coefficients in that study. Thus the best predictors in this study were not the best in the former research. These differences were attributed to differences in the two samples. The best predictors of marriage duration in the current sample primarily assessed responses to separation. The responses to three of the four predictors were consistent with the findings, that recently married respondents are more intensely attached to their spouses than longer married respondents. However, responses to one of the four predictors (Q26) were contradictory in this study as well as in the last. It was argued that the more recently married subjects may have had difficulty identifying with this item whereas the

longer married subjects did not. This may account for why Q26 contradicts the hypothesis.

In summary, the data of the step-wise regression analysis are weighted in favor of the predicted hypothesis regarding marriage duration. It is possible that the significant predictors may vary from one study to the next. However, it is believed that future studies will corroborate the finding that the intensity of bonding increases as marriage duration decreases, and its corollary, the intensity of bonding decreases, as marriage duration increases. Longitudinal research would be desirable to verify this finding. This completes the third objective of this study.

#### Relationship Between AAS Score and Friendship Duration

Although it was predicted that the intensity of marital bonds would decrease as marriage duration increased, no predictions were made for friendship bonds. To determine if friendship bonds follow a given pattern such as marital bonds, an ANOVA was performed on the means of the five friendship duration subgroups. The ANOVA indicated that there were no significant differences among the groups. Thus friendship bonds of 20 or more years were found to be as intense as bonds of two years duration.

Friendship bonds were shown to generally be far less intense than marital bonds. The mean score for close friends or confidants was 62.28 whereas the mean for spouses was 101.52. Therefore the intensity of friendship bonds is minimal as compared with the intensity of marital bonds. Only a small proportion of the respondents (such as the top 10%, whose scores overlapped with the bottom 10% of the spousal bonds) appeared

to be as intensely attached to close friends as to spouses. However, spousal scores in this range were considered fragile because many whose spousal scores fell into this range were purported to be having marital problems. Therefore, attachments that would be categorized as very intense and close in the context of a friendship might be considered weak or fragile in the context of a marriage.

Given that friendship bonds are far less intense than marital bonds, it is not surprising that the intensity was not found to decrease when the duration of the friendship increased. If friendship bonds decreased in intensity over time, there would be very little, if any, emotional attachment remaining in the relationship. Then close friendships would become as distant and devoid of affect as relationships with casual friends or acquaintances.

It is more likely that one would expect close friendship bonds to increase in intensity over time. The proverb that old friends are the best friends is a widely held belief. The data of this study did not support this belief. However, the scores of the friendship duration subgroups shown in Table 15 indicate that with the exception of Group 2, the mean scores gradually increased as the duration of the friendship increased. The increase was obviously minimal and not significant.

It was previously stated that many respondents in this sample showed relatively little attachment to close friends. In fact, 55% of the sample scored lower than the mean when they described their relationship with a confidant. Some even scored in the range of casual friends, showing no emotional attachment to a confidant. The absence of attachment was present



in four of the friendship subgroups (see Table 15) because scores as low as 45, the mean score for a casual friend, were found in four subgroups (except Group 2 which had a low of 50). The low level of attachment shown by a large proportion of this sample (55%) may have differentially attenuated the mean scores of some of the subgroups. Perhaps if only subjects who declared that they had a confidant had been administered the AAS, the results of this analysis would have been significant. More research is required for confidant relationships to determine if the intensity of friendship bonds increases as the duration of the friendship increases.

#### Comparison of AAS with PBS

The final purpose of this research was to show that an association exists between childhood attachment to a parent and later bonding with a spouse. To probe the association, a correlation analysis compared the respondents' AAS scores for spouses with their scores on the "overprotection" dimension of the Parental Bonding Scale (PBS). It was predicted that the correlation between the AAS and PBS scores would produce an  $r > .5$ . This prediction was not supported. In fact a significant correlation was not found between the two scale scores.

Perhaps a significant correlation between the scales might have been found only for specific persons, such as for people who are insecurely attached. Insecure attachment should be denoted by high or low AAS scores. However, low AAS scores might signify that people are in the process of detaching prior to separation, and may not relate to their PBS scores. Similarly, scores near the AAS mean may be more reflective of a harmonious

marriage than a former relationship with a parent. In the aforementioned cases the AAS scores would not correlate with the corresponding PBS scores. Consequently insecure attachment is easier to detect in respondents who score very high or low in attachment, but score at or above the mean on the MSIS and DAS. Their relatively high MSIS and DAS scores rule out marital discord.

A low AAS score coupled with high or mean MSIS and DAS scores suggests that a strong bond has not been formed. Low AAS scores indicate that long separations would not be disturbing to the individuals because they expressed little distress at threat of separation. Their responses resembled the behavior of "avoidant" children. This behavior is characteristic of insecure attachment and serves as a defence mechanism. The mechanism helps maintain independence and protects against painful negative feelings if the attachment figure is inaccessible, unresponsive or rejecting.

A high AAS score coupled with high or mean MSIS and DAS scores is also suggestive of insecure attachment. Even short separations are emotionally painful to these people because they are either dependent on their spouse or lack confidence in his/her loyalty to the relationship. Their responses resembled the clinging behavior of "resistant" children. Both the "resistant" and the "avoidant" children were anxiously attached.

A similar extrapolation was adopted by Greenberg et al. (1983) based on the literature on infant attachment. These researchers developed a scale to measure adolescent attachments to parents and to peers. They interpreted low proximity seeking and low felt security as avoidant

attachment. High proximity-seeking and low felt security was indicative of anxious attachment. Finally, secure attachment was thought to be characterized by moderate amounts of proximity-seeking and high felt security.

The former interpretation led to the visual scrutinization of the PBS responses of people who scored very low or high on the AAS. This search showed that there were 10 subjects who scored at or above the MSIS and DAS mean and who scored at least 1 SD below the mean in attachment. Five of them had described their parents as controlling, unloving, distant, cold, etc. The remaining five described their parents as somewhat overprotective. After the low scores were perused, the PBS responses of those who scored high in attachment were carefully examined.

