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Attachment, Trauma, and Adjustment to University

Alison Smerek

**A dissertation submitted to the School of Graduate Studies of the
University of Ottawa as partial fulfillment of the requirements
for the degree of Doctor of Philosophy**



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Acknowledgements

I would like to acknowledge the support and guidance of my thesis advisor, Dr. Sue Johnson, who always showed confidence in my ability to reach my goals. While she allowed me to work on my own, she was always available when I needed her to support and guide me through the process. Her confidence in me helped me to maintain a positive outlook and continue working whenever I became discouraged.

I am also grateful to Drs. Henry Edwards, Michael McCarrey, and Valerie Whiffen, who provided helpful comments and suggestions while I was working on the proposal for this research project. I would also like to thank Dr. Tim Aubry for agreeing to join my thesis committee at a later date. Dwayne Schindler provided invaluable support and guidance on statistical matters.

I would also like to acknowledge the financial support I received from the Social Sciences and Humanities Research Council, in the form of a four-year Doctoral Fellowship. This financial support allowed me to pursue doctoral level studies, when it may otherwise have been difficult for me to do so.

My husband, Paul, has stood by me through my many years of graduate studies. It is hard for me to imagine how I would have had the endurance to reach this goal without his support and encouragement. I am eternally grateful to him for being there for me, and providing some balance in my life. Tyler came into our lives midway through this project, and is a source of joy and inspiration in my life. He more than anyone helped me to stay grounded and enjoy good times in the present. My extended family was also very important, and I feel particularly fortunate to have married into a wonderful new family only three days before I began my doctoral studies. Thank you to all of you.

I received valuable support, advice, and encouragement from many others as well. My fellow students were important, as they could truly understand my experience. In particular, I would like to thank Terry and Doug, who continue to be great friends. Finally, I would like to thank Lyn, who helped me through the hardest times, and who sparked my interest in the field of trauma studies.

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Abstract

Late-adolescents face the challenges of leaving their families and creating lives of their own. Research has focussed on factors affecting their adjustment as they make this transition. Attachment theory is a useful model for understanding this process of adjustment, as moving away from home has been likened to a naturally occurring adolescent-equivalent of the Strange Situation that is used to measure security and style of attachment in infants. First year university students compose a large population of late-adolescents who recently left home, and attachment theory has been used as a basis for understanding the process of adjustment to university. The security of students' attachments to their parents impacts upon their adjustment in several domains. This research has not been linked to the growing literature on adult attachment styles. History of exposure to trauma has been linked to attachment style and to psychological adjustment in undergraduate students, but has not been linked directly to the process of adjustment to university.

In the current study, the impacts on adjustment to university of security of attachment to parents, adult attachment style, and history of exposure to trauma were examined using path-analytic models. It was proposed that relationships between security of attachment to parents and adjustment to university would be entirely mediated by adult attachment style. It was also proposed that trauma and its negative after effects would have both direct impacts on adjustment to university, and indirect impacts through attachment style.

The results did not support adult attachment style as a strong mediator of the relationship between security of attachment to parents and adjustment to university. Security of attachment style did predict self-perceived academic and social adjustment. Security of attachment style at the beginning of the year was a more important predictor than security of attachment style later in the year. Having a more preoccupied attachment style was linked to conformity motives for drinking. Trauma and its negative aftereffects had strong impacts on self-perceived emotional

adjustment, also impacted significantly upon academic and social adjustment, and was related to drinking to cope with negative affect. The impact of trauma on adjustment in all domains was stronger later in the year than at the beginning of the year.

The results are discussed in terms of implications for attachment theory, for the process of adjustment to university, and for the facilitation of adjustment among insecure and previously traumatized students.

Introduction

One of the major challenges faced by many late adolescents is that of leaving their family and creating a life of their own, often at a considerable geographical distance from their home community. Some leave home to pursue post-secondary education, others to pursue job opportunities, and still others leave to travel, join the armed forces, or to pursue other goals or opportunities. The experience of leaving home at this age has been described as a naturally occurring adolescent equivalent of the “Strange Situation” that Ainsworth, Blehar, Waters, and Wall (1978) designed to assess security and style of attachment in infants (Kenny, 1987). Kenny (1987) thus proposed attachment theory as a valuable model for studying the adjustment of late-adolescents as they undergo the challenge of leaving home.

First year university students are one such group of adolescents, and a growing body of literature has begun to use attachment theory in attempts to understand the process of adjusting to university. Much of this research has examined the relationship between security of late adolescents’ attachments to their parents and their adjustment to university. This research has found consistent relationships between security of attachment to parents and academic, social, and emotional adjustment to university (see for example a review by Kenny & Rice, 1995). At the same time researchers studying adult attachment have designed measures to assess adult attachment styles that are thought to be adult equivalents of the attachment styles observed in infants using the Strange Situation (e.g. Hazan & Shaver, 1987; Bartholomew & Horowitz, 1991). Subsequent research using these measures has found these adult attachment styles to be related to many aspects of psychological adjustment in adults (e.g. Bartholomew, 1993; Griffen & Bartholomew, 1994a,b). Research examining security of attachment to parents, adult attachment styles and adjustment to university would help to link these two bodies of research.

Having been abused as a child, and having been exposed to other potentially traumatic experiences are other factors that have recently been linked to both adult attachment style and to difficulties in adjustment among undergraduate students (e.g. Kutil, 1998; Roche, Runtz, & Hunter, 1999; and Fossel, 1997). A recent study found that over 80% of undergraduate students

have been exposed to potentially traumatic experiences, and 3% qualify for a presumptive diagnosis of Post Traumatic Stress Disorder, based on scores on a symptom questionnaire. Another 5% fell only one symptom short for such a diagnosis (Lauterbach, 1999). Exposure to trauma and its negative aftereffects has not yet been directly related to adjustment to university. Studies linking attachment, trauma, and adjustment to university would thus contribute significantly to understanding the process of adjusting to university.

If attachment and trauma are important factors in understanding the process of adjusting to university, it will be important to begin to explore the means by which they impact on adjustment. Some investigators have proposed that attachment style either fully or partially mediates the impact of exposure to trauma on adjustment (e.g. Kutil, 1998; Roche et al., 1999). These studies have not, however, directly studied adjustment to university. Researchers have not yet examined factors that might mediate the relationship between attachment security and adjustment to university. Given that both insecure attachment and trauma exposure have been related to negative models of self and other (e.g. Bartholomew & Horowitz, 1991; Mc Cann & Pearlman, 1990), it is likely that they would lead to a reluctance or inability to seek out help from others when it is needed (Parkes, 1997). Propensity to seek social support when it is needed may thus be one mediator of the relationships between attachment, trauma, and adjustment to university. In order to better understand the process of leaving home and adjusting to university, the current study thus examined relationships between the security of late-adolescents' attachment to their parents, their self-reported attachment style, their history of exposure to trauma and its negative aftereffects, and their propensity to seek social support when it is needed as predictors of patterns of strengths and weaknesses in adjustment to university.

Attachment Theory

Attachment theory posits that infants possess an attachment behavioral system, which is said to be a homeostatic process that regulates proximity seeking and contact maintaining behaviours with one or a few specific individuals under conditions of danger or threat (Bowlby, 1973, 1979).

Ainsworth expanded on this by proposing that the attachment system functions continuously, not only under conditions of threat. She proposed that the attachment system functions so as to provide children with a sense of “felt security” which facilitates exploration by the child (Ainsworth, et al., 1978).

Ainsworth et al. (1978) note that the attachment system serves to deter infants and young children from moving too far away from the caregiver, and activates exploration when they are in the presence of their caregiver, and describe this pattern as exploration from a secure base. The attachment system thus becomes active when an infant or young child senses that he or she may be too far from his or her caregiver, or when he or she feels threatened or afraid. The child then engages in behaviours such as calling or seeking in order to regain contact with the caregiver. Once proximity is achieved, the child will engage in behaviours that maintain that proximity such as hugging, clinging, or smiling. The attachment system is then deactivated and the child recovers use of other behavioral systems such as exploration or feeding (Berman & Sperling, 1994). Berman and Sperling (1994) note that these descriptions are of the primary functioning of the attachment system under conditions where activation, reaction, and deactivation occur in a consistent fashion and where the goal of felt security is regularly achieved. They note, however, that there are many children whose early experiences with caregivers are not consistent and for whom the goal of achieving a sense of felt security is not regularly attained. These children are less likely to develop a system in which their caregiver serves as a secure base from which they can actively explore.

Ainsworth (Ainsworth et al., 1978) used a standard laboratory procedure entitled ‘The Strange Situation’ to observe the behaviour of mothers and their infants during a series of short separations and reunions. She observed three distinct patterns of infant-caregiver interaction. Most infants showed signs of distress when their mother left, sought out their mother upon her return, held her for a period of time, were fairly easily comforted, and then returned to exploration and play. Ainsworth called this pattern of behaviour a ‘secure’ attachment style. She considered the other two patterns she observed to represent ‘insecure’ attachment styles. One was an

'avoidant' style, in which the infants showed minimal distress during the caregiver's absence, and ignored or avoided her upon her return. The other was an 'anxious-ambivalent' style, where infants showed a high level of distress during separation, engaged in minimal amounts of exploration, and tended to show ambivalent responses to their caregivers upon their return. These infants would both seek and resist contact, and then would often cling to their caregivers and were difficult to comfort. More recently, researchers have become aware of a fourth infant attachment style which has been labeled 'disorganized/ disoriented' by Main and her colleagues (e.g. Main & Hesse, 1990). Crittenden has identified a similar pattern but has named it 'avoidant/ambivalent' as she sees these infants as possessing characteristics of both the avoidant and anxious-ambivalent styles (e.g. Crittenden, 1997). During reunion, these infants show signs of disorganized and contradictory behaviours, such as approaching the caregiver with their head averted, or approaching the caregiver but freezing and/or falling on the floor mid-approach (Rothbard and Shaver, 1994).

Infant attachment styles, as determined in the Strange Situation have been successfully related to patterns of caregiver's responsiveness to their infant's attachment signals. Primary caregivers of secure infants, for example, are generally responsive to their infants' attachment signals. In contrast, mothers of anxious-ambivalent infants tend to be inconsistent, sometimes responding to their infants' attachment signals appropriately, while at other times not responding, or responding in an overly intrusive or affectionate manner. Caregivers of avoidant infants are often rejecting of and tend to rebuff their infants' attempts to gain proximity, especially attempts to gain close body contact (e.g. Ainsworth et al., 1978). Mothers of disorganized/disoriented infants tend to have experienced attachment-related traumas or losses themselves, which they have been unable to resolve (Main & Hesse, 1990). Crittenden (1997) notes that caregivers of avoidant-ambivalent infants are often abused, depressed, disturbed, or extremely neglectful. Research, therefore, seems to confirm that infants' typical patterns of behaviour in attachment related situations are related to their history of interactions with their primary caregivers.

According to attachment theory, such patterns of interaction between infants and caregivers will over time lead to the development upon the part of the infant of an internal working model of attachment. Bowlby (1973) proposed that such internal working models should consist of models of the self and models of important attachment figures. These models represent the degree to which the self is seen as lovable and worthy of care, and the degree to which attachment figures are seen as responsive to one's needs for support and protection. In infancy, these internal working models are assumed to be quite open to change if typical interactions with caregivers are modified. Over time, however, these models are assumed to become more impervious to change, such that by adulthood only highly discrepant interactions with an attachment figure are likely to lead to significant changes in the internal working model (Van Izendoorn and Bakermans-Kranenburg, 1997). Bartholomew (1993) notes that one implication of this theory is that relationship patterns established in interactions with parents or other primary caregivers tend to be carried forward into and provide a prototype for adult personal relationships.

Continuity of Attachment to Caregivers from Infancy to Adolescence

Research has shown that styles of infant attachment to primary caregivers at twelve months appear to be quite stable over time and predict many indices of adjustment well into the preschool and even school age years. In order to examine consistency from infancy to school age, Main and Cassidy (1988), devised a separation task similar to the Strange Situation, but appropriate for six-year-olds. Reunion behaviour was observed after a one-hour separation of the six-year-olds from their caregiver. Using this system, they found that attachment security as assessed in the Strange Situation at 12 months predicts a number of characteristics of attachment organization at 6 years of age including reunion behaviour following the one-hour separation. Attachment classifications to mother at age six were highly correlated with classifications made in infancy ($r = .76$ for attachment to mother).

Grossman and Grossman (1991) used this classification method and obtained 87% convergence between attachment classification ratings derived in the Strange Situation in infancy

and classifications obtained at age six. Grossman and Grossman (1991) also followed a group of children from infancy to ten years. At ten years of age, children's reports of relations with peers were highly related to their infant attachment classification. For example, 10 year olds who had been classified as secure in infancy generally reported having at least one or a few good friends who they considered reliable and trustworthy. In contrast, those who had been classified as insecure, and particularly those who had been classified as anxious/ambivalent reported either having no good friends or many friends whose names they were unable to provide. Differences were also found with regard to how they reported coping with stress in situations that made them feel afraid, angry, or sad. Ten year olds who had been classified as secure in infancy reported coping with negative feelings by turning to others for help or comfort, whereas avoidant children reported more often attempting to work things out on their own.

In their review of the literature, Feeney and Noller (1996) note that significant relationships have been reported between Strange Situation attachment classifications assessed at 12 or 18 months and various indicators of social and emotional adjustment. For example, secure attachment in infancy has been related to positive affect, empathy, and compliance at preschool, more positive friendships at age 5, and easy and coherent expression of affect between parents and children at age 6. In addition, preschool age children classified as avoidant and anxious-ambivalent in infancy have been found to differ in theoretically meaningful ways on questionnaire and behavioral measures. For example, they report that avoidant children have been found to be more hostile and noncompliant, whereas anxious-ambivalent children have shown low agency and high distractibility.

A few studies have also examined continuity of attachment from infancy through to adolescence. In order to do this, researchers have generally used the Adult Attachment Interview (George, Kaplan, & Main, 1985) to determine current attachment style in adolescents or young adults who were previously classified in infancy using the Strange Situation. The Adult Attachment Interview is a standardized semi-structured interview that can be used to classify adults into attachment categories that parallel those found in infancy. The interviewer probes

alternately for general descriptions of past relationships with parents, specific supportive or contradictory memories, and descriptions of current relationships with parents. Transcripts of these interviews are coded with a complex coding scheme that takes into account the coherence of the interview, and the respondent's state of mind regarding his or her attachment relationships, in addition to the content of the interview. Coding of the Adult Attachment Interview yields three different attachment classifications: autonomous, which parallels secure attachment in infancy; dismissing, which parallels avoidant attachment in infancy; and preoccupied, which parallels ambivalent attachment in infancy (Van Izendoorn & Bakermans-Kranenburg, 1997).

Those classified as autonomous tend to value attachment relationships and to consider them important in the development of their own personality. They are able to describe attachment-related experiences coherently, whether they were positive or negative. They present a coherent and balanced picture without major contradictions (Van Izendoorn & Bakermans-Kranenburg, 1997).

In contrast, those classified as dismissing emphasize their independence. Even when they acknowledge negative experiences in their childhood, they deny being influenced negatively by those experiences. They frequently offer a very positive view of their attachment experiences, but are unable to provide concrete examples, often claiming to have few memories of their childhood. Because of frequent contradictions between general evaluations and specific examples, their interviews are often quite incoherent (Van Izendoorn & Bakermans-Kranenburg, 1997).

Individuals classified as preoccupied are still very much involved and preoccupied with their past attachment experiences. This results in them having difficulty describing such experiences coherently. They may be passive and vague, and often express anger when discussing their current relationship with their parents (Van Izendoorn & Bakermans-Kranenburg, 1997).

A fourth classification can also be given if the respondent seems to be unresolved with regard to a trauma or loss. These respondents tend to provide incoherent responses when discussing particular traumas. This classification can be superimposed on any of the three primary classifications. Being unresolved with regard to trauma may be related to disorganized/

disoriented attachment in infancy, as infants who are classified as disorganized/disoriented often have parents who are classified as unresolved with regard to trauma (Van Izendoorn & Bakermans-Kranenburg, 1997).