There were 21 subjects who scored at or above the mean of the MSIS and DAS and who scored at least 1 SD above the mean in attachment. Ten of these subjects were newlyweds, which may account for their intense attachment. Of the remaining eleven subjects, six described their parent as overprotective and/or controlling. Five subjects had no discernable parental problems. However, one of the five disclosed that she hated separating from her spouse. When she was 9 years old her parents went on a long holiday and she became very panic-stricken that they would not return. She had never forgotten that fearful time in her life.

It is conceivable that those who scored high or low in attachment and showed no parental problems, experienced such incidents during their childhood. There were no questions concerning childhood separations from parents, discontinuity of parenting, death of a parent, or other important

predictors of insecure attachment. The inclusion of these items would have extended the length of the questionnaire to an unwieldy size. Perhaps if such items could have been included it would have painted a clearer picture of the association between the AAS and the PBS.

Despite these obstacles, 53% of the subjects who scored at the extremes on the AAS had shown parental problems. These subjects were thought to be insecurely attached. However, if a significant correlation between the AAS and PBS is only discernable for the insecurely attached, it is understandable why such a relationship was not found. The insecurely attached subjects were in the minority. Therefore the large majority of subjects showed no relationship between their scores on the two scales.

The theorem of secure and insecure attachment was supported by Oczkowski (1981). He reported that nurses who scored both low and high on the AAS showed an avoidance reaction to schizophrenics. The reaction was indicative of insecure attachment. Nurses who scored near the mean did not show avoidance. Oczkowski reasoned that securely attached nurses were better able to relate to detached schizophrenics (Shane, 1982).

Secure attachment is exemplified by a moderate AAS score, that is a score that is near the mean. It indicates that a strong bond has been formed. People who scored in this range did not respond with negative affect to short separations. They also felt more secure in the absence of their partner and were able to function more independently. Thus it was believed they were securely attached. The intensity of attachment, as measured by the AAS, seems to relate to secure and insecure attachment. Low and high AAS scores suggest insecure attachment, while scores near the mean suggest secure attachment (Shane, 1982).

### Criticisms and Revisions

There were numerous criticisms given by the respondents who were administered the AAS. Some criticisms were the same as those of the previous sample. The most common complaint was that the questionnaire was repetitive because the same questions were asked over and over again. The informants were told why it was necessary to repeat items naming anger, apprehension, depression and upset as possible affective responses. Some people never get angry while others never get depressed. For example, one person complained about the reference to anger, he thought anger was inappropriate because he never felt anger, while another person claimed she never gets depressed. Therefore, in order to include all possible emotional responses, it was necessary for the AAS to be repetitive (Shane, 1982).

It is possible to eliminate the repetitious aspect of the AAS by dropping some of the items and shortening it. The regression analysis performed on the AAS scores with the scale items indicated that 97% of the variance in score is accounted for by only 16 items. According to the regression equation, half of the AAS items (16 items) could be retained and the other half could be eliminated by giving up only 3% of the variance. The 16 most significant predictors of attachment score are items Q9, 15, 32, 17, 12, 10, 25, 16, 3, 13, 31, 1, 14, 21, 18, and 2. However, in order to administer these items, it would be necessary to redevelop a standardized measure of attachment. Unfortunately, these items do not include Q29, 11 and 26, the best predictors of marriage duration. Therefore, some of the most significant predictors of marriage duration (high score) would be eliminated.

One subject thought the term "upset" was very limiting because it did not include feelings of apprehension. Moreover, she thought that anger and depression were more intense emotional responses than feeling "upset." The AAS contains two items, Q24 and Q29, that use the term "upset." The term was used to alleviate repeating the items three times, naming anger, depression and apprehension. Hopefully, the lack of clarity incurred by the term "upset," did not seriously effect the scores.

Another subject asked for clarification regarding items that addressed weekend separations. He wanted to know whether more than one weekend was involved. He said that he could accept one weekend, but not several weekend separations. The respondent was informed that it is possible that more than one weekend would be implicated. In the previous research respondents were told to interpret items in accordance with their own life style. It was believed that anxiously attached respondents would respond similarly to one as opposed to three weekend separations.

The author now believes that the frequency of the separations referred to by the AAS should closely approximate the infant attachment literature. Many mothers and/or fathers leave older children for a weekend to visit a sick relative, or even to take short holidays. Thus if several weekend separations evoke more negative affect than one weekend, it is desirable for the negative affect to be expressed. The responses of subjects to these items will parallel their responses to real life situations.

There were two items that perplexed the respondents. The first was Q4, which asks, "are you comfortable at a party when s/he is: 1. not there 2. in another room 3. far across the room 4. near you and 5. next to you?"

Many subjects claimed they felt comfortable in most or all of the situations listed and did not know which answer to choose. It had to be clarified that they should consider the first listed situation (i.e., 1. not there). If they would feel comfortable in the situation, they should choose it. If they would feel uncomfortable, they should consider the second situation, and so on. Therefore, the first comfortable situation should be the one they choose. In view of its ambiguity, Q4 should be reworded to read, "Please choose the first situation that would be acceptable to you. When you are at a party, are you comfortable when s/he is 1.not there 2.in another room 3.far across the room 4.near you 5.next to you?" It is believed that the rewording of Q4 would elucidate the meaning of the item.

The second item that perplexed the respondents was Q10. One subject said that answers to this item would be ambiguous because he would feel better if his spouse were not on the plane that was being hijacked. Another subject concurred, claiming that answers to Q10 depend on whether a person has children. She felt that people who have children at home might prefer their spouse not be on the plane with them. The criticisms regarding Q10 appear to be valid because the item may be biased in favor of people who do not have children. Perhaps this item could be reworded to read: Suppose you're in a frightening situation, such as on a plane that was being hijacked. Would his/her presence reduce your anxiety more than if another friend were there (providing you had no children at home)?

A final item of the AAS that incurred criticism was Q20. It asks "when s/he comes into the house do you kiss, hug or greet him/her?" A few subjects complained that kiss to greet is too wide a range. They thought

that everyone greets people that enter their home because it is only polite to do so. Therefore they felt Q20 was a silly question.