Representative of studies that have used the Adult Attachment interview to examine the continuity of attachment from infancy through adolescence or young adulthood is a study by Hamilton (1994, as cited in Van Izendoorn & Bakermans-Kranenburg). Hamilton administered the Adult Attachment Interview to 30 adolescents who had been classified in the Strange Situation as infants. Across this 17-year period, she found that 77% of the adolescents were classified similarly as secure or insecure. In addition, she found that adolescents who were rated as secure both in infancy and adolescence more often grew up in families that experienced few stressful circumstances, whereas those who were rated as insecure on both occasions more frequently came from families where the parents separated or divorced when their children were young. The families of these insecure adolescents were also more often characterized by family violence, persistent parental substance abuse, and financial stress (Hamilton, 1994, as cited in Van Izendoorn & Bakermans-Kranenburg).

Another study by Waters, Merrick, Albersheim, and Treboux (1995) also followed participants from infancy through young adulthood. Participants were classified using the Strange Situation in infancy and through Adult Attachment Interviews 20 years later. They found remarkable continuity in attachment classifications across this 20-year period. Sixty-four percent of participants were classified in the same (avoidant/dismissing, secure/autonomous, ambivalent/preoccupied) category. Those who changed categories from secure to insecure were more likely to have experienced major negative life events such as loss of a parent, parental divorce, life-threatening illness, parental psychiatric disorder, or physical or sexual abuse. Among those who did not experience such major negative life events, the correspondence between infant and adult attachment classifications was 78%. Overall, these studies provide support for the proposition that attachment classifications tend to be stable over time, and that instability is often

related to major changes in parenting or caregiving practices or to the experience of major attachment related negative life events.

Adult Attachment

Although the Adult Attachment Interview (as described above) has been used productively to study attachment styles in adolescents and adults, it requires specialized training and is time consuming to administer and score. It also specifically focuses on the adolescent or adult's state of mind with regard to attachment to their parents. Researchers with the goal of studying normal development with relatively large samples, and who are interested in studying adult attachment relationships have therefore looked to other methods for measuring attachment in adults. These methods have included interviews and self-report measures. The first of these measures to be introduced was a short and easy to administer self-report measure designed by Hazan and Shaver (1987). Their measure provided three short paragraphs each describing an adult analogue to one of the three conventional infant attachment styles: secure, ambivalent and avoidant. The paragraph representing the secure style described a pattern of finding it easy to get close to others and being comfortable depending on them, without fears of being abandoned or of others getting too close. Ambivalence was characterized by wanting to be closer to others than they typically wanted, and fears of abandonment or of not being loved enough. Avoidance, on the other hand was characterized by discomfort with closeness and difficulty in trusting or depending on others. The original measure simply asked respondents to determine which of the three paragraphs was most typical of their interactions in close relationships. A later modification asked respondents to report the degree to which each of the three paragraphs represented their characteristic thoughts, feelings, and behaviours in close relationships. An extension of this method has been to construct multi-item scales based on the content of these paragraphs.

Hazan and Shaver (1987) reported that using the original forced-choice method, those who chose the secure self-description also reported more positive experiences and beliefs about love, as well as more positive descriptions of childhood attachment experiences than did those who

chose either insecure pattern. Those who chose the ambivalent self-description also reported high levels of obsessive preoccupation, desire for union with partners, and a tendency to fall in love relatively easily. Finally, those who chose the avoidant self-description reported low levels of trust and cynical beliefs about love. Bartholomew (1993) notes that these results have been replicated and extended in numerous studies by other research groups (e.g. Collins & Read, 1990; Feeney & Noller, 1990), and points to the fact that the introduction of this measure led to an explosion of research in the area of adult attachment.

Bartholomew (1990) proposed that a four-category model of attachment might fit better with Bowlby's original theory regarding the characteristics of internal working models of attachment. Bowlby (1973) believed that internal working models of attachment are derived from internalization of an infant's interactions with his or her caretakers such that the infant forms a model of self as worthy of care and lovable or conversely unworthy and unlovable. At the same time, the infant develops a model of others as trustworthy, reliable, and caring or conversely untrustworthy, unreliable, and unloving. The four categories proposed by Bartholomew (1990), therefore, correspond to the intersections of the two dimensions thought to underlie working models of attachment: positivity of model of self and positivity of model of others.

Secure individuals are those with relatively positive self-models and relatively positive expectations of others. These individuals possess an internalized sense of self-worth that is not dependent on ongoing external validation, and expectations that others will be available and supportive when needed (Bartholomew, 1993).

In Bartholomew's scheme, those with relatively negative self-models but relatively positive models of others are labeled preoccupied. These individuals are similar to the preoccupied group identified using Main's Adult Attachment Interview, and the ambivalent group identified using Hazan and Shaver's self-report measure. They characteristically strive to find external validation of their selves in intimate relationships with others (Bartholomew, 1993).

Individuals possessing relatively positive self-models, but relatively negative expectations of others are labeled dismissing-avoidant. These individuals are characterized by a defensive denial

of the need or desire for intimate contact, and thus are likely to resemble those described as dismissing using Main's Adult Attachment Interview (Bartholomew, 1993).

Individuals who possess relatively negative self-models as well as relatively negative models of others are labeled fearful-avoidant. These individuals are characterized by a desire for intimate contact that is inhibited by fears of rejection. This second, fearful-avoidant, avoidant category is similar to the avoidant category described by Hazan and Shaver (1987).

Bartholomew (1993) summarizes her model by stating that "The quality of early attachment relationships is hypothesized to lay the foundation of a sense of self and an orientation to others, and the intersection of these two dimensions yields varying approaches to close relationships. (p. 41)" The introduction of the fourth category, therefore, brings the conceptualization of adult attachment patterns in line with Bowlby's theory. It is also consistent with the recent discovery of a fourth, disorganized/disoriented or avoidant/ambivalent category of infant attachment, which would appear to correspond to Bartholomew's description of fearful-avoidance.

Bartholomew and her colleagues (e.g. Bartholomew & Horowitz, 1991; Bartholomew, 1993; Griffen and Bartholomew, 1994a) have developed several instruments and methods for determining the degree to which an individual corresponds to each of the four prototypic attachment styles. These include standard interviews and coding schemes that allow for coding of the two underlying dimensions and the degree of correspondence to each of the four prototypes. The interviews also allow separate scores to be derived for attachment style with regard to the family of origin and attachment style in close adult peer relationships. In addition, self-report measures have also been designed. The first corresponds to Hazan and Shaver's (1987) original self-report measure, in that four paragraphs are presented, one corresponding to each of the four prototypic attachment styles. These paragraphs can be used with a forced-choice format or respondents can be asked to rate the degree to which each paragraph characterizes their typical behaviours, cognitions, and emotions in close relationships. A multi-item self-report measure has also been designed. Ratings on both measures can be combined such that scores for the two underlying dimensions and the four attachment prototypes can be calculated.

Bartholomew and Horowitz (1991) have since provided data showing that a four category scheme does indeed fit well, and that there are two dimensions underlying the four categories. These two dimensions correspond well to a model-of-self dimension and a model-of-other dimension. Griffen and Bartholomew (1994a) note, however, that these two underlying dimensions do not capture all of the variance that is explained by the four-category model. Rather each of the combinations of self-model and other-model that make up the four categories appear to be related to distinct patterns of feelings and behaviours in given situations. For example, in a given circumstance the effect of having a negative model of self may be different depending on the valence of one's model of others.

Bartholomew and Horowitz (1991) found that different profiles of interpersonal problems were associated with each of the four prototypic attachment patterns. Secure individuals generally reported a relatively low level of interpersonal problems, and the problems that they did report were not distinctive in content. As would be expected, dismissing individuals also reported low levels of problems, however the problems they did report were related to difficulties in getting close to others. Also as would be expected, both preoccupied and fearful individuals, who have negative self-models, reported more interpersonal problems. Fearful individuals reported feeling afraid around people, difficulty expressing their feelings, and difficulty in asserting themselves. In contrast, preoccupied individuals tended to report problems being overly dominant and demanding in relationships.

Further support for the importance of considering the degree of fit to each of the four prototypes rather than only looking at scores on the two underlying dimensions was obtained when Griffen and Bartholomew (1994a) reanalyzed these relationships using only the two underlying dimensions rather than scores on the four distinct prototypes. They found a different and less descriptive pattern of results. They cite for example their finding that, when looking only at the two underlying dimensions, problems with coldness were unrelated to the self-model dimension and highly negatively related to the other-model dimension. These results provide far less information than the pattern of results obtained when looking at ratings of the four

prototypes: problems with coldness were primarily related with how well an individual fit the dismissing prototype, secondarily related to poor fits with the secure and preoccupied prototypes, and not at all related to an individual's score on the fearful prototype.

Valuable information is also lost when individuals are categorized according to the prototype that fits them best, rather than considering how well they fit each of the four prototypes. Once again, looking at problems with coldness, group membership explained 17% of the variance and consideration of ratings of the four prototypes added an additional 9% to the amount of variance explained (Griffen & Bartholomew, 1994a). It therefore appears that knowledge of how well an individual fits each of the four prototypes has the potential of providing more useful information than would be obtained if one looked either only at the two underlying dimensions or only at which category best characterizes each individual.

Interview and self-report measures of adult attachment style attempt to tap into respondents' generalized internal working models that are thought to influence behaviour, cognition, and emotions in interpersonal interactions across various attachment relationships. Another approach to the study of attachment in adolescents and adults is to ask them about the relative security or insecurity that they feel in their relationships with specific important attachment figures. This approach of asking about security in specific attachment relationships is also derived from Bowlby's theory of attachment. Bowlby (1988) describes four components that define attachment relationships: proximity seeking, separation protest, safe haven, and secure base. In general, people of all ages tend to want to be near their attachment figures, they resist separation from their attachment figures, they use their relationship with their attachment figure as a secure base from which they can explore their world, and when they feel threatened they try to access their attachment figure for comfort and reassurance (Hazan & Zeifman, 1994). The security of one's relationship to specific attachment figures, therefore, is thought to determine the degree to which that attachment relationship can be used as a secure base from which an individual can go out into the world and explore new and challenging tasks without feeling a loss of safety.

In order to study relative security of specific attachment relationships it is important to know who is likely to serve as an attachment figure. Traditionally, parents are thought to serve as primary attachment figures. Given the opportunity all normal human infants become attached to their primary caregiver, typically within the first eight months of life. Most infants also develop other attachments, for example to their other parent, or to other regular caregivers. These attachments to parental figures are thought to persist throughout one's life (e.g. Hazan & Zeifman, 1994).

Hazan and Zeifman (1994) studied the process by which primary attachments may be shifted from parents to peers as children grow-up and then enter adolescence. In one study, they interviewed children and adolescents between the ages of 6 and 17. They concluded that although children and adolescents regularly sought proximity to peers and looked on them as preferred sources of comfort and emotional support, parents continued to serve as bases of security and targets of separation protest. Late adolescents reported the first 'full-blown' attachments to peers, and those attachments were almost exclusively to romantic partners. They conclude that "the true markers of attachment (i.e. separation protest and secure base) are reserved for parents, or in the case of some older adolescents, romantic partners. The first complete reciprocal peer attachments are romantic attachments. (p.160)" It therefore seems that non-romantic peer relationships do not regularly serve as attachment relationships. Results from a second study, indicated that, in general, even with romantic partners, true attachment relationships tended to exist primarily in relationships that had lasted at least two years, and concluded that reciprocal attachment formation takes approximately two years (Hazan & Zeifman, 1994).

Most studies of the relative security of adolescents' specific attachment relationships have investigated the security of adolescents' relationships with their parents (e.g. Kenny, 1994; Rice, 1990). A few studies have also looked at adolescents' attachments to romantic partners (e.g. Pistole, 1995), but this proves difficult because while a significant minority of adolescents are involved in romantic relationships that could be described as true attachment relationships, most are not (Hazan & Zeifman, 1994). In some studies security of attachment to important peers is

also examined (e.g. Paterson, Pryor, & Field, 1995), however, as described above, non-romantic peer relationships, while serving important functions, are not generally true attachment relationships.

Attachment to Parents and Adjustment to University

Late adolescence is a time of considerable change for young people. For most it is a time, when upon leaving high school they must make important decisions about their future. For many, this involves leaving home to pursue occupational or educational goals. This often involves moving away from their familiar community, and thus from sources of support such as family and friends. This is also a time when many develop their first long-term intimate relationships. Meanwhile, in the context of all these changes, young people are also attempting to define their selves and to forge a sense of identity (Kenny & Rice, 1995). Kenny and Rice (1995) conclude that “late adolescence presents the excitement of change coupled with the uncertainty and unpredictability of the future. (p.433)”

Attachment theory provides a theoretical conceptualization of how the quality of parental attachments may affect the external supports and internal resources that late adolescents have available to them as they try to deal with the many developmental challenges with which they are faced. Kenny and Rice (1995) believe that attachment theory may, therefore, provide some answers to the question of why some late adolescents are overwhelmed and others thrive in response to the challenges of late adolescence. They point, for example, to work (e.g., Grotevant & Cooper, 1986) that suggests that the process of individuation, one of the major developmental challenges with which late adolescents are faced, occurs most adaptively within a caring parent-child relationship that is “transformed rather than broken” in adolescence. Ongoing close and supportive parental relationships may provide a buffer against the stress involved in making so many changes at the same time because they serve as a protective source of stability and security. They further assert, that the attachment model (with its emphasis on provision of a secure base from which to explore) recognizes the roles that both connection and support for autonomy play

in the development of psychological growth and adaptive functioning. Attachment theory, therefore helps to explain how parental closeness can continue to be a protective buffer and source of security throughout adolescence, and recognizes the influence that relationships with parental attachment figures can have on the development of both internal and external coping resources (Kenny & Rice, 1995).

Kenny (1987) has described the experience of leaving home for college as a naturally occurring adolescent equivalent of the 'Strange Situation' that Ainsworth et al. (1978) designed to assess security and style of attachment in infants. As was explained above, in the Strange Situation infants' security and style of attachment to their caregivers is determined by their reactions to a series of separations and reunions from their caregiver that were designed to activate the attachment system in a laboratory setting. After leaving home for college or university students must adjust to and explore a novel and challenging situation while being separated from their parents for an extended period. This extended separation from their parents is likely to activate the attachment system. When students feel securely attached to their parents, and trust that they will be available as a source of help and comfort when needed, they should be able to use their parents as a secure base from which they are free to explore their new environment, adjust well, and perhaps even thrive. Insecure attachment on the other hand may lead to undue stress and anxiety during this extended separation and may lead to more difficulties in adjusting to and meeting the challenges of university life. In fact, Kenny and Rice (1995) assert that the availability of parental support may thus be important for the late adolescent college student because it provides the necessary safety net that will allow them to engage in personal and interpersonal risk taking that is needed in order to develop new relationships, attempt challenging course work and to explore issues of self and identity in the context of a changing social and academic environment.

Kenny and Rice (1995) note that parental attachments may also have an indirect influence on students' internal and external coping resources through their contributing role in the development of students' generalized internal working models of self and others. They note that

theoretically secure internal working models contribute to conditions of psychological resilience, whereas insecure working models contribute to psychological risk. They explain that according to Bretherton (1985) internal working models are thought to affect the ways in which subsequent life experiences are perceived and interpreted, and thus act as mediators in the relationship between quality of attachment to parents and psychological well-being. As such, they assert, negative working models of self may predispose one to interpret losses and disappointments as personal failures, leaving oneself vulnerable in common circumstances such as when one obtains a failing grade or experiences rejection in a social situation. Students with more positive models of self, are thought to be far less vulnerable in such circumstances. They further suggest that positive models of others may better equip students to anticipate and develop supportive relationships with peers and faculty on campus, thus buffering the impact of stresses associated with college life. Students with negative models of others may anticipate less positive interactions, and may find establishing supportive relationships more difficult. Finally, they note that while internal working models in adolescents are thought to be somewhat resistant to change, change is possible. They argue that the manner in which the challenges of leaving home for college are met may lead some insecure students who adjust well to revise their models in such a way that they become more secure and then show more adaptive functioning, or conversely may lead some secure students who have difficulties in adjusting to become less secure, and experience more distress.

Kenny and Rice (1995) go on to discuss a model of developmental trajectories that was developed by Petersen and colleagues (Petersen, Kennedy & Sullivan, 1991; Rice, Herman, & Petersen, 1993). This model is analogous to the developmental pathway model that was proposed by Bowlby, and may help to delineate circumstances under which changes in internal working models and developmental trajectories may occur. They assert that this model is ideally suited to understanding the role that attachment to parents may play in helping adolescents to meet the developmental challenges with which they are presented. According to this model, the internal and external resources available to adolescents determine how well they adjust to

situational or developmental challenges or stressful life events and hassles (such as the transition to college, ending a relationship, or failing an exam). Internal resources refer to qualities of the individual such as coping skills, self-efficacy, and fund of general knowledge. Positive internal working models of self and other could also be seen as internal resources. External resources refer to interpersonal sources of support and guidance such as attachment relationships. These internal and external resources are seen as moderators of the effects that stressful events and developmental challenges have on adjustment. According to this model, stress and difficulties in adjustment are experienced when one's internal or external resources are insufficient to meet the challenges with which one is faced.

Kenny and Rice (1995) propose that adolescents with positive internal working models and secure attachment relationships with their parents, therefore, may face the challenges of late adolescence and adjustment to college equipped with important internal and external resources. In contrast, those with negative internal working models of attachment and insecure attachment relationships with their parents may face those challenges with relatively fewer resources. The transition to college may, therefore, be a time when the adjustment difficulties of insecure students are exacerbated if they find that their resources are inadequate to meet the challenges with which they are faced, thus propelling them further along a developmental trajectory of continuing adjustment difficulties. In contrast, secure students who find their resources to be sufficient, and thus are successful in meeting the challenges presented to them, may experience further increases in their sense of self-efficacy and thus be propelled further along a trajectory of adaptive functioning.

This model, however, also provides space for other possibilities. In particular, Kenny and Rice (1995) assert that an adolescent's leaving home for college often makes it necessary for adolescents and their parents to renegotiate the balance between connection and autonomy in their relationship. Difficulties in renegotiating this balance could lead to the loss of important parental support for some adolescents leading to more insecurity and possible changes to their working models of attachment. In these cases, their available resources are reduced and the

developmental trajectories of previously secure and well-adjusted students may be altered towards less adaptive functioning. Conversely, distance from parents and increasingly sophisticated cognitive skills may provide other late adolescent college students with opportunities to develop new and corrective interpersonal experiences, leading to a reevaluation of models of self and others. When this occurs, previously insecure students may experience an increase in available resources and alterations in their developmental trajectories towards more adaptive functioning.

In summary, attachment theory appears to be a promising approach to understanding the challenges faced by late adolescents as they leave home for college. Kenny and Rice (1995) further note that a growing literature is accumulating considerable evidence that secure attachment does predict better adjustment among college students.

In their review of the literature, Kenny and Rice (1995) conclude that research has consistently supported the assertion that attachment (assessed in a variety of ways) is related to adjustment to college (also assessed in a variety of ways). They further note that relationships between security of attachment to parents and emotional, interpersonal, and academic adjustment have been demonstrated in a number of studies (e.g. Lapsley, Rice, & Fitzgerald, 1990), and that other studies have demonstrated that attachment to parents is also related to separation-individuation (e.g. Kenny & Donaldson, 1992), psychological distress, and relationship satisfaction (Bradford & Lyddon, 1993), problem solving (Brack, Gay & Matheny, 1993), and assertiveness (Kenny, 1987). Strang and Orlofsky (1990) found that attachment to parents measured with a commonly used attachment measure (the Inventory of Parent and Peer Attachment) was quite strongly related to levels of suicidal ideation in a general sample of college students. Those with more secure attachments to their parents reported significantly less suicidal ideation than those with less secure attachments to their parents.

In a study of parental social support, Cutrona, Cole, Colangelo, Assouline, and Russell (1994) found that parental reassurance of worth predicted college grade-point average after controlling for aptitude, family achievement orientation, and family conflict. They interpreted this finding from an attachment perspective.

Patterson et al. (1995) examined two attachment-related concepts as predictors of self-esteem in adolescents living in New Zealand. They found that adolescents' reports of their actual utilization of their parents for support were only minimally related to aspects of self-esteem. In contrast, quality of affect in the relationship with parents was significantly and meaningfully related to overall self-esteem and coping abilities. Quality of affect towards peers was related to social competence but not to overall level of self-esteem or coping abilities. They interpret their finding, that adolescents' confidence in their parents' availability and commitment to them was more important than their actual utilization of their parents, as support for the notion of parents serving as a secure base from which adolescents can confidently explore.

A series of recent studies conducted by Rice and his colleagues (Rice & Whaley, 1994; Rice, Fitzgerald, Whaley, & Gibbs, 1995; Rice & Cummins, 1996; Rice, Cunningham & Young, 1997) have continued to support the association between attachment to parents and adjustment to college and have attempted to further delineate the relationship. For example, Rice and Whaley (1994) measured attachment and adjustment to college at three points in one semester in order to determine whether the relationship between attachment and adjustment differed at different more and less stressful points in a semester. They found that security of attachment to mother and father were consistently important for female students' academic, interpersonal, and emotional adjustment, predicting between 15% and 28% of the variance in each of these types of adjustment throughout the semester. For male students, however, attachment was not an important predictor of adjustment until the highly stressful period preceding exams at the end of the semester. At that point, security of attachment accounted for 25% of the variance in men's academic adjustment, 57% of the variance in their emotional adjustment, and 16% of the variance in their social adjustment. Security of attachment to their fathers was a more important predictor of men's adjustment than was security of attachment to their mothers. For women, attachment to their mothers was a more important predictor of their social adjustment, but attachment to both parents was equivalently important for their academic and emotional adjustment. These results point to the importance of considering the stress students are under at the time of assessment. Consistent

with attachment theory, these results indicate that the attachment system may be activated during times of stress, and that attachment variables can be more important predictors of adjustment at those times than at less stressful times.

Rice et al. (1995) conducted both cross-sectional and longitudinal studies of the relationship between security of attachment to parents and adjustment to college. This allowed them to compare the predictive ability of concurrent and prospective attachment ratings. In their first, cross-sectional study, they once again found that securely attached students reported better academic, social, and emotional adjustment than did their insecurely attached peers. Secure students were also more committed to their goals, and reported better study skills, better mental health, and better personal relationships than insecure students. Secure students also reported less conflict with their parents and more positive feelings about separation from them than their insecure peers. In their longitudinal study, they found that on average students reported similar levels of attachment to their parents in their first and second years of college. Only 10% of those classified as securely attached in their first year were classified as insecure in their second year. One third of those originally classified as insecure were classified as secure in their second year. Secure attachment in first year was related to better academic and emotional adjustment in second year. Academic and emotional adjustment were linked to both concurrent and prior assessments of attachment to parents. In contrast, social adjustment was related only to concurrent attachment ratings. Overall, attachment to parents at one point in time was found to predict both concurrent and subsequent adaptive functioning.

Rice and Cummins (1996) asked both college students and parents to fill out measures of student attachment to parents. Parents were asked to fill out the measure as they thought their son or daughter would fill it out. This was done to determine whether parent reports of attachment would add to our ability to predict student adjustment. Parent reports were not found to add significantly to student reports in predicting self-esteem and social self-efficacy. Finally, Rice et al. (1997) compared the ability of attachment models to predict social competence and

emotional well being in black and white college students. In all analyses, no significant differences in strengths of association were found for black and white students.

In summary, this series of studies by Rice and his colleagues has helped to further delineate factors that may influence the relationship between attachment to parents and adjustment to college. The most striking result of this body of work is that self-reported security of attachment to parents was consistently found to predict moderate amounts of variance in various indices of adjustment to college in different groups of students using a variety of means of assessment. This work has also highlighted the importance of thinking about factors that may influence the relationship between security of attachment and adjustment, such as the amount of stress a person is currently experiencing. In the conclusion of their review, Kenny and Rice (1995) recommended that it is important for researchers to begin delineating the roles of various mediating processes. Their body of research since that time has taken that recommendation to heart. In their conclusion to their review they suggested that one important future avenue of investigation would be to assess the mediating role of internal working models of self and others in the relationship between attachment to parents and adjustment to college.

Lopez (1996) examined security of attachment to parents, working models of attachment, and constructive thinking in college students. He used Simpson's (1990) measure of adult attachment to examine the influence of internal working models. That measure has been found to have two underlying dimensions: one measuring level of comfort with interpersonal closeness and dependency, and the other measuring degree of tension or worry about distance or separateness in relationships. These have been labeled avoidance and anxiety respectively, and correspond quite well to Bartholomew's dimensions of model of others and model of self. Lopez (1996) found that controlling for gender and ethnicity both parent-child emotional bonds and current attachment orientations significantly predicted constructive thinking scores. Adult-child emotional bonds no longer predicted constructive thinking after accounting for adult attachment orientations. The anxiety and avoidance scales of the measure of adult attachment orientations accounted for 26% of the variance in constructive thinking. Security of parent-child emotional bonds did not add

significant variance to this prediction. Adult attachment orientations, therefore, effectively mediated the influence of parent-child emotional bonds on constructive thinking.

The only other study available that has examined both security of attachment to parents and adult attachment orientations in predicting adjustment in college students is an unpublished doctoral dissertation by Blain (1994), who examined adult attachment orientation using Bartholomew's model. She used the forced-choice method, asking each student to choose which of the four prototypes characterized them best, rather than looking at the degree of correspondence of participants to each of the four prototypic attachment styles. She then examined the relationships between attachment to parents, attachment style, and overall adjustment to college, but did not look separately at the different components that make up overall adjustment scores (i.e. academic, social, emotional, and goal commitment). Blain (1994) failed to find a relationship between attachment style and overall adjustment to college. Similarly, she did not find significant relationships between security of attachment to mother or father and overall adjustment to college. At first glance, these results appear to be surprising given that relationships between attachment to parents and adjustment to college have repeatedly been reported in the literature. It may, however, be that by using only overall adjustment scores, significant relationships between attachment to parents and some components of adjustment to college have been masked. For example, academic and emotional adjustment to college have been more consistently related to attachment to parents than has social adjustment. Overall adjustment scores may obscure such relationships. The use of overall scores rather than looking separately at components of adjustment may also have contributed to the fact that attachment styles were not related to college student adjustment. It is likely that students reporting different attachment styles would show different patterns of strengths and weaknesses in adjustment. These patterns would be obscured by the use of overall adjustment scores. Another reason for the lack of a significant link between attachment style and adjustment to college may be attributable to the use of forced-choice attachment categories. Griffen and Bartholomew (1994a) note that the use of categories rather than ratings of correspondence to the four prototypes obscures within group

variance. They further note that ratings of the four prototypes contribute significantly to the prediction of various outcome variables over and above the variance accounted for by group membership. For example, they report that group membership accounted for 18% of the variance in reported anxiety, and ratings of the four attachment prototypes added another 9% to the predictability of that variable. They assert that their analyses consistently demonstrate the utility of within-category variation on the attachment prototypes. Unfortunately, due to the lack of association found between the attachment variables and adjustment to college in Blain's (1994) study, she was unable to examine the important question of whether the relationship between security of attachment to parents and indices of adjustment to college is mediated by adult attachment style.

Adult Attachment Style and Adjustment to University

Research to date has not directly examined the relationships between the adult attachment styles and most components of adjustment to university. Existing theory and research findings do, however, provide useful information to guide the development of hypotheses regarding these relationships. This existing information will be considered in a discussion of the potential relationships between Bartholomew's four adult attachment prototypes and academic, social, and emotional adjustment to university. University students' reasons for drinking alcohol have also been related to their adjustment (Cooper, 1994), and can thus be considered as indices of adjustment to university. Existing theory and research point to probable relationships between insecure adult attachment styles and problematic reasons for drinking during the first year of university. This literature will also be discussed.

Academic adjustment.

Security in specific attachment relationships has been consistently related to academic adjustment (e.g. Kenny & Rice, 1995). Students who report a high degree of correspondence to the secure adult attachment prototype are, therefore, also likely to show better academic adjustment than those who report lower levels of correspondence to the secure prototype. As

Kenny and Rice (1995) propose, from a theoretical standpoint, more secure students are likely to have access to more internal and external resources with which to cope with the academic demands of college life.

It has also been argued that students reporting higher levels of dismissing-avoidance are likely to show relatively good academic adjustment. Crittenden (1997), for example, argues that students who employ deactivating attachment strategies such as dismissing-avoidance may sublimate their attachment needs through striving for athletic or academic excellence. In support of that theory, Hardy and Barkman (1994) found that in a work environment avoidant individuals tend to become over-involved with their work resulting in good work performance at the expense of interpersonal relationships. This is likely to be just as true of academic work. Brennan and Morris (1997) determined that dismissing individuals derive their sense of self-worth from their accomplishments and competencies rather than from a sense of self-liking. They argue that these individuals may, therefore, neglect relationships in favour of personal accomplishments, which is likely to include academic achievement.

Individuals reporting high levels of correspondence to the preoccupied and fearful prototypes are less likely to show good academic adjustment. Hardy and Barkman (1994), for example, found that in a work setting preoccupied employees showed poorer work performance and were more concerned about relationships with coworkers to the detriment of their performance. This is also likely to hold true in an academic environment. Kobak and Cole (1991) theorize that individuals who employ hyperactivating attachment strategies such as preoccupied individuals are likely to focus excessively on their own shortcomings leading to difficulties in attending to other activities requiring exploration and autonomy, and are thus less able to competently master developmental tasks and challenges. Although fearful individuals employ avoidant strategies, their negative models of self and others lead them to experience very low levels of self-confidence and relatively high levels of distress (Bartholomew & Horowitz, 1991). If they have difficulty attenuating such distress, it is likely to interfere with their ability to concentrate on their schoolwork and thus may lead to poorer academic adjustment.

Social adjustment.

More secure individuals report higher levels of sociability and lower levels of interpersonal problems than their less secure peers (Bartholomew & Horowitz, 1991), a pattern that is likely to be related to good social adjustment. In support of this, more secure students are characterized by their lack of extreme scores on a profile of interpersonal problems. They tend to be moderately warm and nurturant, high in intimacy, and showed a balance of control in relationships (Bartholomew & Horowitz, 1991). Secure individuals have also been shown to be more attached to their friends and to perceive more social support from them than their peers who identified themselves more with any of the insecure attachment styles (Blain, Thompson, & Whiffen, 1993).

Those who report high correspondence to the dismissing-avoidant prototype report low sociability, but few interpersonal problems (Bartholomew & Horowitz, 1991). Like their secure peers, they are therefore likely to report good social adjustment in spite of their lack of sociability. In support of this, Bylsma, Cozzarelli, and Sumer (1997) found that secure and dismissing college students reported greater competence in social domains than did preoccupied or fearful students. Bartholomew (1993) reported that in one study she found that students who reported high levels of either dismissing or fearful avoidance also reported low sociability, having few friends, and low popularity with their peers in comparison to more secure or preoccupied students. This led to more distress amongst the fearful-avoidant than amongst the dismissing-avoidant students. While the fearful-avoidant students reported high levels of shyness and fear of rejection, the dismissing-avoidant students reported a low need for sociability and a lack of motivation to pursue relationships. These results were replicated in a study by Duggan and Brennan (1994), who found that a fearful-avoidant attachment style was associated with a desire for social relationships coupled with avoiding social contact due to shyness and fear of rejection, whereas dismissing-avoidance was associated with a denial of a need or desire for social contact. Kobak and Sceery (1988) found that peers of individuals who employ deactivating attachment strategies such as dismissing-avoidance reported that they seemed hostile and condescending. The dismissing-avoidant individuals, however, reported few difficulties in interpersonal relationships. It may be

that, from their perspective, dismissing-avoidant individuals perceive few interpersonal problems as they are comfortable with low levels of sociability and interpersonal warmth.

In their examination of characteristics associated with each of the adult attachment prototypes, Bartholomew and Horowitz (1991) report that dismissing-avoidance was best characterized by a lack of warmth in social relationships. Dismissing individuals were also characterized as controlling in relationships and as exhibiting low levels of nurturance and caregiving. They scored lower than their secure and preoccupied peers did on all measures of closeness in personal relationships. As noted above, however, dismissing individuals do not report much distress arising from their interpersonal problems. They are therefore unlikely to report poor social adjustment to college.