In order to evaluate Q20, its contribution to the item-total correlations and to the factor analysis was assessed. Although there was no significant correlation between Q20 and total score for confidants ( $r = .06$ ), it had a significant correlation of .26 with total score for spouses. It was also noted that it had a high loading of .63 on a factor called Harmonious Functioning. The interpretation of this item indicated that respondents who infrequently greet a spouse may be in disharmony. Therefore the item appears to be important in detecting marital discord. In view of its contribution to Factor 3, Harmonious Functioning, Q20 appears to be a useful item and should not be deleted from the AAS.

The most frequent complaint received concerned the reversal of the keying direction of some items. Most of the item frequencies ranged from not at all (1) to always (5). The keying direction of six items was reversed, ranging from always (1) to not at all (5). The purpose of reversing some items was to control for tendencies to respond in a positive or negative direction. However, the keying reversal irritated many people. Some even found themselves choosing an incorrect response. It is therefore recommended that the keying direction of all items should be the same in future studies.

### Future Research

The present study as well as the former research found that intense attachment, exhibited by a high AAS score, was more characteristic of



people in short-term bonds (i.e., relationships of 5 years or less) than people in long-term marriages (over 5 years). Of the 28 respondents that scored high on the AAS, 19 were members of short-term bonds and only 9 were members of long-term bonds. Each of the 28 respondents displayed more negative affect to short separations and felt less secure without his/her spouse than people who scored around the mean. Therefore intense attachment appears to be consonant with insecure attachment, but the intensity seems to dissipate over time for more recently wed people. Future longitudinal studies are desirable to untangle the confounding elements between the intense attachments of the recently wed and the presumed insecure attachment of the longer wed people.

People who have been married for ten years and have remained intensely attached (obtaining high AAS scores) to the spouse may have been insecurely attached during childhood. This theorem is based on Bowlby (1979) who claimed that the patterns of attachment that were formed during childhood persist into adulthood. The hypothesis was tested by this study but was not supported by the data. However, the procedure for testing the hypothesis should be altered in future studies. Rather than attempting to find an association between all AAS scores and Parental Bonding Scale scores, only the scores of specific subjects should be utilized.

The hypothesis that there is an association between childhood attachment and spousal bonding, should be limited to testing people that score high or low on the AAS (1 SD away from the mean). People who score near the AAS mean should not be included because their scores may be more reflective of a harmonious marriage than a former relationship with a parent. To rule out marital discord as the factor that may have precipitated the high or

low AAS scores, it is advisable to administer another standardized marital scale along with the AAS. If the score on the other marital scale is around the mean, and if it is consistent with clinical data, it can be assumed that marital disharmony is not associated with the AAS score. The high or low AAS score can be interpreted as relating to insecure attachment. Only cases that fall into this category should be sampled when attempting to probe the association between insecure attachment during childhood and adulthood.

Unfortunately the current sample was too small to obtain standardized measures of attachment for subgroups that were married for different time periods. It is recommended that the AAS be administered to a larger sample of at least 150 married adults with a minimum of 30 people in each cell. They should be categorized according to the duration of their relationship but the duration periods should differ from the current study. Relationships extending from 6 months to 2 years should comprise Group 1; 2 to 5 years should be Group 2; 5 to 10 years should be Group 3; 10 to 17 years should be Group 4 and over 17 years should be Group 5. Thus Group 4 and 5 will differ in marriage duration from the current sample. These changes are advisable because in both the former and the current study Groups 4 and 5 had the smallest mean difference. This suggests that the decrease in the intensity of attachment may stabilize prior to 20 years.

There are many clinical groups that would benefit from receiving the AAS. People in discordant marriages are obvious candidates for the questionnaire. It is advisable to administer it in conjunction with another marital scale to facilitate our understanding of the nature of the problem. It would be advantageous if both spouses were given the

questionnaires. Thus if one spouse does not respond accurately it would be easy to detect a discrepancy. When the nature of the problem is evident, treatment can be implemented (as outlined by Shane, 1982).

Other suitable groups for assessment with the AAS are adults who formerly suffered from a history of separation, unresponsiveness or parental rejection, or were children of divorced or deceased parents. These people are more likely to have attachment problems, according to Bowlby (1979). He believed their experiences could lead to chronic anxiety or fear, depending on the problems encountered. The AAS could be administered to them in the context of their spouse if they are married, or if not, in the context of their confidant. The application of the AAS with the aforementioned people would enable researchers to investigate if these childhood experiences relate to bonding in adulthood.

Other clinical groups that could be administered the AAS are neurotic, psychotic or depressive patients, sociopaths and prisoners. The AAS could be employed to describe their relationships with either a spouse or a close friend. The employment of the AAS with these clinical groups would allow researchers and clinicians to examine if or how these disorders relate to affectional bonding, and perhaps modify or alter the effects (as outlined by Shane, 1982).

In conclusion, the data confirms that the AAS is sufficiently sensitive to discriminate between strong bonding, moderate bonding and absence of bonding, as found in marital relationships, close friendships and casual friendships respectively. Some of the functions of marriages and close friendships were outlined by the AAS. When assessing these relationships,

it was shown to be a reliable and valid instrument, and it cross-validated the mean score for spouses. Hence a person's score can be compared with a standardized measure of attachment in a marital relationship. When used in combination with another marital assessment scale, it can reveal the inherent problems in a marriage. By revealing the functions of attachment in marriage, it can aid research in adjustment to divorce. Researchers can also employ it to uncover the role attachment plays in psychiatric and other behavioral disorders. Therefore, the AAS can provide invaluable knowledge as to how the process of attachment facilitates good adjustment and adaptation to life.

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Appendix A  
DEMOGRAPHIC DATA LIST

Enclosed is a set of six questionnaires. Each questionnaire has instructions for answering. There are no right or wrong answers. All answers are right if they reflect you and your perceptions. IBM sheets are provided for the questionnaires. Please answer each question by blackening the appropriate space with a pencil on the IBM sheet.

The information you provide will be anonymous in that you will not be personally identified. If you find any questions objectionable, omit them. Please answer all the questionnaires (except the Parental Bonding Questionnaire), keeping in mind how you feel right now, not how you think you should feel - or how you felt in the past.

Age \_\_\_\_\_ Sex \_\_\_\_\_ No. of children \_\_\_\_\_

Went steady, engaged and married \_\_\_\_\_ years with current partner.

Duration of Friendship \_\_\_\_\_ years. Does your friend live in this city? \_\_\_\_\_ yes \_\_\_\_\_ no.