More preoccupied students report both high sociability and a high number of interpersonal problems (Bartholomew & Horowitz, 1991). They have been characterized as warm but dominant and controlling. They tend to be overly expressive, and can be indiscriminant and even intrusive in their self-disclosure. They also tend to be highly reliant on others (Bartholomew & Horowitz, 1991). Kobak and Sceery (1988) report that individuals who use hyperactivating attachment strategies, such as preoccupied individuals, tend to be overly anxious about their relationships and overly concerned about their personal adequacy. They report low levels of social competence and are distressed by their interpersonal difficulties. Preoccupied individuals are, therefore, likely to report significant difficulties with social adjustment to college.

Finally, students who report high levels of fearful-avoidance describe themselves as low in sociability and as experiencing many interpersonal problems. Fearful-avoidance is best characterized by lack of assertiveness in interpersonal interactions and social inhibition. These individuals tend to be overly passive, and low in both expressiveness and competitiveness. They report difficulties with being easily exploited. In interpersonal relationships, they tend to be low in self-disclosure, intimacy, and reliance on others, especially when distressed (Bartholomew & Horowitz, 1991). Since those reporting high levels of fearful-avoidance desire interpersonal

contact but tend to avoid it out of fear of rejection, they are likely to be acutely aware of their interpersonal difficulties and thus to report poor social adjustment to college.

Emotional adjustment.

Security in attachment relationships with parents has been consistently related to emotional adjustment to college (e.g. Kenny & Rice, 1995). Bartholomew's (1990) secure adult attachment prototype is characterized by a sense of self-worth and confidence in the trustworthiness and availability of important others, and should therefore be directly related to good emotional adjustment. Kobak and Sceery (1988) found that more secure students, as measured in the Adult Attachment Interview, showed more flexibility and resilience in coping with the challenges associated with adjustment to college. In contrast, their less secure counterparts showed more rigid, restricted, and maladaptive forms of coping.

Dismissing individuals report high self-confidence and low levels of personal distress (Bartholomew & Horowitz, 1991; Kobak & Cole, 1991). Kobak and Cole (1991) theorize that individuals who employ deactivating attachment strategies, such as dismissing avoidance, cope by diverting their attention away from internal signals of distress and attachment issues. They are, therefore, more likely to engage in diversionary activities such as substance abuse than to directly experience personal emotional distress. They note that these individuals actually tend to report little personal distress even though they have also been demonstrated to be less resilient than are their secure peers in coping with change. In support of this, Murphy and Bates (1997) found that unlike the fearful and preoccupied insecure prototypes, the dismissing prototype is not associated with increased risk of depression. Students reporting high levels of dismissing-avoidance are, therefore, unlikely to report many difficulties with emotional adjustment to college.

Kobak and Cole (1991) theorize that individuals who employ hyperactivating attachment strategies, such as more preoccupied individuals, will tend to be excessively self-focussed and concerned with their personal adequacy, leading them to amplify their levels of emotional distress. Bartholomew and Horowitz (1991) note that these individuals tend to cry easily and report low self-confidence. As noted above, Murphy and Bates (1997) found that preoccupied individuals

were more prone to depression than their secure and dismissing peers. More preoccupied students are thus likely to report poorer emotional adjustment to college than are their less preoccupied peers.

Individuals who report high correspondence to the fearful-avoidant prototype are uniquely low in self-confidence (Bartholomew & Horowitz, 1991). Murphy and Bates (1997) likewise report that these individuals are at the greatest risk for depression. These students tend to report high levels of emotional distress and generally possess few internal or external resources with which to cope with the stresses involved in the transition to college. They are therefore likely to report significant difficulties with their emotional adjustment to college.

Reasons for drinking.

Cox and Klinger (1988, 1990) proposed that motives for drinking can be meaningfully categorized by two underlying dimensions representing the valence (positive versus negative) and source (internal versus external) of the outcomes people hope to achieve by drinking. People may thus drink in order to achieve positive outcomes or to avoid negative ones (positive or negative reinforcement). At the same time they may drink in order to achieve desired internal states or to achieve desired external rewards. Four distinct reasons for drinking result from crossing these two dimensions. People may drink to achieve a positive internal state (positive reinforcement, internal). Their goal may therefore be to increase positive affect. They may drink to reduce a negative internal state (negative reinforcement, internal). Their goal in that case could be to reduce negative affect. A third reason for drinking would be to increase external rewards (positive reinforcement, external). People may thus drink in order to increase their sociability, and thus gain positive social rewards. Finally, people may drink in order to reduce negative external pressures (negative reinforcement, external). In this final case, their goal might be to reduce social censure or rejection.

Factor analyses of several scales used to assess drinking motives in adolescents and college students (Cooper, 1994; Sher, Walitzer, Wood & Brent, 1991; Smith, Abbey, & Scott, 1993; Weinberger & Bartholomew, 1996) have consistently found that 3 or 4 factors best explain

reasons for drinking in these populations. Three factors representing attempts to increase positive affect, decrease negative affect, and increase sociability have been consistently described. Fourth factors have included performance enhancement (Sher et al., 1991) and social conformity (Cooper, 1994). These empirical findings fit well with the theoretical model proposed by Cox and Klinger. Cooper (1994) developed a measure of drinking motives based on the theoretical work of Cox and Klinger (1988, 1990), and proposed drinking to enhance positive feelings, drinking to reduce negative feelings, drinking to socialize, and drinking to conform as the four motives for drinking among adolescents.

Cooper (1994) found that each of the four drinking motives was associated with a unique pattern of alcohol use and drinking-related outcomes. Drinking to enhance positive affect, was associated with heavy drinking and drinking in settings where heavy drinking is tolerated or encouraged (e.g. in bars, with same-sex friends), however it was only indirectly associated with drinking problems through levels of consumption. Social motives were positively associated with quantity and frequency of consumption and with drinking in celebratory settings (e.g. at parties, with mixed-sex friends). Social motives were not associated with drinking problems. Coping motives, or drinking to reduce negative affect, were associated with solitary drinking and predicted drinking problems both directly and indirectly through consumption. Conformity motives, or drinking to reduce social pressure or rejection, were negatively related to quantity and frequency of usual consumption. Those who reported conformity motives for drinking were most likely to drink in settings where social pressure to drink is high (e.g. at parties). Despite their association with light and infrequent drinking, conformity motives were directly related to drinking problems. Drinking to cope with negative affect and drinking to conform are negative reinforcement motives, and were the drinking motives that were directly related to drinking problems. In contrast, drinking to socialize or to enhance positive feelings were normative reasons for drinking, and were not directly related to drinking problems.

Griffen and Bartholomew (1994b) outline distinct patterns of emotional regulation and interpersonal behaviour for each of the four adult attachment patterns. They note that fearfully-

avoidant individuals have negative expectations of others and thus avoid intimacy to avoid the pain of loss or rejection. Fearful-Avoidance has also been linked with high levels of psychological distress in a number of studies (e.g. Muller, Sicoli, & Lemieux, 2000). Given their high levels of distress and avoidance of intimacy, fearfully avoidant individuals may be most likely to drink in order to cope with their negative affect. Dismissing-avoidance is associated with avoidance of close relationships and the defensive denial of the value of close relationships. These individuals tend to stress the importance of independence (Griffen & Bartholomew, 1994b). Given their use of denial and deactivating strategies, they may also be prone to drinking to avoid their negative affect. Preoccupied individuals, in contrast may seek out social situations and may be the most likely individuals to drink in order to fit in and to be accepted. Griffen and Bartholomew (1994b) note that preoccupied individuals may attempt to bolster their inadequate sense of self worth through their relationships with others, and have a need for acceptance. They are thus likely to drink to conform. Secure individuals may demonstrate normative patterns of drinking, and thus may be more likely to drink to socialize and to enhance positive feelings.

Trauma, Attachment, and Adjustment to University

The role of trauma in adjustment to university is also of great interest in the current study. The Constructivist Self-Development Theory (CSDT; McCann & Pearlman, 1990) of the effects of trauma outlines negative consequences of trauma exposure that are remarkably parallel to the negative effects of attachment insecurity proposed by Bowlby. According to this theory, trauma usually impacts on one's frame of reference, which is one's framework for viewing and understanding oneself and the world. In this theory, as in attachment theory, basic psychological needs are thought to shape the behaviour and relationships of individuals. These needs are thought to develop through early experiences of gratification, frustration, reinforcement, and association. CSDT posits that these needs both shape and are shaped by one's experience in early caretaking relationships. Also similar to working models in attachment theory, CSDT postulates

that needs continue to develop over the life span, but they are less amenable to change over time (McCann & Pearlman, 1990).

According to CSDT, traumatic events can profoundly impact psychological needs. CSDT focuses on five primary psychological needs: safety, trust/dependency, esteem, intimacy, and control. Furthermore, each of these needs is said to be manifest both in relation to the self and in relation to others. McCann and Pearlman (1990) propose that these five needs appear to be most sensitive to the effects of psychological trauma. With the experience of trauma an individual's sense of self-safety and other safety, his or her sense of self-trust and trust of others, his or her sense of self-esteem and esteem for others, his or her capacity for self-intimacy and intimacy with others, and his or her sense of self-control and need to control others all have the potential to be disrupted. Consequently, traumatized individuals tend to develop negative internal working models of self and others.

Since internal models of self and others have been shown to be two primary dimensions underlying the four attachment styles proposed by Bartholomew (1990), by disrupting these models of self and others, the experience of trauma may therefore lead to fundamental changes in one's usual attachment style. If this theory holds true, one would expect that individuals with a history of exposure to trauma would be over represented among those reporting high levels of correspondence with the Fearful-Avoidant attachment prototype. This should be the case if exposure to traumatic events leads to the development of a negative view of oneself and of others.

Histories of exposure to traumatic events, trauma symptoms, and adult attachment styles have been linked in many recent studies. In general, these studies examined groups of individuals who were known to have been exposed to a potentially traumatic experience. Most often adult survivors of childhood physical or sexual abuse were studied. In general these studies have found higher proportions of individuals who correspond to the fearful-avoidant prototype among victims of abuse and other trauma survivors than among participants who are not survivors of abusive or traumatic experiences (e.g. Alexander, Anderson, Brand, Schaeffer, Grelling, & Kretz, 1998; Fossel, 1997; Kutil, 1998, Roche et al., 1999). The goal of these studies has generally been to

discover factors that predict which survivors of abuse or other traumas will suffer most from trauma symptoms and other forms of distress and which will suffer less. Several of these studies have found that attachment style mediates the relationship between having a history of abuse or other trauma and current level of distress.

Fossel (1997) studied a sample of 565 female undergraduate students, 151 of whom were survivors of childhood sexual abuse. More victims than non-victims reported a fearful-avoidant attachment style, while fewer victims than non-victims reported a secure attachment style. Both abuse severity and fearful attachment predicted trauma symptoms, and the relationship between abuse severity and trauma symptoms was stronger at higher levels of fearful attachment. Degree of fearful-avoidance was a moderator of the relationship between abuse severity and trauma symptoms, but degree of security was not. She thus found that being fearfully-avoidant exacerbates the negative effects that abuse may have on the experience of trauma symptoms and other psychological symptoms.

Kutil (1998) studied a large sample of undergraduate students and found that students who did not report a history of abuse were more secure, less dismissing, and less fearful than were those with a history of abuse. Students with a history of abuse were significantly more depressed, had lower self-esteem, and reported more than twice as many trauma symptoms as those without a history of abuse. She found that attachment style completely mediated the relationship between history of abuse and self-esteem and current relationship functioning. Attachment style partially mediated the relationship between history of abuse and trauma symptoms and depression. A measure of attachment to parents did not mediate any of the relationships between history of abuse and current functioning.

Roche et al. (1999) also studied a sample of undergraduate students. Of their sample of 307 students, 85 had experienced child sexual abuse. Of those 85, 31 reported experiences of intra-familial abuse and 54 reported experiences of extra-familial abuse. They found that students who were not abused were more secure and less fearful than were those who were abused. Among those who were abused, intra-familial abuse was associated with greater fearfulness, and lower

levels of security and dismissing-avoidance than was extra-familial abuse. When models of self and other were examined; students without a history of abuse had more positive models than did those with a history of abuse. Intra-familial abuse was associated with more negative models of self than was extra-familial abuse. There were no differences between the two abuse groups on models of others. Adult attachment was found to predict psychological adjustment independent of history of abuse, but history of abuse did not predict adjustment independent of attachment. It was thus concluded that the findings were supportive of a model whereby attachment mediates the relationships between history of abuse and current adjustment.

Shapiro and Levendosky (1999) studied 14 to 16 year-olds who were survivors of abuse. They found that greater attachment security predicted lower levels of distress, whereas greater insecurity predicted higher levels of distress. Degree of security thus acted as a mediator between history of abuse and current distress.

Muller, Sicoli, and Lemieux (2000) studied a community sample of adults who had been physically or sexually abused as children. 76% of their sample endorsed an insecure attachment style. Fearful-avoidance was most related to current trauma symptoms, and Preoccupied attachment had the second highest relationship to trauma symptoms. Scores for trauma symptoms were significantly higher for those endorsing fearful-avoidant than for those endorsing secure or dismissing-avoidant attachment styles. Among all of the factors studied, a negative view of self was found to be most highly associated with current trauma symptoms.

Alexander et al. (1998) also studied a community sample of adult incest survivors. They found that only 9% of their sample reported corresponding most to the secure attachment style, while 60% reported corresponding most to the fearful-avoidant style. They also found that severity of the abuse experienced was not related to attachment style. In contrast to previous studies, they did not find that adult attachment style mediated the relationship between history of abuse and current trauma symptoms. Attachment style did, however, mediate the effects of history of abuse on current personality structure, depression and distress. Abuse severity, rather than attachment style, predicted trauma symptoms.

Given that the goal of most of these studies was to determine which survivors of trauma will suffer the most negative aftereffects, they have examined attachment style as a mediator between exposure to potentially traumatic events and the development of trauma symptoms. The ordering of the variables is however based on theory and equally significant results would likely be found using a model where exposure to trauma leads to trauma symptoms, and the experience of trauma symptoms leads to changes in one's internal working models of attachment, which in turn leads to difficulties in various domains of adjustment. This second model does not help to explain factors that mediate between exposure to trauma and the development of trauma symptoms. It is however consistent with the idea that, experiencing trauma symptoms in and of itself can lead to changes in one's internal working models of attachment. As noted by Muller et al. (2000), the ordering of the variables is based on theory, and only longitudinal prospective studies would be able to determine which model is more accurate.

It is likely that the links between trauma and attachment style are in fact somewhat circular. Attachment style at the time of exposure to trauma likely does have an impact on the severity of symptoms experienced, however the experience of trauma symptoms likely in turn leads to changes in one's internal working models of attachment as proposed by Constructivist Self Development Theory. One would then likely develop more fearful and less secure internal working models of attachment, which would lead to difficulties in various domains of adjustment. This circular model could only be tested with a prospective longitudinal study where it is possible to know the nature of participants' internal working models of attachment prior to exposure to potentially traumatic events.

In the current study, which was not a prospective longitudinal study, the variables were ordered in such a way as to test the second part of the circular model. Exposure to trauma and its negative aftereffects including trauma symptoms were thus used to predict attachment style, which in turn was used to predict difficulties in various domains of adjustment.

Propensity to Seek Social Support as a Linking Mechanism between Attachment Style and Adjustment

In discussing the consequences for children of insecure attachment to their parents, Parkes (1997) notes that “trust in oneself and trust in others are the twin benefits of ‘good-enough’ parenting” (p.16). He goes on to assert that these positive working models of self and others “improve the child’s chances of building up a repertoire of coping strategies that will enable them to cope with most psychosocial transitions and *to seek for help when it is needed*” (p.16, emphasis added). Coble, Gantt, and Mallinckrodt (1996) assert that a growing body of research seems to indicate that “at least three conditions are necessary for an individual to derive benefit from social support for coping with a given stressful life event: (1) the environment must offer support of the functional types and from relationship sources that match the coping requirements of the event; (2) the individual must possess social skills necessary to engage in supportive relationships, establish intimacy, and recruit the specific types of social support needed for coping with the stressor; and (3) *the individual must have the personality disposition and willingness to exercise these skills*” (p.141, emphasis added). They further note that, converging lines of research findings from social psychology, developmental psychology, and interpersonal process in psychotherapy, suggest that a substantial number of people fail to make use of their social resources in spite of their possession of the requisite social skills and of readily available potential sources of support. They note that these individuals appear to lack the personality disposition and/or willingness to seek social support (Coble et al., 1996).