Last completed grade at school \_\_\_\_\_.

Family income: \$20,000 or less \_\_\_\_\_

\$20,000 to \$30,000 \_\_\_\_\_ \$30,000 to \$40,000 \_\_\_\_\_

\$40,000 to \$50,000 \_\_\_\_\_ \$75,000 or over \_\_\_\_\_

Do you find being away from your spouse for several weeks

\_\_\_\_\_ easier or \_\_\_\_\_ more difficult today as opposed to 2-10 years ago?

Appendix B

REVISED ADULT ATTACHMENT SCALE

Please fill out this questionnaire three times, keeping in mind (1) your spouse (on first IBM sheet); (2) your closest friend and (3) a casual friend on second IBM sheet.

1. If you had to go away (business or visit a sick relative) for a weekend without him/her would you feel angry?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
2. If s/he had lunch with a person or friend of the opposite sex would you be upset?  
1. not at all 2. a little 3. somewhat 4. quite upset 5. very upset
- \*3. If s/he chose to go away (for pleasure) for a weekend without you, would you feel angry?  
1. always 2. frequently 3. occasionally 4. infrequently 5. not at all
4. Are you comfortable at a party when s/he is:  
1. not there 2. in another room 3. far across the room 4. near you 5. next to you
5. Do you and s/he go over the days events?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
- \*6. If s/he chose to go away without you for several months, would you feel depressed?  
1. always 2. frequently 3. occasionally 4. infrequently 5. not at all
7. If s/he was away for several days could you carry on with:  
1. all of your usual activities 2. most of your usual activities 3. some of your usual activities 4. a few of your usual activities 5. none of your usual activities.
8. If s/he occasionally kissed or hugged friends of the opposite sex would it disturb you?  
1. not at all 2. a little 3. somewhat 4. considerably 5. terribly
9. If s/he chose to go away for several weeks without you would you feel angry?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always

10. Suppose you're in a frightening situation, such as on a plane that was being hijacked. Would the presence of him/her reduce your anxiety more than if another friend was there?  
1. not at all 2. a little 3. a fair amount 4. a lot 5. entirely
- \*11. If s/he occasionally arrived late would you accept his/her explanation for being late?  
1. absolutely 2. almost 3. hesitantly 4. with some doubt 5. with much doubt
12. If you had to go away for several weeks without him/her would you feel angry?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
13. Do you purchase a new garment, car, or expensive items without his/her approval?  
1. always 2. frequently 3. occasionally 4. infrequently 5. never
14. If you had to go away for several weeks without him/her would you feel apprehensive?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
15. If s/he had to go away without you for several months, would you feel depressed?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
16. How many evenings a week do you spend away from him/her?  
1. five or more 2. four 3. three 4. one-two 5. none
- \*17. If s/he had to go away for several weeks without you, would you feel apprehensive?  
1. always 2. frequently 3. occasionally 4. infrequently 5. not at all
18. When you have a problem do you discuss it with him/her?  
1. never 2. infrequently 3. occasionally 4. frequently 5. always
19. If s/he had to go away for several weeks without you, would you feel angry?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
- \*20. When s/he comes into the house, do you kiss, hug or greet him/her?  
1. always 2. frequently 3. occasionally 4. infrequently 5. never
21. Do you commit yourself to a regular activity (such as bowling, bridge, etc.) without first consulting him/her?  
1. always 2. frequently 3. occasionally 4. infrequently 5. never
- \*22. If s/he chose to go away without you for several months, would you feel apprehensive?

1. always 2. frequently 3. occasionally 4. infrequently 5. not at all
23. If s/he was away for several weeks could you carry on with:  
1. all of your usual activities 2. most of your usual activities 3. some of your usual activities 4. a few of your usual activities 5. none of your usual activities
24. If s/he was late and didn't phone would you be upset?  
1. not at all 2. a little 3. somewhat 4. very upset 5. frantic
25. If s/he was away for several months could you carry on with:  
1. all of your usual activities 2. most of your usual activities 3. some of your usual activities 4. a few of your usual activities 5. none of your usual activities
26. If s/he chose to go away for several weeks without you would you feel apprehensive?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
27. When you have an interesting thought or a new idea do you look forward to sharing it with him/her?  
1. not at all 2. a little 3. somewhat 4. very much 5. anxiously
- \*28. If s/he chose to go away for a weekend without you, would you feel apprehensive?  
1. always 2. frequently 3. occasionally 4. infrequently 5. not at all
29. If you had to go away without him/her for several months, would you feel upset?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
30. Do you have thoughts pertaining to him/her during the day?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
31. Do you desire comfort or security from him/her?  
1. not at all 2. infrequently 3. occasionally 4. frequently 5. always
32. Does s/he seem to understand your needs and wants?  
1. never 2. infrequently 3. occasionally 4. frequently 5. always

\* NOTE.

The keying direction of the asterisked items is alternated.  
The score is obtained by summing the ratings of each item.

Appendix C

MILLER SOCIAL INTIMACY SCALE

The next two questionnaires refer to your relationship with your spouse. As there are more choices than spaces, go across the page onto the next column of the IBM sheet, to place your answers.

	Very rarely				Some of the time			Almost Always		
1. When you have leisure time how often do you choose to spend it with him/her alone?	1	2	3	4	5	6	7	8	9	10
*2. How often do you keep very personal information to yourself and do not share it with him/her?	1	2	3	4	5	6	7	8	9	10
3. How often do you show him/her affection?	1	2	3	4	5	6	7	8	9	10
4. How often do you confide very personal information to him/her?	1	2	3	4	5	6	7	8	9	10
5. How often are you able to understand his/her feelings?	1	2	3	4	5	6	7	8	9	10
6. How often do you feel close to him/her?	1	2	3	4	5	6	7	8	9	10

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	Not much				A Little			A great Deal		
7. How much do you like to spend time alone with him/her?	1	2	3	4	5	6	7	8	9	10
8. How much do you feel like being encouraging and supportive to him/her when he/she is unhappy?	1	2	3	4	5	6	7	8	9	10
9. How close do you feel to him/her most of the time?	1	2	3	4	5	6	7	8	9	10