Coble et al. (1996) assert that capacity to trust, ability to depend on others, and capacity to develop emotional closeness are higher-order social competencies that involve complex combinations of more basic social skills, as well as the personality disposition and beliefs that create a willingness to use these skills. They further suggest that converging lines of research indicate that early attachment experiences may have a profound impact on the development of these higher-order social competencies. They note that working models of attachment guide an individual’s social functioning and organize information about others and their capacity and

willingness to provide support. Those with secure attachment styles, and thus positive working models of self and others, are likely to demonstrate greater social competence with regard to capacity to trust, depend on, and develop emotional closeness with others, and should therefore be more open to supportive relationships and more adept at mobilizing and utilizing social support (Coble et al., 1996). In contrast, they predict that those with less secure attachment styles that are characterized by reluctance to trust and fear and ambivalence toward others will be less able to recruit and use social support.

Blain, Thompson and Whiffen (1993) found that secure individuals, who possess positive working models of both self and others, actually perceive themselves as having more social support, while their less secure peers, who possess negative working models of either self or others or both report lower levels of perceived social support. Coble et al. (1996) assert that, in their experience, many insecure people are able to demonstrate competent social skills in situations where little interpersonal risk is involved but seem unable or unwilling to take the interpersonal risks involved in recruiting social support when they are stressed. This is consistent with the findings of Simpson, Rholes, and Nelligan (1992), who found that more securely attached women used their partners as a source of comfort and reassurance as their anxiety increased, whereas more avoidant women sought less support from their partners as their anxiety increased. These avoidant women were capable of seeking support from their partners when their anxiety was low, but withdrew and were unable to use their partners as a secure base as their level of anxiety increased. These women thus possessed the requisite social skills and had an available source of support, but were unable to use that support when anxious. Similarly, in an Israeli study, Mikulincer, Florian and Weller (1993) found that secure students reported seeking more support in order to cope with the stress of Iraqi missile attacks on Israel during the gulf war than either avoidant or ambivalent students. Secure attachment thus does appear to be related to willingness and ability to use social support in order to cope with stressful situations.

To examine whether individuals reporting different attachment styles also report differences in their willingness to utilize their social support resources, Wallace and Vaux (1993) used a

measure of social support network orientation, the Network Orientation Scale. Secure individuals reported a more positive orientation towards their support networks than either avoidant or ambivalent individuals. Avoidant participants endorsed items reflecting a desire not to rely on others for support more frequently than did more secure participants. Both avoidant and ambivalent participants reported more mistrust of others than did their more secure peers. Although they did not relate attachment style and social support network orientation to any outcome measures, Wallace and Vaux (1993) conclude that, since individuals reporting different attachment styles also show differences in their expectations, attitudes and beliefs regarding the desirability and effectiveness of seeking social support, some of the distress displayed by insecurely attached individuals is likely to be related to the ways in which they utilize, or fail to utilize, their support network resources.

In their review of attachment, social competency, and the capacity to use social support, Coble et al. (1996) conclude that fears of intimacy together “with beliefs about the self and others that interfere with developing intimate relationships--not the availability of social support per se, or the lack of basic social skills--pose the highest barrier to the benefits of social support for the greatest number of clients” (p.143). In concluding this review, they emphasize that conclusions drawn from the very small amount of literature on social support and attachment must remain very tentative, and that there is a great need for further research in this area. Their review appears to point to an especially great need to further demonstrate the circumstances under which some people, and in particular those with insecure working models of attachment, are unable or unwilling to use available social support even when they possess the skills thought to be necessary for recruiting that support.

Social support network orientation appears to be a promising avenue for future research into the potential links between attachment and adjustment. It will be important to establish whether, as Wallace and Vaux (1993) proposed, some of the distress and adjustment difficulties displayed by insecurely attached individuals are related to their degree of willingness to utilize available

social support resources. In the current study, social support network orientation was examined as a possible linking mechanism between attachment styles and adjustment outcomes.

Literature regarding social support network orientation.

Tolsdorf (1976) first proposed the concept of social support network orientation. Tolsdorf (1976) conceptualized network orientation as “a set of beliefs, attitudes, and expectations concerning the usefulness of one’s network members in helping one to cope with a life problem” (p. 413). In a study that compared the social networks of first-admission psychiatric patients and recently hospitalized medical patients, Tolsdorf (1976) found that many psychiatric patients but few medical patients held a negative network orientation. Negative network orientation was characterized as “a set of expectations or beliefs that it is inadvisable, impossible, useless, or potentially dangerous to draw on network resources” (p. 413). Vaux, Burda, and Stewart (1986) note that someone with a negative network orientation is likely to suffer from an unwillingness to maintain, nurture, and use their social support resources, rather than from a lack of those resources per se.

Vaux et al. (1986) introduced a scale to measure social support network orientation. This measure is called the Network Orientation Scale. Since their introduction of this measure, results from a number of studies have helped to delineate some of the antecedents, correlates, and consequences of a negative network orientation. Those with more negative network orientations tend to be low in affiliation (Vaux et al., 1986; Barrera & Baca, 1990) and have shown tendencies toward low nurturance, low succorance, and low femininity (Vaux et al., 1986). They have also reported more insecure attachment styles (Wallace & Vaux, 1993). Negative network orientation has been related to most other aspects of social support. Those with more negative network orientations tend to have fewer social support network resources, less available supportive behavior from others, and less positive appraisals of available social support (Vaux et al., 1986; Vaux & Wood, 1987; Barrera & Baca, 1990). Scores on a similar scale were also found to be related to respondents’ reports of actual use of their social support resources (Eckenrode, 1983). Negative network orientation has been found to directly predict greater psychological distress

(Barrera & Baca, 1990). Psychiatric outpatients have been found to have more negative network orientations (Cecil, Stanley, Carrion, & Swann, 1995), as have clients in treatment for sexual abuse and sexually abused students not in treatment (Gibson & Hartshorne, 1996). Finally, negative network orientation has also been related to more negative attitudes regarding seeking professional psychological help, at least among Chinese-American students (Tata & Leong, 1994).

Current Study

Rationale

The purpose of the current study was to examine factors that affect the adjustment of late adolescents as they first leave home to pursue outside interests and goals. These late adolescents are faced with the challenges of adjusting to new environments, setting up new social networks, and meeting new challenges and expectations. A sample of first year university students living in residence was chosen because they constitute a significant proportion of late adolescents who have recently left home. It is also important to understand factors that affect the adjustment of university students as a goal in and of itself. The roles of two major factors were of particular interest in the current study. The first of these factors was the role of attachment security and the second was the role of prior traumatic experiences.

Attachment theory appeared to be a useful theory in attempting to understand this transition to adulthood. Kenny's (1987) statement, where she likened leaving home for university to a naturally occurring adolescent equivalent of the Strange Situation paradigm that Ainsworth used to study attachment security and styles in infancy, made the relevance of attachment theory particularly clear. The similarity lies in the fact that the strange situation is a laboratory procedure whereby the attachment behavioural system is activated in young infants when they experience a series of short separations and reunions with their primary caregiver in a novel environment. Leaving home for university would also likely activate the attachment system in that for most students this is the first lengthy and potentially permanent move away from home and family.

Attachment security and style was thus hypothesized to be one major factor that would affect adjustment among late adolescents. Previous research has in fact consistently demonstrated that security of attachment to their parents is related to university students' social, emotional, and academic adjustment. The discovery of patterns of adjustment related to different attachment styles would expand our understanding of the role of attachment in adjustment to university beyond the specific role of relative security of students' attachments to their parents. This would bring the study of attachment and adjustment to university more into line with other research on adult attachment, which has generally focussed on generalized attachment styles rather than only security of specific relationships. Theoretically, the internalization of specific attachment relationships should be the basis for the development of an overall attachment style. Attachment style should therefore mediate the relationship between security of specific attachment relationships and adjustment to university. One goal of the study was therefore to examine the degree to which that is true.

The first major goal of the current study was thus to determine whether identifiable patterns of strengths and weaknesses in the process of adjustment to university could be identified and related to students' correspondence to different attachment styles. A related goal was to determine whether causal relationships could be identified, whereby attachment measures taken earlier in the year could predict adjustment later in the year. Of particular interest was whether attachment security would emerge as a more important predictor at certain points in the year than at others. Attachment theory and previous research suggested that attachment was likely to be more important at times of stress because they are times when the attachment behavioural system is most likely to be activated. It was thus hypothesized that this system would be active early in the year upon arrival at university due to students having recently left home and attempting to adjust to a very novel environment. It was also of interest to determine whether attachment would be equally important at stressful times later in the year such as exam time. While exam time is definitely a stressful time, it is less clearly an attachment-related stressor.

With regard to the role of prior traumatic experiences, literature reviewed above demonstrated that many more late adolescent university students have experienced abuse and trauma than had previously been anticipated. Although many studies using college student samples commented on this, they did not directly examine the impact that these histories of abuse and trauma had on students' adjustments to university. Given the extensive literature showing the negative effects of trauma on social and emotional adjustment, it was important to study this question directly. The literature reviewed above also indicated that some of the primary areas that are impacted upon by trauma overlap with those that are related to insecure attachment. In particular, the constructivist self-development theory of trauma proposed that among other things, trauma was highly disruptive because it destroyed one's sense of safety and security in the world, and more specifically the sense of trust in one's self and in others to be able to keep one safe. Attachment theory proposed that individuals develop internal working models of attachment based upon their daily interactions with caregivers that reflect the degree to which an individual thinks of themselves as lovable and as the sort of person others would care for, and the degree to which the individual thinks that important others are responsive, willing, and able to provide care and support. It thus became clear that it made good sense to examine both attachment and trauma together within the same study, and that one possible route through which trauma was likely to impact upon adjustment was through its impact on students' internal working models of attachment.

Thus based on the two major goals of the study, it was proposed that attachment styles would have direct impacts upon adjustment to university, and would mediate the relationship between security of attachment to parents and adjustment to university. And that trauma would have direct impacts upon adjustment to university, and would have indirect impacts through the impact of trauma on the attachment styles. Orientation toward seeking social support was also included in the model as one possible mediator between attachment style and adjustment to university.

Method

In the current study, first year university students who were living in residence completed questionnaires regarding the security of their attachment to their parents, trauma histories, trauma symptoms, attachment styles, and propensity to seek social support at the beginning, middle, and end of the academic year. They also completed measures of their academic, social, and emotional adjustment, and their motives for drinking at the middle and end of the academic year.

Bartholomew's four-category model of attachment was the basis for the conceptualization of attachment style. Participants' ratings of their correspondence to each of the four prototypic attachment styles were obtained. Several indices of adjustment to university were examined. These included ratings of academic adjustment, social adjustment, and emotional adjustment, as well as students' first year grade point averages. Grade point averages were obtained as a more objective index of academic adjustment. Finally, students' ratings of the frequency with which they drink alcohol to fulfill four different motives were examined.

Analyses

Path analysis was used to examine relationships between these factors over the course of the year. In the first phase of the path models the extent to which the security of late adolescents' attachment to their parents and their trauma history and symptoms predicted their self-reported correspondence to four attachment styles was examined. In the second phase, students' reported correspondence to those attachment styles was then used to predict their propensity to seek social support. Finally, trauma history, attachment style, and orientation toward seeking social support were all examined as predictors of their students' patterns of strengths and weaknesses in adjusting to university. The path model depicting the hypothesized relationships between the variables is depicted in Figure 1.

It was expected that different patterns of strengths and weaknesses on these various indices of adjustment would be related in theoretically meaningful ways to patterns of adult attachment. One goal was to identify prototypical patterns of adjustment that are related to each of the four

attachment styles. For example, research has shown that those reporting a predominantly dismissing-avoidant attachment style may value achievement over relationships. One might, therefore predict that they would show positive academic adjustment but relatively more difficulties with social adjustment. Where previous research permitted, specific hypotheses regarding how each of the four attachment styles was expected to relate to each of the outcome variables were developed. The relationships between past exposure to trauma, indices of attachment, and adjustment to university were also explored, as was the role of orientation toward seeking social support as a mediator between the attachment styles and indices of adjustment.

To review, then, the current study examined the degree to which security of attachment in specific relationships (to parents), history of trauma and associated symptoms, attachment style, and propensity to seek social support predict various dimensions of adjustment to university (academic, social, emotional, GPA, and reasons for drinking). The goal was to specify how these variables inter-relate, and to test hypotheses with regard to how the different attachment style prototypes are related to patterns of relative strengths and weaknesses in the different domains of adjustment to university. Through this study, the literature on attachment and adjustment to university will be brought into line with other research in the area of adult attachment that has focussed on attachment styles. This study will also allow a direct examination of the impact of trauma on adjustment to university, and the degree to which the impact of trauma is mediated by its impact on attachment style.

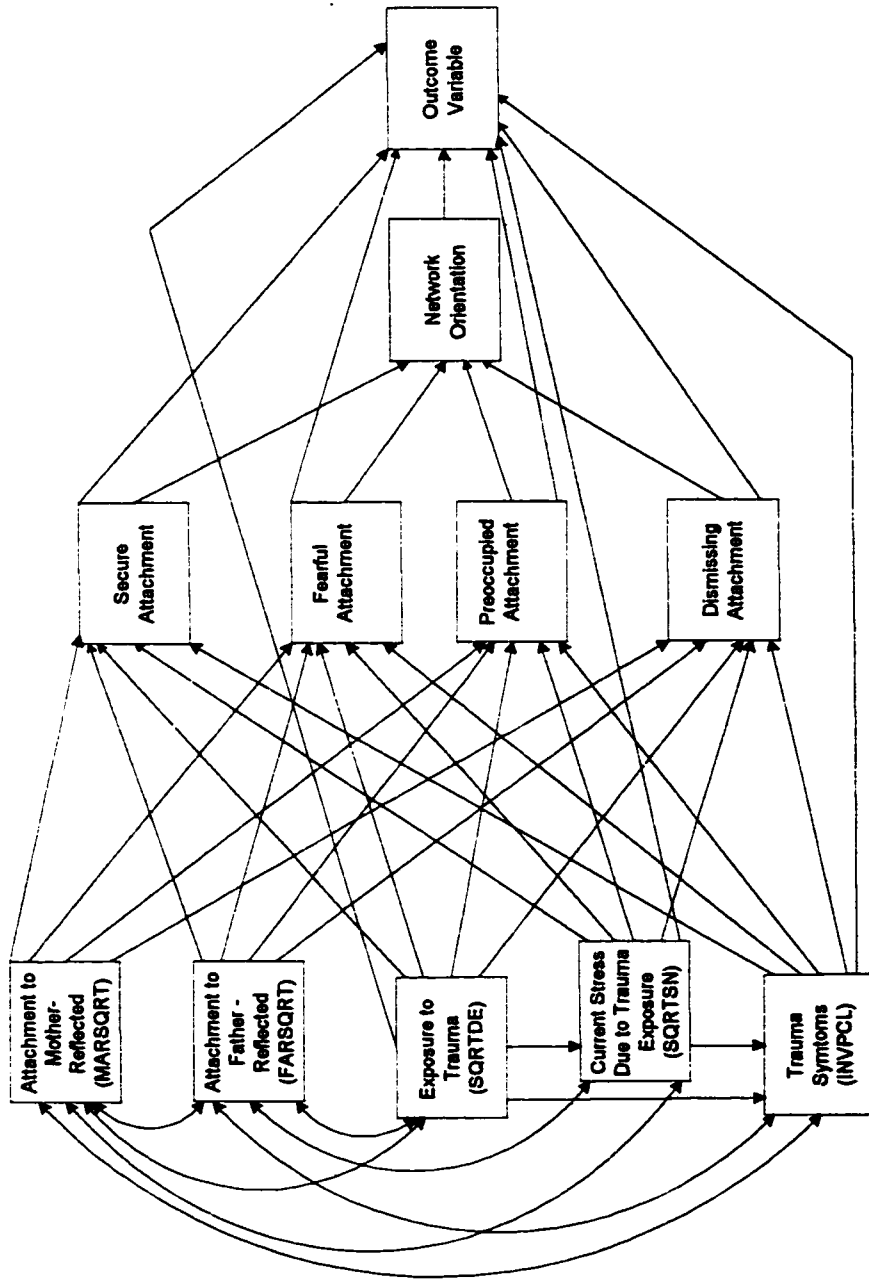


Figure 1. This model graphically represents the hypothesized causal relationships among predictor and outcome variables. This model was tested 4 times for each of the 8 outcome variables. It was first tested using time 1 predictors to predict each time 2 outcome. It was then tested using time 1 predictors to predict time 3 outcomes. Thirdly, it was tested using time 2 predictors to predict each time 3 outcome. Finally, it was tested using residuals representing changes in scores on the predictor variables between time 1 and time 2 to predict each time 3 outcome.