10. How important is it to you to listen to his/her very personal disclosures? 1 2 3 4 5 6 7 8 9 10
11. How satisfying is your relationship with him/her? 1 2 3 4 5 6 7 8 9 10
12. How affectionate do you feel towards him/her? 1 2 3 4 5 6 7 8 9 10
13. How important is it to you that he/she understand your feelings? 1 2 3 4 5 6 7 8 9 10
- \*14. How much damage is caused by a typical disagreement in your relationship with him/her? 1 2 3 4 5 6 7 8 9 10
15. How important is it to you that he/she be encouraging and supportive to you when you are unhappy? 1 2 3 4 5 6 7 8 9 10
16. How important is it to you that he/she show you affection? 1 2 3 4 5 6 7 8 9 10
17. How important is your relationship with him/her in your life? 1 2 3 4 5 6 7 8 9 10

\* NOTE. The keying direction of the asterisked items is alternated and scored in the opposite direction. Therefore a rating of 8 is scored as a 2 and vice versa. The score is obtained by summing the ratings of each item.



Appendix D

DYADIC ADJUSTMENT SCALE

Re: Spouse	All the time	Most of the time	More often than not	Occa- sion- ally	Rarely	Never
	0	1	2	3	4	5
81. How often do you discuss or have you considered divorce, separation, or terminating your relationship	_0_	_1_	_2_	_3_	_4_	_5_
82. How often do you or your mate leave the house after a fight?	_5_	_4_	_3_	_2_	_1_	_0_
83. In general, how often do you think that things between you and your partner are going well?	_5_	_4_	_3_	_2_	_1_	_0_
84. Do you confide in your mate?	_0_	_1_	_2_	_3_	_4_	_5_
85. Do you ever regret that you married (or lived together)?	_0_	_1_	_2_	_3_	_4_	_5_
86. How often do you and your partner quarrel?	_0_	_1_	_2_	_3_	_4_	_5_
87. How often do you and your mate "get on each other's nerves"?	_0_	_1_	_2_	_3_	_4_	_5_
	Every day	Almost Every Day	Occa- sion- ally	Rarely	Never	
88. Do you kiss your mate?	_4_	_3_	_2_	_1_	_0_	

89. Which of the following statements best describes how you feel about the future of your relationship?

- 5 I want desperately for my relationship to succeed, and  
 ---- WOULD GO TO ALMOST ANY LENGTH to see that it does.
- 4 I want very much for my relationship to succeed, and WILL DO ALL  
 ---- I CAN to see that it does.
- 3 I want very much for my relationship to succeed, and WILL DO MY  
 ---- FARE SHARE to see that it does.
- 2 It would be nice if my relationship succeeded, but I CAN'T  
 ---- DO MUCH MORE THAN I AM DOING NOW to help it succeed.
- 1 It would be nice if it succeeded, but I REFUSE TO DO ANY MORE  
 ---- THAN I AM DOING now to keep the relationship going.
- 0 My relationship can never succeed, and THERE IS NO MORE THAN  
 ---- I CAN DO to keep the relationship going.

90. The dots on the following line represent different degrees of happiness. The middle point "happy" represents the degree of happiness of most relationships. Please circle the dot which best describes the degree of happiness, all things considered, of your relationship.

0                    1                    2                    3                    4                    5                    6

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Extremely    Fairly    A little    Happy    Very    Extremely    Perfect  
 unhappy    unhappy    unhappy                    happy    happy

NOTE. The score is obtained by summing the ratings of each item.

Appendix E

RECORDING OF ADJECTIVES TO DESCRIBE RELATIONSHIP WITH PARENT

Please list ten adjectives that best described your relationship with a parent or parent substitute prior to age 16. Choose the person whom you feel was closer, more supportive and more accepting of you. Write the answers directly below on this page.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Please fill out the Parental Bonding Instrument on the next page keeping this same parent in mind. Use the IBM sheet on the last page for your answers.

Appendix F

PARENTAL BONDING SCALE

	Very like	Moderately like	Moderately unlike	Very unlike
1. Spoke to me with a warm and friendly voice.	( 3 )	( 2 )	( 1 )	( )
2. Did not help me as much as I needed.	( )	( 1 )	( 2 )	( 3 )
3. Let me do those things I liked doing.	( )	( I )	(II)	(III)
4. Seemed emotionally cold to me.	( )	( 1 )	( 2 )	( 3 )
5. Appeared to understand my problems and worries.	( 3 )	( 2 )	( 1 )	( )
6. Was affectionate to me.	( 3 )	( 2 )	( 1 )	( )
7. Liked me to make my own decisions.	( )	( I )	(II)	(III)
8. Did not want me to grow up.	(III)	(II)	( I )	( )
9. Tried to control everything I did.	(III)	(II)	( I )	( )
10. Invaded my privacy.	(III)	(II)	( I )	( )
11. Enjoyed talking things over with me.	( 3 )	( 2 )	( 1 )	( )
12. Frequently smiled at me	( 3 )	( 2 )	( 1 )	( )
13. Tended to baby me.	(III)	(II)	( I )	( )
14. Did not seem to understand what I needed or wanted.	( )	( 1 )	( 2 )	( 3 )
15. Let me decide things for myself	( )	( I )	(II)	(III)
16. Made me feel I wasn't wanted.	( )	( 1 )	( 2 )	( 3 )
17. Could make me feel better when I was upset.	( 3 )	( 2 )	( 1 )	( )

18. Did not talk with me very much	( )	( 1)	( 2)	( 3)
19. Tried to make me dependent on her/him.	(III)	(II)	( I)	( )
20. Felt I could not look after myself unless she/he was around.	(III)	(II)	( I)	( )
21. Gave me as much freedom as I wanted.	( )	( I)	(II)	(III)
22. Let me go out as often as I wanted.	( )	( I)	(II)	(III)
23. Was overprotective of me.	(III)	(II)	( I)	( )
24. Did not praise me.	( )	( 1)	( 2)	( 3)
25. Let me dress in any way I pleased.	( )	( I)	(II)	(III)

NOTE. Scores for "Overprotection" are recorded in Roman numerals and "Care" scores are recoded in Arabic numerals. Each dimension is independently summed to yield the score.

## Appendix G

### REVIEW OF INFANT STUDIES ON ATTACHMENT

#### Attachment as a Construct (reviewed by Shane, 1982).

The attachment construct plays an important role in developmental theory. Previously, infant-adult ties were conceptualized as a trait construct which evolved from the study of dependency. A variety of discrete behaviors (i.e., cry, cling, approach) were thought to be "indices" of this dimension. Yet many theorists observed that there was little stability in early attachment behaviors across situations or across time. Therefore, Coates, Anderson and Hartup (1972), Masters and Wellman (1974) and Ainsworth et al. (1978) concluded that the concept of attachment should be viewed as an organizational construct, where specific behavior towards an attachment figure is determined by the underlying organization and by the situational context. Hence, they infer the existence of attachment from a stable propensity over time to seek proximity and contact with a specific figure. Even though attachment behaviors change over time, the set goal of the underlying behavior is the same -- maintaining proximity or contact (Sroufe & Waters, 1977).

The examination of the organization of attachment behaviors provided the framework for assessing the quality of individual attachment relationships. Ainsworth, Blehar, Waters and Wall (1978) developed a scheme for assessing and then classifying the attachment behavior of one-year-old boys and girls. Infants were observed in a standard lab situation which

approximated events in the environment. It consisted of the following episodes: (1) mother and infant enter an unfamiliar room, (2) infant at play with mother present, (3) stranger enters room, (4) mother leaves while infant remains with stranger, (5) mother returns and stranger leaves, (6) mother leaves, infant left alone, (7) stranger returns, (8) mother returns. Experience in each episode was expected to affect behavior in the succeeding episode (3 minute episodes).

When examining the 106 one-year olds, Ainsworth et al. (1978) found the presence of separation distress the most conspicuous element. So they classified the infants into three groups as to quality of attachment. Group B (65%) showed minimal disturbance at separation and no anger at reunion and were labelled "securely attached." In fact positive affect was shown only by Group B. Although Group A and C were both insecure in their attachment to the mother, they differed in the expression of their anxieties. Group A (21%) did not exhibit distress during separation but avoided mother during reunion. Hence they were referred to as "avoidant" babies. Group C (13%) were passive and their exploratory behavior was limited. They clung to mother more prior to separation and during reunion and exhibited more anger during these periods. Thus they were named "resistant" babies. (There were subgroups in each category, but the differences were minimal).

Anger is engendered by separation or threat of separation and is more likely to be manifested during reunion (Bowlby, 1973). Short separations do not consistently arouse angry feelings as do lengthy separations or intermittent inaccessibility of the attachment figure. Anger may also ensue if intense attachment behavior is not terminated appropriately. To

terminate intensified attachment behavior, distressed infants need to be picked up and held closely for several minutes in order to be soothed. For those older than 12 months, the mothers return should be sufficient (Bell & Ainsworth, 1972; Ainsworth et al., 1978). Hence, reunion behaviors were crucial in identifying different patterns of attachment in the lab.

Indications of insecure attachment rarely occurred in isolation. Each child was first observed in the home prior to the strange situation in the lab, beginning at 3 weeks of age up to 54 weeks of age. It was hypothesized that patterns in the lab would reflect the infant-mother relationship at home. As predicted, the behavior of each group in the lab related significantly with behavior at home. In addition, different patterns of infant lab behaviors correlated significantly with different patterns of maternal behavior at home, as predicted (Ainsworth et al., 1978).

Group B mothers were more sensitive, cooperative and accepting. Groups A and C were insensitive to infant signals and communications, with Group A more rejecting, interfering or angry while C mothers were more neglecting and ignoring. Group A mothers were especially rejecting to close bodily contact with the baby, and their feelings were frequently mixed with anger or irritation. Group C mothers delayed in response to crying and did their chores while holding the child (Ainsworth et al., 1978).

The strange-situation was repeated in a host of studies by other investigators. A sample in Holland by Van-Ijzendoorn, Tavecchio, Goossens, Vergeer and Swaan (1983) verified that the procedure is valid, reliable and generalizes to the natural environment. A German sample (Grossmann,



Grossmann, Huber & Wartner, 1981) and a Swedish sample (Lamb, Hwang, Frodi & Frodi, 1983) also found the procedure valid. The primary measures of interactive behavior were contact maintaining, proximity/contact seeking, avoidance and resistance as directed toward the mother in reunion episodes. These behaviors remained strikingly stable from 12 months to over 18 months of age, as rated by two independent raters with 90% agreement across ratings. However, Waters (1978) and Thompson, Lamb & Estes (1982) admitted that secure attachments may fail in families under stress. Still, improvements in the family situation can lead back to normative patterns of secure attachment. These findings paved the groundwork for further research.

Bell and Ainsworth (1972) clearly demonstrated that unresponsiveness to crying in the first nine months of life is positively associated with increased crying from 9 to 12 months. So that those that cried the most between 9 and 12 months of age had been responded to less frequently and less contingently. On the other hand, group B babies cried the least at this age. These findings negate the belief that anxious attachment develops from excessive gratification and contradict behaviorist theory.

Establishing a secure, adaptive attachment relationship is a major developmental task for the first year of life. This relationship bears consequences for subsequent tasks, such as exploration and mastery of the environment. Sroufe and Waters (1977) argued that exploration is an important function in human adaptation because of the need for flexibility and problem-solving skills. Extensive exploration is characteristic of the securely-attached child who is more likely to risk the initial insecurity in a learning situation because s/he can rely on the protection of the

parents. If the adventure evokes undue anxiety, s/he can easily return to home base. Given an insecure attachment, the child would not leave for fear of them not being available or responsive when s/he returned. This was theorized by Blatz (1966) and confirmed by Ainsworth (1963, 1967), who reported that the anxiously attached child foregoes exploration and subsequent learning. Therefore, the ability to use the caregiver as a secure base for exploration should serve to advance learning and cognitive development.