Research Questions and Hypotheses

Relationships Among Trauma Variables

Research Question 1

Does level of reported exposure to trauma predict level of current trauma symptoms?

- 1a) Does knowledge of how stressful having experienced those traumas was perceived to be, at the time of the traumas, add to the prediction of current trauma symptoms?
- 1b) Does knowledge of how stressful having experienced those traumas is currently perceived to be, add to the prediction of current trauma symptoms?

Hypothesis 1.

There will be a significant direct path between trauma exposure and current trauma symptoms.

Higher levels of reported exposure to trauma will predict higher levels of trauma symptoms.

- 1a) There will be a significant indirect path between trauma exposure and current trauma symptoms through perceived stressfulness of the trauma exposure at the time of exposure. Knowledge of the perceived stressfulness of the trauma exposure at the time of exposure will thus add to the prediction of current trauma symptoms. The more stressful exposure to trauma was perceived to be, the greater the current level of trauma symptoms.
- 1b) There will be a significant indirect path between trauma exposure and current trauma symptoms through current perceived stressfulness of past trauma exposure. Knowledge of current perceived stressfulness of past trauma exposure will thus add to the prediction of trauma symptoms. The more stressful past exposure to trauma is currently perceived to be, the greater the current level of trauma symptoms.

Role of Trauma Variables in Predicting Attachment Style

Research Question 2

Do levels of reported exposure to trauma, perceived stressfulness of trauma exposure, and current trauma symptoms, predict reported correspondence to the four adult attachment styles?

Hypothesis 2.

There will be significant paths between scores on the trauma variables and reported correspondence to the Secure and Fearful-Avoidant attachment styles. Higher scores on the trauma variables will predict lower scores on the Secure attachment style and higher scores on the Fearful-Avoidant attachment style.

Role of Current Attachment to Parents in Predicting Attachment Style

Research Question 3

Do levels of reported security of attachment to mother and father predict reported correspondence to the four adult attachment styles?

Hypothesis 3.

There will be significant direct paths between security of attachment to mother and father and the four adult attachment styles. Higher levels of reported security in students' attachments to their parents will predict higher reported correspondence to the Secure attachment style, and lower reported correspondence to the three insecure attachment styles.

Predictors of Orientation toward Seeking Social Support

Research Question 4

Do scores on the trauma, attachment to parents, and adult attachment style variables predict orientation toward seeking social support?

Hypothesis 4.

4a) There will be significant direct paths between the adult attachment styles and orientation toward seeking social support. Higher reported correspondence to the Secure and

Preoccupied attachment styles may predict more positive orientation toward seeking social support, whereas higher reported correspondence to the Dismissing-Avoidant and Fearful-Avoidant attachment styles may predict more negative orientation toward seeking social support.

- 4b) There will be significant indirect paths between scores on the trauma variables and orientation toward seeking social support, through the adult attachment styles. Higher levels of reported trauma will predict higher levels of Fearful-Avoidance and lower levels of Security, which will in turn predict a more negative orientation toward seeking social support. In contrast, lower levels of reported trauma will predict higher levels of Security and lower levels of Fearful-Avoidance, which will in turn predict a more positive orientation toward seeking social support.
- 4c) There will be significant indirect paths between reported security of attachment to parents and orientation toward seeking social support, through the adult attachment styles. Higher levels of reported security in attachment to mother and father will predict higher levels of Security and lower levels of correspondence to the insecure prototypes, which will in turn predict a more positive orientation toward seeking social support.

Predictors of Adjustment to University

Research Question 5

Does orientation toward seeking social support predict scores on the various indices of adjustment to university?

Hypothesis 5.

There will be significant direct paths between orientation toward seeking social support (Network Orientation) and the indices of adjustment to university. A more positive Network Orientation will predict better Academic, Social, and Emotional adjustment. A more negative Network Orientation may predict more drinking in order to cope.

Research Question 6

Are there direct causal pathways between correspondence to the four adult attachment styles and scores on the various indices of adjustment to university?

Hypothesis 6.

Correspondence to the four prototypic attachment styles will predict scores on several indices of adjustment to university. High degrees of reported security will predict better Academic, Social, and Emotional adjustment. High degrees of reported correspondence to each of the three insecure prototypes will be related to predictable patterns of strengths and weaknesses on the various indices of adjustment.

- 6a) Academic Adjustment - Higher levels of Security and Dismissing-Avoidance will predict better academic adjustment. Higher levels of Preoccupation and Fearful-Avoidance will predict lower levels of academic adjustment.
- 6b) Social Adjustment - Higher levels of Security will predict better social adjustment. Higher levels of Dismissing-Avoidance will also predict satisfaction with social adjustment. Higher levels of correspondence to the Preoccupied and Fearful-Avoidant prototypes should predict lower levels of social adjustment.
- 6c) Personal-Emotional Adjustment - Higher levels of reported Security and Dismissing-Avoidance should predict better reports of emotional adjustment. High levels of Preoccupation and Fearful-Avoidance should predict lower levels of reported emotional adjustment.
- 6d) Grade Point Average - Higher levels of Security and Dismissing-Avoidance may predict higher GPA's. Higher levels of reported correspondence to the Preoccupied and Fearful-Avoidant prototypes may predict lower GPA's.
- 6e) Reasons for drinking - The anticipated relationships between reasons for drinking and the attachment styles are less clear, the emphasis will therefore be on exploring these relationships rather than testing specific hypotheses. Correspondence to the Secure prototype is likely to predict higher levels of drinking for social reasons and drinking as a

means to enhance positive feelings and lower levels of drinking to cope or drinking to conform. Higher levels of Dismissing-Avoidance may predict drinking more often as a means of coping. High levels of Preoccupation may predict higher levels of drinking to conform. High levels of Fearful-Avoidance may predict higher levels of drinking as a means of coping.

Research Question 7

Is some of the relationship between adult attachment style and the various indices of adjustment to university due to indirect causal paths through orientation towards seeking social support?

Hypothesis 7.

Adult attachment style will add to the prediction of scores on the various indices of adjustment to university both directly and indirectly through orientation toward seeking social support. Orientation toward seeking social support will thus account for some, but not all of the relationship between adult attachment style and the various indices of adjustment to university.

Research Question 8

Is the security of specific attachment to parents related to the various indices of adjustment to university?

Hypothesis 8.

The relationship between security of attachment to mother and father and the various indices of adjustment to university will be mediated by adult attachment style. Security of attachment to mother and father will thus show indirect effects on the prediction of adjustment to university, through their influence on students' reported correspondence to the four adult attachment styles. Higher levels of reported security in students' attachments to their parents will predict higher reported correspondence to the Secure attachment style, and in turn better Academic, Social and Emotional adjustment. Lower levels of reported security in students' attachments

to their parents will predict higher levels of reported correspondence to the insecure attachment styles, and in turn patterns of adjustment to university as specified in hypotheses 6a through 6e.

8b) Some of the indirect relationship between security of attachment to mother and father and adjustment to university will be mediated by orientation toward seeking social support as well as adult attachment style. There will be significant positive indirect effects of attachment to mother and father on adjustment to university through both adult attachment style and Network Orientation. More secure specific attachments to parents will predict higher reported correspondence to the secure attachment style, which in turn will predict a more positive orientation toward seeking social support, which will then predict better adjustment.

Research Question 9

Does history of exposure to trauma predict scores on various indices of adjustment to university?

Hypothesis 9.

Knowledge of history of exposure to trauma will predict scores on various indices of adjustment to university both directly and indirectly. The indirect effects will be through the other trauma variables, the four attachment styles, and orientation toward seeking social support.

9a) Direct causal paths between higher levels of exposure to trauma and lower scores on various indices of adjustment to university will be significant?

9b) Indirect causal paths between reported history of exposure to trauma and scores on various indices of adjustment to university through: perceived stressfulness of exposure to trauma at the time it happened, current perceived stressfulness of past exposure to trauma, and current reported trauma symptoms will be significant. In addition, direct and indirect paths from perceived stressfulness of exposure to trauma at the time it happened, current perceived stressfulness of past exposure to trauma, and current reported trauma symptoms

will also be significant. Higher scores on the trauma variables will predict lower scores on indices of adjustment.

9c) Indirect causal paths between scores on the trauma variables and scores on various indices of adjustment to university through the four adult attachment styles will be significant. Higher scores on the trauma variables will predict lower scores on the secure attachment style and higher scores on the fearful-avoidant attachment style. These will in turn predict lower scores on the various indices of adjustment to university.

9d) Indirect causal paths between scores on the trauma variables and scores on various indices of adjustment to university through both the four adult attachment styles and orientation toward seeking social support will be significant. Higher scores on the trauma variables will predict lower scores on the secure attachment style and higher scores on the fearful-avoidant attachment style. These will in turn predict lower scores on orientation toward seeking social support, which will then predict lower scores on the various indices of adjustment to university.

Method

Participants

The initial sample consisted of 257 participants ($n = 188$ women, $n = 69$ men), all of whom were first year university students living in residence at the University of Ottawa. Of the 257 students who completed questionnaires in September, 153 completed questionnaires at all three data collection times (September, December, and March). Four additional participants were eliminated from the analyses as they were over 22 years old, and thus did not correspond to the desired sample of late adolescent students. The final sample thus consisted of 149 participants ($n = 119$ women, $n = 30$ men), all of whom were between 17 and 22 years of age. Given the high rate of attrition, comparisons were made to determine whether students in the final sample ($n=149$) differed in any consistent ways from those who completed questionnaires in September

but did not complete the entire study ($n=108$). There were no significant mean differences between these two groups on their scores for any of the September predictor variables.

The final sample was 79.9% female in comparison to 73.2% female in the initial sample. The first year student population living in residence at the University of Ottawa is usually 60-65% female. There is thus an over-representation of female students in the current sample, and it is unclear the degree to which the male students in the current sample are representative of the general population of male first-year residence students.

In the final sample 56.4% of the participants provided information regarding racial or ethnic identity, which was comparable to 57.6% in the original sample. Table 1 outlines the racial and ethnic identities reported by the participants. No information was available regarding the racial and ethnic identities of the general population of first-year residence students. It is thus not possible to comment on the representativeness of this sample with regard to racial or ethnic identity.

Table 1.

Racial and Ethnic Identities Reported by Participants.

	Original Sample	Final Sample
White or Caucasian	53%	54%
Canadian (not specific)	6%	12%
French Canadian	9.5%	7%
European Nationalities	10%	8%
British Nationalities	4.7%	4.8%
Asian Nationalities	4.7%	6%
Others*	12%	8%

*Original Sample Includes:

Hispanic (3), Black (2), East Indian (2), Haitian (3), Cameroonian (1), Filipino (2), Guyanese (1), Middle Eastern (1), African (1), Arabian (1), and Metis (1).

*Final Sample includes:

Hispanic (1), Black (1), East Indian (1), Haitian (3), and Filipino (1).

Note: Numbers in brackets indicate number of participants.

When asked about the longest amount of time they had been away from home prior to coming to university, 96% of participants in the final sample reported less than 1 year; of those, 88% reported this to be less than 6 months, and 56% reported this to be less than one month. With regard to family constellation, 74% of participants reported coming from intact families, where their parents were married and had never separated or divorced. An additional 15% reported that their parents were separated or divorced, with the remaining 11% reporting other family constellations such as single parent families, blended families, and families where one parent was deceased.

Measures

Demographics

Participants were asked to respond to a brief demographic questionnaire that included questions about age, gender, ethnicity, family structure, and prior experience living away from home.

Attachment Style

Both the Relationship Questionnaire (Bartholomew & Horowitz, 1991) and the Relationship Scales Questionnaire (Griffen & Bartholomew, 1994a) were used to measure participants' self-reported degree of correspondence to the four attachment style prototypes outlined by Bartholomew (1990). In the current study, composite scores reflecting the mean of participants' scores for each prototype on the RQ and RSQ were used to create a more robust measure.

The Relationship Questionnaire (RQ).

The RQ (Bartholomew & Horowitz, 1991) is made up of four short paragraphs describing the four prototypical patterns of adult attachment described by Bartholomew (1990). These patterns apply to close relationships in general, rather than to any specific relationship. Participants are asked to rate the degree to which each of the four prototypes is characteristic of them on a 7-

point scale (ranging from 'not at all like me' to 'very much like me'). Griffen and Bartholomew (1994a) presented data on the convergent validity of the RQ. The correlation between interview and RQ scores for each prototype followed a pattern that would be predicted by the four category model (Bartholomew & Horowitz, 1991) The correlation between corresponding attachment patterns (e.g. interview secure and RQ secure) was moderately high and positive (between .22 & .50), the correlation between opposing patterns (e.g. interview secure and RQ fearful) was moderately high and negative (between -.24 & -.33), and the correlation between adjacent patterns (e.g. interview secure and RQ dismissing) was very low (all lower than .17).

The Relationship Scales Questionnaire (RSQ).

The RSQ (Griffen & Bartholomew, 1994a) is an indirect measure of the four prototypes. It consists of 30 phrases drawn from the paragraph descriptions in Hazan and Shaver's (1987) attachment measure, Bartholomew and Horowitz's (1991) Relationship Questionnaire, and Collins and Read's (1990) Adult Attachment Scale. Participants rate on a 5-point scale (ranging from 'not at all like me' to 'very like me') how well each item fits their characteristic style in close relationships. RSQ scores for the four prototypes are derived by computing the mean of the items representing each prototype. There are five items each for the Secure and Dismissing prototypes, and four items each for the Preoccupied and Fearful prototypes. Scores can also be obtained for the two underlying dimensions, self-model, and other-model.

Griffen and Bartholomew (1994a) note that the internal consistencies for the RSQ prototypes can be variable and at times quite low. They explain that this is to be expected because for each RSQ scale two orthogonal dimensions (self-model and other model) are being combined. They, therefore, emphasize that the low internal consistencies are not due to the small number of items or to any psychometric flaw in the construction of the scales. They further note that despite their factorial complexity, the RSQ pattern scores continue to show convergent validity. They found that correlations between interview and RSQ scores for each prototype followed a pattern that would be predicted by the four category model (Bartholomew & Horowitz, 1991). The correlation between corresponding attachment patterns (e.g. interview secure and RSQ secure)

was moderately high and positive (between .25 & .47), the correlation between opposing patterns (e.g. interview secure and RSQ fearful) was moderately high and negative (between - .26 & - .44), and the correlation between adjacent patterns (e.g. interview secure and RSQ dismissing) was very low (all lower than .16).

Specific Attachment Relationships

The quality of attachment to parents was measured on the revised (mother, father, and peer) version of The Inventory of Parent and Peer Attachment (Armsden, 1986; Armsden & Greenberg, 1987).

The Inventory of Parent and Peer Attachment-Revised (IPPA – Revised).