The quality of the attachment relationship was found to be significantly related to cognitive development in the second and third year of life. Cognitive development, namely object and person permanence (Piaget, 1952) was probed by Bell (1970) who tested infants during four observational periods between 8 1/2 and 13 1/2 months. Infants more advanced in person permanence had been classified by Ainsworth, Bell and Stayton (1971) as securely attached (Group B). This is understandable because Group B mothers were more accessible. Infants who were more advanced in object permanence had been classified as anxiously attached. By 13 1/2 months, those who were more advanced in person permanence were also more advanced in object permanence. This notion was supported by Paradise and Curcio (1974). In a follow-up study, Bell (1978) confirmed that the same phenomenon held true cross-culturally. Group B infants in both a white middle class and a black disadvantaged group were significantly advanced compared to non-B infants in object and person permanence. However, the black disadvantaged sample contained a higher rate of anxiously attached infants; apparently the mothers and fathers were absent for long daily periods.

An infant's learning capacity is also affected by the quality of attachment. Connell (1978a) measured response decrement to a redundant stimulus. The securely attached infants showed marked habituation to a repeated stimulus, indicative of higher learning capacity. Group A showed a lower rate of habituation whereas Group C was overly distressed and presentations of the stimulus had to be discontinued. These findings are concurrent with Main's (1978) theory that Group C are too anxious to explore and thus forego learning. This did not occur with the securely-attached children. Indeed, in a later study Connell (1978b) noted that securely-attached toddlers were also more advanced in language acquisition than anxiously-attached toddlers.

Secure attachment is an important indication of successful adaptation in later childhood. The ability to use adult assistance without being overly dependent on it promotes autonomy and competence (White, 1959; Loevinger, 1976). Therefore, it was expected that the securely attached child would exhibit more autonomous, competent behavior in a problem-solving situation at two years of age than the insecurely-attached child (Matas, Arend & Sroufe, 1978). As predicted, Group B was rated lower in frustration, noncompliance, negativism and non-task behavior by independent raters with observer agreement at 90%. The "avoidant" children (Group A) were especially noncompliant and tended to seek help from the experimenter rather than their mothers, toward whom they behaved aggressively. The "resistant" children (Group C) exhibited extreme reliance on their mothers and were generally incompetent. They whined and stomped and gave up quickly. Thus the patterns of attachment were revealed in a transformed way at age two.

Continuity was also observed in the maternal behavior. The mothers of non-B groups were significantly less supportive and offered a lower quality of assistance to their children. These findings were consistent with Main (1978), Connell (1978b), and Bell (1978) who found Group B mothers had greater input in interacting with their children during the second and third year of life. Given the continuity in mother-child interaction, it is not surprising that Matas, Arend and Sroufe (1978) observed that securely attached toddlers were more enthusiastic, persistent, cooperative and in general more effective than insecurely attached children. Some measures showed virtually no overlap between groups. The differences were not due to developmental quotient or temperament.

The securely attached 2-year-old was found to be more sociable and more positively oriented toward peers as well. Pastor (1981) observed lower SES toddlers who were matched in age, sex, developmental quotient and peer experience. They were previously classified as to quality of attachment in the strange situation. He noted that the avoidant toddlers were more negative to both mother and peers while the resistant toddlers appeared highly stressed by the situation. The mothers of the securely attached were more supportive and appropriately directive, playing an important role in the adaptability of their children to social situations with peers.

It could be argued that the securely attached children displayed more competence due to the presence and/or behavior of their mothers. This argument would be invalid if attachment is shown to be a stable, integrative developmental construct. Then secure attachment would elicit later competence in the peer group even in the absence of mother. The stability of the attachment construct was tested by Waters, Wippman and

Sroufe (1979) at 18 months and again at 3 1/2 years of age. Phase I assessed babies at 18 months and 24 months to determine if secure attachment relates to positive affect towards an attachment figure. Smiling combined with sharing of toys was characteristic of the securely attached but not the anxiously attached groups. Then in Phase II of the study 18 months later, the stability of the attachment construct was tested. They predicted that the quality of the attachment relationship would be significantly associated with personal and interpersonal competence or effectance in the peer group at 3 1/2 years of age. It was also postulated that the positive affect towards the attachment figure would generalize to others. The children were independently observed for 5 weeks in a preschool classroom by observers who were blind to their classification and rated by a Q-sort methodology assessing competence. As predicted, the securely attached scored higher in personal and interpersonal competence, peer leadership ability, and were more self-directed and curious. Anxiously attached children were rated as more socially withdrawn, unsympathetic to peer distress and were avoided by other children. They scored significantly lower in personal and interpersonal competence with substantial differences between the groups.

Upon reaching five years of age, the anxiously attached were described as unduly perseverative. They become disorganized during a stressful or novel situation and were unable to meet the demands of a changing environment. In addition, they scored lower than the securely attached in ego resiliency and ego control (Arend, Gove, & Sroufe, 1979). However, group differences accounted for less than 25% of the variance in scores in this study.

A final study investigated 40 impoverished children aged 4 1/2 to 5 years. They were previously classified at 18 months of age as to quality of attachment. Dependent behaviors such as seeking nurturance, attention, cognitive help, social help and physical help were rated. Teachers and observers who were blind as to classification rated the children on a Q-sort and on behavioral observational data. Observer agreement ranged from .73 to .89 (Sroufe, Fox & Pancake, 1983). As expected, the findings ranked the insecurely attached significantly higher in dependency than the securely attached. In fact over 90% of the insecure group was rated the highest on dependency. However the secure children were also dependent on their teacher because they sought significantly more positive attention. Thus all children sought attention but the anxiously attached did so in negative ways that interfered with other developmental tasks such as environmental mastery. These findings are in accord with the developmental/organizational perspective, which has a corollary that a secure attachment relationship in infancy provides a foundation for later autonomous functioning (Bowlby, 1969; Ainsworth, 1972).

The following conclusions can be drawn from examining the infant-caregiver attachment relationship. The quality of the relationship as categorized by Ainsworth et al. (1978), is significantly related to later cognitive, emotional and social development up until at least the fifth year of life across all SES classes. Although the behaviors changed over time, the organization of the behaviors remained stable. The cross-age, cross-situational and cross-behavioral predictions demonstrated that attachment is a stable developmental construct and that secure attachment correlates significantly with the ability to make use of

environmental resources in order to achieve a good developmental outcome. Insecure attachment on the other hand is associated with increased aggression, noncompliance, withdrawal, dependence, negativism, incompetence and generally poorer adaptation. As yet, there are no follow-up studies of children past the age of five years. Hence, the quality of attachment has not been correlated with emotional, social and cognitive development subsequent to this age.