Both the IPPA (Armsden & Greenberg, 1987) and its revised version are self-report questionnaires that measure affective, cognitive, and behavioral aspects of trust, communication, and alienation in attachment relationships. The original IPPA yielded three subscales of attachment (trust, communication, and alienation), however these scales were highly correlated making their independence questionable. Although these subscales can still be used with the revised version, the problems with high inter-correlation remain. Overall, security in each relationship can however be reliably obtained by summing all of the items on each scale after reverse scoring the negatively worded items. Higher scores indicate attachment relationships that are more secure. The original version requested ratings of attachment to parents and attachment to peers, and thus did not differentiate attachment to mother from attachment to father. The revised version requests separate ratings of attachment to mother, father, and peers. The revised version contains 25 items, which are rated separately for each of these three attachment relationships. Respondents rate the degree to which each item is true of the relationship being rated on a scale of 1= 'always true' through 5= 'never true'. In the scoring information provided with the measure, Armsden and Greenberg recommend usage of the revised version over the original whenever possible. In the current study, participants were only asked to rate security of attachment to their mother and father.

Armsden and Greenberg (1987) reported adequate reliability and validity for the IPPA. They found Cronbach's coefficient alphas to range from .72 to .91. In the scoring information provided with the measure, Armsden and Greenberg report the following Cronbach's alpha reliability coefficients for the revised version; Mother Attachment: .87, Father Attachment: .89, and Peer Attachment: .92. In another study, using the revised version, Rice and Whaley (1994) report that Cronbach's coefficient alphas for the IPPA-R ranged between .85 and .97. In a subsequent study (Armsden, McCauley, Greenberg, Burke & Mitchell, 1989), test-retest reliabilities over a 3-week period ranged from .86 to .93. The original IPPA correlated in expected directions with measures of family cohesion and parent utilization (Armsden & Greenberg, 1987). According to Greenberg (as reported by Rice and Whaley, 1994) the factor structure of the revised version is comparable to that of the original IPPA.

Trauma

Two measures of trauma were employed. The first was a measure of exposure to traumatic life events, The Stressful Life Experiences Screening Form (Stamm, 1996), and the second was a measure of post-traumatic stress symptoms, The PTSD Checklist for Civilians (Weathers & Ford, 1996).

Stressful Life Experiences Screening-Long Form (SLES-L).

The SLES-L (Stamm et al., 1996) is a very fast 20 item measure that was designed to be a screening tool that would allow clinicians or researchers to identify potential traumatic stressors. Participants are asked to rate how much each of the 20 statements listed describes their experiences on a 10-point scale (from 'Did not experience this' to 'Exactly like my experiences'). Each statement represents a potentially traumatic life event. The events listed include exposure to disasters, accidents, illness, death, war, torture, physical assault, sexual assault and other (to be specified). On the long form, participants are also asked to rate how stressful they found each experience on a 10-point scale (from 'not at all stressful' to 'extremely stressful'). Respondents are asked to provide two stress ratings for each event; one for how stressful they found the event

described when it happened (Stressfulness Then) and one for how stressful that experience is to them now (Stressfulness Now). Data from these scales can be coded either dichotomously or continuously. For continuous data, a Total Exposure Score can be attained by summing all items on the experience scale, and two Perceived Stress Scores can be attained by summing all items on the Stressfulness Then and Stressfulness Now scales. Stamm and Rudolph (in press) report that data from a group of 141 university students and 78 health care providers yielded an overall alpha internal consistency reliability coefficient of .74 for the experience scale. Inter-item correlations ranged from $r = .00$ to $r = .41$. Of the possible unique comparisons Stamm reports that 10 were over .3 (9% shared variance) and only 3 were over .4 (16% shared variance). Stamm et al. (1996) assert that the low item-to-scale correlations, together with nearly nonexistent changes in overall alpha reliability of this scale, suggest that the instrument is addressing a single over-all concept, but that most of the items were unique and separate from other items on the test. Stamm and Rudolph (in press) report that a range of responses were reported on the Experience scale, and that these responses were unimodal and symmetric. In addition, when data were coded dichotomously, participants reported exposure to a full range of numbers of events (from 0 to 20, $M = 6.5$, $SD = 3.5$). Data for the Stressfulness Now and Stressfulness Then scales were derived from a smaller sample ($n = 38$). The overall alpha internal consistency reliability for the Stressfulness Then scale was .76. Scores on that scale ranged from .8 to 10 with a mean of 5.25 and standard deviation of 3. For the Stressfulness Now scale, the overall alpha internal consistency reliability was .62. Responses ranged from 0 to 9 with a mean of 1.94 and standard deviation of 2.

The PTSD Checklist for Civilians (PCL-C).

The PTSD Checklist (Weathers & Ford, 1996) is a brief self-report symptom inventory that can be used to assess for the 17 core symptoms of Post-Traumatic Stress Disorder listed in the DSM IV (American Psychiatric Association, 1994). Separate scores for DSM criteria B,C,D, and Total PTSD severity can be attained. In the current study, only Total PTSD severity was calculated. According to Weathers and Ford (1996) several versions of the PTSD Checklist exist,

however they are all identical except for the target population (veterans, civilians, and children) and the type of stressor (stressful military experiences, stressful life experiences). On each scale the 17 PTSD symptoms are rated by the participant for the previous month on a scale indicating the degree to which the respondent has been bothered by a particular symptom from 1 (not at all) to 5 (extremely). Total scores can therefore range from 17 (no symptoms) to 85 (experiencing all symptoms to an extreme extent). Blanchard, Jones-Alexander, Buckley, and Forneris (1996) conducted a study to examine the psychometric properties of the PCL-C. The participants in their study had either been involved in a severe automobile accident or had been the victim of sexual assault. Cronbach's coefficient alpha for the total scale was .939. The correlation between total scores on the PCL and on the Clinician Administered PTSD Scale (CAPS) was very high ($r = .929$). Using the recommended PCL cutoff score of 50 for diagnosis of PTSD, Blanchard et al. (1996) were able to correctly identify 14 of the 18 participants who were diagnosed with PTSD using the CAPS. Three participants who were classified as having a sub-syndromal form of PTSD using the CAPS were incorrectly classified as having PTSD using the PCL. The PCL, therefore, yielded a sensitivity of .778, a specificity of .864, and an overall diagnostic efficiency of .825. Blanchard et al. (1996) also report that by lowering the cutoff score to 44, they were able to improve diagnostic efficiency to .90, yielding a sensitivity of .944 and specificity of .864, and correctly identifying 17 of 18 participants with PTSD. Total scores on the PCL, therefore, appear to be good indicators of participants post-traumatic stress symptoms, and the use of appropriate cut-off scores on the PCL appears to be a valid means of screening for the possible presence of PTSD.

Orientation Towards Seeking Social Support

Orientation toward seeking social support was measured using the Network Orientation Scale (Vaux et al., 1986).

Network Orientation Scale.

The Network Orientation Scale (Vaux et al., 1986) consists of 20 statements designed to measure “an individual’s propensity toward utilizing his or her social support network in time of need” (Vaux et al., 1986, p.162). For each item respondents are asked to indicate the degree to which they agree with the statement on a four point Likert-type scale (1= ‘strongly disagree’ to 4= ‘strongly agree’). Examples of statements from the scale are “even if I need something, I would hesitate to borrow it from someone.” and “When a person gets upset they should talk it over with a friend.” Internal consistency of the scale has been demonstrated in diverse student and non-student samples. In the original five validation samples alphas ranged from .60 to .88 with a mean of .74. In a subsequent sample, similar demographically to the sample with the lowest internal consistency ($\alpha = .60$), this scale was later found to have an internal consistency of .74. Test-retest reliabilities in two samples were .87 and .85 over one and two weeks. One sample showed poor test-retest stability, but this was attributed to testing difficulties. Wallace and Vaux (1993) report four-week test-retest reliability in a sample of college students to be .77. Convergent validity of this scale has been demonstrated by its range of expected correlations with other measures. For example, in terms of personal characteristics, it was related in expected directions with affiliation, nurturance, succorance and femininity (Vaux et al., 1986). Network orientation was not correlated with aggression demonstrating appropriate divergent validity. In addition, this measure correlated in expected directions with other social support constructs. Those with more negative network orientations have been shown to have fewer social support network resources, less available supportive behavior from others, and less positive appraisals of available social support (Vaux et al., 1986; Vaux & Wood, 1987; Barrera & Baca, 1990).

Factor analysis of the Network Orientation Scale has yielded three factors (Vaux, 1985). These include a factor labeled Advisability/Independence that reflects respondents beliefs concerning “the advisability and usefulness (or not) of seeking help and expression of independence” (p.1181). A second factor was labeled History, and reflects respondents “positive or negative histories with help-seeking” (p.1181). Finally, a third factor was labeled Mistrust, and

reflects respondents' beliefs that others cannot be trusted. In the current study, as has been the practice with most studies using this measure to date, only the total score will be used in the main analyses.

Adjustment to University

Adjustment to university was assessed using the Student Adaptation to College Questionnaire (Baker & Siryk, 1989), as well as through obtaining students' overall GPA's for their first and second semester courses. Finally, Cooper's Four-Factor Drinking Motives Questionnaire was used to assess students' reasons for drinking alcohol.

Student Adaptation to College Questionnaire (SACQ).

The SACQ (Baker & Siryk, 1989) is a self-report questionnaire that includes 67 statements regarding various aspects of the experience of adjusting to college. For each statement, participants are asked to indicate on a 9-point rating scale how much the statement applies to them, from 'Applies very closely to me' to 'Doesn't apply to me at all'. The SACQ yields an overall measure of a student's adjustment to college, as well as four subscales that tap into different dimensions of adjustment; academic, social, personal/emotional, and institutional attachment/goal commitment. Academic adjustment measures how well the student manages the educational demands of the college experience. Social adjustment assesses how well the student deals with interpersonal experiences at the university (e.g. meeting people, making friends, joining groups). Personal/Emotional adjustment taps into the student's general psychological distress as well as somatic consequences of distress. Goal Commitment/Institutional Attachment asks about the degree of attachment the student feels toward the institution they are attending and the student's degree of commitment to completing his or her program of studies. In two separate studies Baker and Siryk (1986) reported Cronbach's coefficient alphas of .91 and .92 for the full scale, .82 and .87 for the academic adjustment subscale, .88 and .88 for the social adjustment subscale, .82 and .79 for the Personal/emotional subscale, and .89 and .86 for the Goal Commitment/Institutional Attachment subscale. The total score and subscale scores have also

been shown to correlate in expected directions with criterion variables. Baker and Siryk (1984) report that, as would be expected, academic achievement in the form of first year grade point average was more strongly and consistently related to the academic adjustment subscale than any of the other scales. The validity of the personal/emotional subscale is supported by the fact that students showing poorer adjustment on that subscale were consistently more likely to have sought services at the university counseling center. None of the other subscales showed consistent correlations with that criterion variable. In support of the social adjustment subscale, Baker and Siryk (1984) found that students who showed better adjustment in that domain reported being involved in more activities on campus. This relationship was not significant for any of the other subscales. In addition, students who showed better adjustment on the social adjustment subscale in their first year at university were more likely to be selected for dormitory positions that require good social adjustment two years later. The SACQ has also been used in many other studies since it was designed and has shown expected relationships with variables of interest (e.g. Rice, Cole & Lapsley, 1990; Rice & Whaley, 1994; Shultheiss & Blustein, 1994; Leong, Bonz, & Zachar, 1997).

Cooper's Four-Factor Drinking Motives Questionnaire (CFF-DMQ)

Cooper's Four-Factor Drinking Motives Questionnaire was used to measure students' reasons for drinking. The CFF-DMQ (Cooper, 1994) was designed to measure how often respondents drink for each of four theoretically derived reasons. Cooper has labeled these factors Enhancement (increasing positive affect), Coping (decreasing negative affect), Social (increasing social rewards), and Conformity (decreasing social censure and rejection). The CFF-DMQ includes 20 statements. Each of the four drinking motives is represented by 5 of these statements. Each statement represents a specific reason for drinking (e.g. "To cheer you up when you are in a bad mood."). The instructions are: "Thinking of all the times you drink, how often would you say you drink for each of the following reasons?". Relative frequency of drinking for each of the 20 reasons is then rated on a 5 point Likert-type scale (1= 'almost never/never', 2= 'some of the time', 3= 'half of the time', 4= 'most of the time', and 5= 'almost always/always').

The internal consistencies of the subscales ranged from .84 to .88. Confirmatory factor analysis indicated that the correlated four-factor model fit the data better than did any of several plausible alternative models (Cooper, 1994). In addition, this model fit well for adolescents across gender, race, and age groups. Validity was demonstrated in that each of the four drinking motives was associated with a unique pattern of alcohol use and drinking-related outcomes. Enhancement, or drinking to enhance positive affect, was associated with heavy drinking and drinking in settings where heavy drinking is tolerated or encouraged (e.g. in bars, with same-sex friends), however it was only indirectly associated with drinking problems (through consumption). Social motives were positively associated with quantity and frequency of consumption and with drinking in celebratory settings (e.g. at parties, with mixed-sex friends). Social motives were not associated with drinking problems. Coping motives, or drinking to reduce negative affect, were associated with solitary drinking and predicted drinking problems both directly and indirectly through consumption. Conformity motives, or drinking to reduce social pressure or rejection, were negatively related to quantity and frequency of usual consumption. Those who reported Conformity motives for drinking were most likely to drink in settings where social pressure to drink is high (e.g. at parties). Despite their association with light and infrequent drinking, Conformity motives were directly related to drinking problems, indicating that when quantity of consumption is equal, drinking to conform is associated with more problems related to drinking than drinking for Enhancement or Social reasons.

Procedure

Participants' were recruited at meetings that were held for first year residence students. These meetings were held during the first week after the students arrived in residence, and were conducted for the purpose of informing the students of rules and routines in the residences and services that are available to them. There were separate meetings held for students living in each of the four residences on campus. Attendance at the meetings was compulsory for all first year residence students. At each of these meetings the primary researcher or one of three research

assistants presented information about the research project and offered the opportunity to participate. Students were told that participation entailed filling out a package of questionnaires at each of three time-points in the year; early September, mid-November, and mid-March. Students were informed that the questionnaires asked about different social and personal factors that may contribute to adjustment to university life in residence students, and that the package of questionnaires generally takes about an hour to complete. It was made clear that participation was completely voluntary and that participants were free to withdraw from the study at any time. As an incentive for students to participate, they were told that, at each data-collection time-point, all those who completed the package of questionnaires would be entered into a draw for a chance to win \$100. Students were informed that they could pick up a package of questionnaires on their way out of the meeting, and that there would be a table in the lobby of their residence for the remainder of the week where they could ask questions and return the questionnaires. They were also informed that the envelopes were all addressed and could be returned free of charge by placing them in the university's internal mail. At the end of the meeting the research assistants stood by the door and handed packages of questionnaires to all interested students. Each package included an informed consent form, a separate consent form allowing the researchers to obtain their first-year GPA's, a demographic questionnaire, the RQ, the RSQ, the IPPA, the SLES, the PCL-C, and the CFF-DMQ. After two weeks, reminder notices were placed in residence students' mailboxes, reminding them to return their questionnaires if they still wished to do so.

During the November/December and March/April collection times, questionnaire packages were mailed to students who participated in September. The packages included a letter thanking them for their participation in September (and November/December), reminding them that the second (or third) collection time-point had arrived, and requesting them to complete and return the questionnaires. In addition, they were reminded that there would be another prize draw for those who completed the questionnaires during the current collection point. The questionnaires were the same as those completed in September along with the SACQ. They were informed of times when researchers would be available in their residence lobby to answer questions and collect

questionnaires. They were also reminded that they could return them by internal mail in the envelope provided. After two weeks, students who had not returned their questionnaires were contacted, reminded of the study, asked whether they still wished to participate, and urged to return either the completed or blank questionnaires.

Results

Prior to conducting the analyses of interest, all variables were examined for accuracy of data entry and missing values. Scale scores were then calculated for each of the measures used. Characteristics of distributions were examined for normalcy, and where necessary variables were transformed. Missing values, univariate and multivariate outliers on all scales were dealt with according to the recommendations of Tabachnick and Fidell (1989). See Appendix A for details of data screening procedures. The final sample size for the primary analyses was 149 participants. There was a smaller number of participants who provided consent to obtain their grades. Of the 149 participants with data from all 3 time-periods, 129 provided consent to obtain their grades. This sub-sample was thus used for analyses involving GPA. The obtained sample sizes met or exceeded the minimum requirements regarding the ratio of participants to independent variables that has been suggested by Tabachnick and Fidell (1989) for multiple regression analyses. The inter-correlations among the variables were then examined (See Appendix M). At both time 1 and time 2, the correlation between scores for Exposure to Trauma and those for Stress at the time of Trauma were correlated $r > 0.9$. In the case of examination of the residuals, representing change from time 1 to time 2 in predictor scores, the correlation between these two variables was greater than 0.8. It was thus determined that one of the two variables would be eliminated from the analyses to avoid instability due to multicollinearity. On theoretical grounds, it was decided that the variable Exposure to Trauma was the more important variable and thus that variable was retained. The variable Stress at the time of Trauma was removed. Correlations between all other predictor variables fell within an acceptable range.