How Attachment Develops and its Stages (reviewed by Shane, 1982)

According to attachment theory, the patterns of interaction which become established between a child and his primary caregiver unfold during several stages which have been identified. A phase of undifferentiated responsiveness precedes one of discriminating social responsiveness and then the stage wherein attachment becomes more active follows (Schaffer & Emerson, 1964; Yarrow, 1963, 1964, 1967; Ainsworth, 1972).

The initial preattachment phase finds the new born infant most responsive to stimuli emanating from humans although s/he doesn't discriminate one person from another. S/He is equipped with a repertoire of signaling behaviors which induce others to approach him. The behaviors such as crying, vocalizing, grasping and later smiling promote proximity and contact and are classified as early attachment behaviors (Ainsworth, 1972).

Around 12 weeks of age, a second stage has been identified where the infant can discriminate one figure from another. S/He directs various proximity-promoting behaviors towards different figures and his repertoire of attachment behaviors increases. This phase coincides with Piaget's

(1952) second stage of sensorimotor development (Ainsworth, 1972), where the infant believes his desires bring about the bottle or mother. He is not aware that his crying is a signal that brings mother. This is called parataxic or magical reasoning.

During the third stage, the baby actively seeks proximity by locomotion rather than signaling. Exploration and object manipulation occur during the second half of the first year during this phase. This coincides with Piaget's fourth stage of sensorimotor development wherein the concept of the object and person permanence develops (Bell, 1970). Hence, the growth of attachment depends on perceptual and cognitive development, specifically the ability to discriminate figures from the self and the concept of the object (Schaffer & Emerson, 1964; Bowlby, 1969; Ainsworth, 1972). The first specific attachment occurs at approximately seven months and by 18 months all but 13% of the infants studied showed attachments to more than one person (Schaffer & Emerson, 1964).

In the final stage of attachment commencing between three and four years of age, a "goal-corrected partnership" should develop (Bowlby, 1969; Ainsworth, 1973). At this time the capacity to take the perspective of another develops. The child is able to devise complex plans that include influencing mother to fit in with his plans. S/he manifests less distress in separation and proximity-seeking decreases. Yet the change of the relationship does not imply a weaker attachment (Marvin, 1978; Maccoby & Feldman, 1972). Proximity becomes less a matter of physical distance and more a matter of symbolic availability.



The above summarized stages of attachment depict a course of normal development with no major bond disruptions. However, as related previously, many experience deviant patterns in the development of attachment, such as discontinuity of parenting or even parental rejection. This pattern can readily lead to emotional detachment.

Emotional detachment was first recorded by Robertson and Bowlby (1952). They noted three phases of response to separation in children aged one to three years. These phases were thought to be early prototypes of human mourning with the sequences being "protest, despair and then detachment." During "protest" attachment behavior is intensely activated, crying and searching ensue. If separation continues "despair" follows and s/he become inactive, withdrawn and appears to be in a stage of deep mourning. Finally, if separation persists; "detachment" sets in. In both the child and the adult, the mourning process includes the phases of "protest, despair and detachment" wherein anger and hatred are present (Robertson & Robertson, 1971). Bowlby (1973) elucidated that "protest" relates to separation anxiety, "despair" to grief and mourning while "detachment" is a defensive mechanism.

Emotional detachment was observed by Ainsworth et al. (1978) in Group A of the anxiously attached children as related previously. The children exhibited an approach-avoidance conflict with their mothers who were observed to be rejecting and found body contact aversive. These mothers were described by Ainsworth et al. as rigid and less sensitive to their infants' needs. Their infants' demands on them activated anger and rejection even though they attempted to suppress it. The infants in question were referred to as "avoidant" infants.

Main (1977) explained that "avoidant" infants whose attachment behavior is chronically frustrated, will in turn exhibit anger and hostility toward their mothers. A striking feature of avoidant behavior in the experimental post-separation situation is that when the mother coaxes the child to come to her, s/he ignores the mother and looks away. Gaze aversion in infancy supposedly modulates level of arousal when a baby is in face-to-face encounters with mother (Stern, 1974). Avoidance protects the child from re-experiencing rebuff that s/he comes to expect when s/he seeks comfort and reassurance from her, which together with the gaze aversion lowers the level of anxiety (arousal).

When "avoidant" children reach the final stage of the development of attachment, they are more capable of achieving proximity or contact with their mothers. However, there are limits to the success of the "avoidant" child's efforts in interacting with her, unless she becomes more sensitive to the child's needs. If she cannot understand things from a child's viewpoint, disregards his communications refusing to negotiate a plan acceptable to both, he cannot enter into a "goal-corrected partnership" with her. Consequently, interactions with his mother, his first social learning experience, will not cultivate his understanding of her or of others in terms of their roles, needs, feelings, etc. (Ainsworth et al., 1978). Thus, it is not surprising that "avoidant" children were found to show a deficit in social cognitive functioning (Waters, Wippman & Sroufe, 1979; Matas, Arend & Sroufe, 1978;; Sroufe & Waters, 1977).

Unfortunately, the loss of paternal care has received less emphasis in the literature. Bowlby (1979, 1980) admitted that separation and loss of love from the father is also consequential. The importance of the father

as an attachment figure was further advanced by Ainsworth et al. (1978) who uncovered that attachments to mother and to father are similar in nature. This theory was supported by Lamb (1977) who longitudinally studied babies in the home. He found most boys and some girls preferred their fathers in a stress-free situation. Lamb (1978) claimed that both attachment relationships are independent; one quarter of his sample of one-year-olds was secure with one parent but insecure with the other.

A similar proportion of different parental classifications (22%) regarding security was reported by Main & Weston (1981) who also claimed the category placements were independent of each other. These authors noted that 18-month-old toddlers in their sample who were secure with mother but not with father were more sociable than toddlers who were not secure with mother and secure with father. However, those who were not secure with mother but secure with father showed a greater readiness to establish a friendly relationship than those who were insecure with both parents. Main and Weston (1981) concluded that the effects of an insecure parental relationship can be mitigated by a secure one. More research with fathers would be helpful.