The internal consistency and test-retest reliabilities of each of the scales were then examined at each data collection time-point. These were comparable to or higher than those found in previous studies. A summary of alpha coefficients and test-retest reliabilities are presented in Table 2. Consistent with previous studies, some of the alpha coefficients for the subscales of the Relationship Scales Questionnaire were quite low. See the discussion of this scale in the Measures section of this document for a theoretical rationale for this provided by Griffen and Bartholomew (1994a).

Doubly multivariate MANOVA designs were then calculated to examine the stability of each scale over the three data collection time points. These analyses demonstrate whether participants' mean scores on any of the scales changed significantly across data collection time points. Mean scores on most scales did not change significantly over time. The exceptions were as follows: There were significant changes between time 1 and time 2 and between time 1 and time 3 on the scales measuring attachment to father (IPPA-F), current stress due to past traumatic experiences (SLES-SN), and drinking to conform (CF-CONFORM). Over time participants reported increased attachment to father, decreased current stress due to past trauma, and increased drinking to cope. There was a significant increase between time 1 and time 3 on participants' self-reported correspondence to a secure attachment style (SECURE). Increases between time 2 and time 3 on the measure of drinking to cope (CF-COPE) approached significance. See Table 3 for the means and standard deviations for each scale at each time point and levels of significance.

Table 2.

Cronbach's Alpha and Test-Retest Reliabilities for Each Scale at Each Data Collection Time Point

<u>Scale</u>	<u>Number Of Items</u>	<u>Cronbach's Alpha</u>			<u>Test-Retest</u>		
		<u>Time 1</u>	<u>Time 2</u>	<u>Time 3</u>	<u>T1-T2</u>	<u>T1-T3</u>	<u>T2-T3</u>
IPPA MOTHER	25	0.948	0.9517	0.9491	0.846	0.789	0.844
IPPA FATHER	25	0.9597	0.9622	0.9645	0.898	0.872	0.915
SLES-DE	20	0.6535	0.6709	0.7379	0.703	0.712	0.75
SLES-ST	20	0.6554	0.6789	0.7759	0.702	0.741	0.724
SLES-SN	20	0.7008	0.7483	0.7266	0.726	0.744	0.732
PCL	17	0.9004	0.9049	0.9222	0.813	0.712	0.767
RSQ-SEC	5	0.4211	0.447	0.5578	0.658	0.667	0.72
RSQ-FEAR	4	0.678	0.759	0.7434	0.656	0.635	0.769
RSQ-PREOC	4	0.6494	0.5693	0.6119	0.744	0.697	0.746
RSQ-DISMIS	5	0.6478	0.5715	0.6698	0.612	0.626	0.618
RS+RSQ-SEC	6	0.5987	0.6178	0.6938	N/A	N/A	N/A
RS+ RSQ-FEAR	5	0.7741	0.8269	0.8161	N/A	N/A	N/A
RS+RSQ-PREOC	5	0.7571	0.7105	0.7149	N/A	N/A	N/A
RS+ RSQ-DISMIS	6	0.709	0.6813	0.7682	N/A	N/A	N/A
NOS	20	0.7947	0.8358	0.8537	0.715	0.605	0.777
CF COPE	5	0.8006	0.819	0.6524	0.689	0.593	0.687
CF SOCIAL	5	0.8886	0.894	0.8906	0.777	0.774	0.818
CF ENHANCE	5	0.9117	0.9209	0.9135	0.786	0.755	0.826
CF CONFORM	5	0.8653	0.8364	0.8259	0.529	0.434	0.58
SACQ-A	24	N/A	0.9171	0.891	N/A	N/A	0.673
SACQ-S	20	N/A	0.8909	0.9084	N/A	N/A	0.751
SACQ-E	15	N/A	0.8593	0.8664	N/A	N/A	0.722

Note. IPPA: Inventory of Parent and Peer Attachment; SLES: Stressful Life Experience Screening; DE: Describes Experience; ST: Stress Then; SN: Stress Now; PCL: PTSD Check List; RSQ: Relationship Scales Questionnaire; RS: Relationship Questionnaire; Sec: Secure Attachment; Fear: Fearful-Avoidant Attachment; Preoc: Preoccupied Attachment; Dismiss: Dismissing-Avoidant Attachment; NOS: Network Orientation Scale; CF: Cooper's Four Factor Drinking Motives Questionnaire; COPE: Drink To Cope; SOCIAL: Drink To Socialize; ENHANCE: Drink For Enhancement; CONFORM: Drink To Conform; SACQ: Student Adaptation to College Questionnaire; A: Academic Adjustment; S: Social Adjustment; E: Emotional Adjustment.

Table 3.

Means and Standard Deviations of Scales Across Three Data Collection Time Points

Scale	Time 1		Time 2		Time 3	
	Mean	SD	Mean	SD	Mean	SD
IPPA-MOTHER	3.971	.701	4.026	.664	4.073	.652
IPPA-FATHER	3.525 ^{ab}	.863	3.638 ^a	.867	3.654 ^b	.874
SLES-DE	28.168	18.040	25.711	18.095	26.094	20.470
SLES-ST	27.000	17.500	24.456	17.805	24.490	21.619
SLES-SN	12.826 ^{cd}	12.458	9.289 ^c	10.508	9.201 ^d	10.422
PCL	29.993	11.478	28.239	10.892	29.115	11.803
RS+RSQ-SEC	4.277 ^e	1.237	4.420	1.250	4.609 ^e	1.240
RS+ RSQ-FEAR	3.456	1.492	3.505	1.454	3.477	1.405
RS+RSQ-PREOC	3.421	1.430	3.375	1.383	3.406	1.329
RS+ RSQ-DISMIS	3.715	1.250	3.730	1.216	3.770	1.330
NOS	2.949	.295	2.971	.322	2.984	.346
SACQ-A	N/A	N/A	140.273	30.911	137.036	26.810
SACQ-S	N/A	N/A	127.948	27.504	127.205	27.535
SACQ-E	N/A	N/A	82.481	22.020	83.368	21.905
CF-COPE	7.949	3.424	8.010	3.347	8.500	3.050
CF-SOCIAL	14.370	5.605	14.454	5.438	14.848	5.175
CF-ENHANCE	12.829	5.924	13.255	6.035	13.137	5.827
CF-CONFORM	7.120 ^{fg}	2.932	6.507 ^f	2.292	6.373 ^g	2.246

Note. IPPA: Inventory of Parent and Peer Attachment; SLES: Stressful Life Experience Screening; DE: Describes Experience; ST: Stress Then; SN: Stress Now; PCL: PTSD Check List; RSQ: Relationship Scales Questionnaire; RS: Relationship Questionnaire; Sec: Secure Attachment; Fear: Fearful-Avoidant Attachment; Preoc: Preoccupied Attachment; Dismiss: Dismissing-Avoidant Attachment; NOS: Network Orientation Scale; CF: Cooper's Four Factor Drinking Motives Questionnaire; Cope: Drink To Cope; SOCIAL: Drink To Socialize; ENHANCE: Drink For Enhancement; CONFORM: Drink To Conform; SACQ: Student Adaptation to College Questionnaire; A: Academic Adjustment; S: Social Adjustment; E: Emotional Adjustment. a,b,c,d,e,f,g all significant at $p < .05$ after accounting for multiple post-hoc comparisons.

Primary Path Analyses

The primary analyses of the data all involved testing the full path-model depicted in Figure 1, which was presented above prior to the research questions and hypotheses. In total 32 path-models were computed. This included 4 path-models for each of the 8 outcome variables. For each outcome variable the model was tested using:

Time 1 (September) predictors predicting outcome at time 2 (December),

Time 1 (September) predictors predicting outcome at time 3 (March),

Time 2 (December) predictors predicting outcome at time 3 (March), and finally

Residuals that represent the change in scores on the predictor variables between time 1 and time 2 (Change from September to December) predicting outcome at time 3 (March).

The path models were computed using a series of multiple regression equations to test each stage of the model. The first step involved assessing the proposed causal links between the three trauma variables. Participants' scores on Exposure to Trauma and Current Stress Due to Trauma Exposure were entered into equations and used to predict Trauma Symptoms. Participants' scores on Exposure to Trauma were also entered into a separate equation and used to predict Current Stress Due to Trauma Exposure.

The second step involved entering participants' scores on the two parental attachment variables and three trauma variables (Attachment to Mother, Attachment to Father, Exposure to Trauma, Current Stress Due to Trauma Exposure, and Trauma Symptoms). These scores were used to predict participants' scores at the same time-point for the four attachment styles (Secure, Fearful-Avoidance, Preoccupied, and Dismissing-Avoidance).

The third step involved entering participants' scores for the four attachment styles, and using them to predict their scores for the same time-point on Network Orientation. The fourth and final step involved entering participants' scores for the three trauma measures, four attachment styles, and network orientation, and using them to predict scores on each outcome measure. Using information from these regression analyses, direct and indirect effects of the predictor variables, as specified in the model, can be calculated.

The resulting models are presented in Appendices I, J, K, and L. Due to the large number of variables, the path diagrams are complex and visually difficult to interpret. All of the path coefficients are represented in the form of standardized Beta weights. Those path coefficients that reached statistical significance are noted. As would be predicted by the research hypotheses, different paths were significant predictors of different outcome variables. Given the complexity of these models, and the fact that many of the path coefficients were not statistically significant, it was felt that further development of theory regarding these relationships would benefit most from clear presentation of those paths that were found to be significant in this study. Reduced versions of each of the 32 models were thus calculated using only the paths that were significant in the full models. It was decided that the goal of exploring significant pathways for further development of theory would best be attained by erring on the side of being over-inclusive of variables in the reduced models rather than under-inclusive. A less stringent criterion for statistical significance was thus chosen at the stage of choosing which paths to include in the reduced models. At this stage the alpha level was thus not adjusted to account for the large number of path models that were calculated, and paths that reached significance at an alpha level of .05 were included in the reduced models. When the reduced models were then recalculated using only those paths that were significant in the full model, a more stringent criterion of statistical significance was applied for paths to reach statistical significance in the reduced models. At this stage, the alpha level was thus adjusted to account for the fact that 32 separate models were being tested, and was thus set at alpha less than $.05/32$, or alpha less than .002.

Pedhauzer (1982) notes that this method of model trimming is somewhat controversial. He summarizes the strongest argument against this approach made by McPherson (1976), who noted this approach is applied post-hoc, and thus when it is used the researcher is allowing the data to inform his or her theory. Pedhauzer argues however that, if the exploratory nature of theory trimming is recognized and is not used as a substitute for careful theorizing and a priori hypothesis testing, this approach can be helpful in further clarifying one's theories at the exploratory stages of research.

Reduced Path Models

Relationships Among Time 1 Predictors

The reduced path model representing the relationships among the time 1 predictor variables is presented in Figure 2. At the first stage of analysis in the full model, the proposed causal links between the three trauma variables at time 1 were assessed. All of the causal links proposed were significant. The standardized beta coefficient for the path from Exposure to Trauma to Inverse Trauma Symptoms was equal to -0.407 ; $t = -5.33$, $p < 0.0001$. The standardized beta coefficient

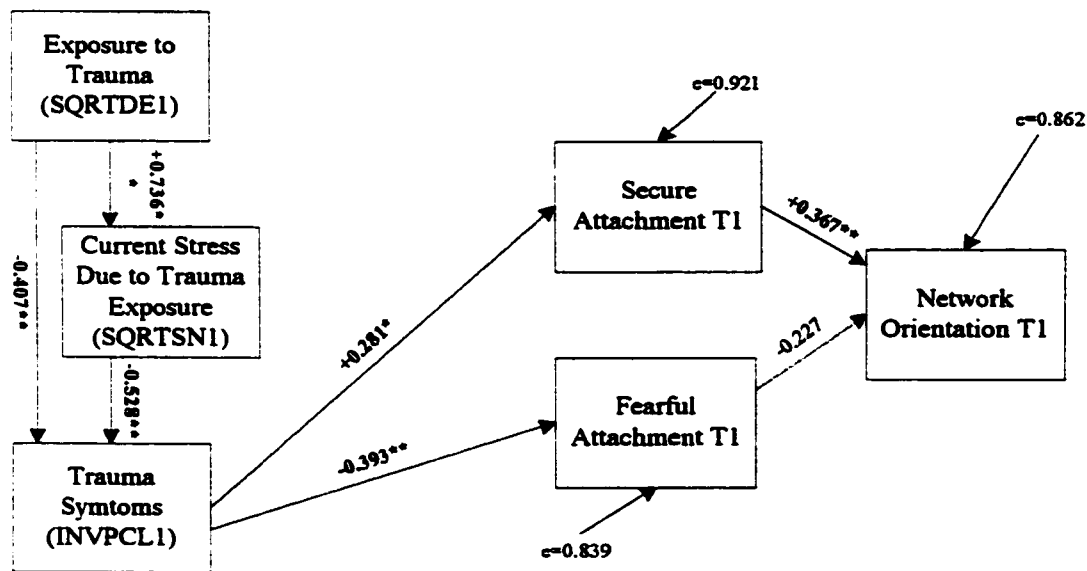


Figure 2. Reduced model for relationships among time 1 predictors. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that were no longer significant in the reduced model. e=unexplained. Significance levels: * = $p < .001$, ** = $p < .0001$

for the path from Current Stress Due to Trauma Exposure to Inverse Trauma Symptoms was equal to -0.528 ; $t = -7.44$, $p < 0.0001$. Finally, the standardized beta coefficient for the path from

Trauma Exposure to Current Stress Due to Trauma Exposure was equal to $+0.736$; $t = 12.996$, $p < 0.0001$. There was also one indirect path from Exposure to Trauma to Inverse Trauma Symptoms through Current Stress Due to Trauma Exposure. The calculated path coefficient for this indirect path is equal to -0.389 . The Effect Coefficients for each variable are presented in Table 4. In total, Exposure to Trauma accounted for 54% of the variance in Current Stress Due to Trauma Exposure, leaving 46% of the variance unexplained. In total, Exposure to Trauma and Current Stress Due to Trauma Exposure were able to account for 91% of the variance in Trauma Symptoms, leaving 9% of the variance unexplained. High levels of Exposure to Trauma and Current Stress Due to Trauma Exposure predict high levels of Trauma Symptoms. These results thus support hypotheses 1 and 1b.

At the second stage of analysis in the full model, the two time 1 parental attachment variables and three time 1 trauma variables were entered in multiple regression equations, and used to predict each of the attachment styles at time 1. Of these five variables, only Trauma Symptoms significantly predicted scores on any of the four attachment styles. The results thus do not support the relationship between security of attachment to parents and the adult attachment styles proposed in hypothesis 3. Trauma Symptoms significantly predicted scores on two of the four attachment styles: Secure Attachment and Fearful-Avoidant Attachment. For the reduced model, new regression equations were calculated using only Trauma Symptoms to predict these two attachment styles. The standardized beta coefficient for the path from Inverse Trauma Symptoms to Secure Attachment was equal to $+0.281$; $t = 3.55$, $p < 0.001$. The standardized beta coefficient for the path from Inverse Trauma Symptoms to Fearful-Avoidant Attachment was equal to -0.393 ; $t = -5.18$, $p < 0.0001$. In addition, 2 indirect paths from Exposure to Trauma and 1 indirect path from Current Stress Due to Trauma Exposure were calculated for each of these two attachment styles. The indirect paths from these variables, and the Effect Coefficients representing the total effect of each variable on each attachment style are presented in Table 4. In total, the trauma variables were able to account for 15% of the variance in Secure Attachment, leaving 85%

Table 4.

Direct and Indirect paths and Effect Co-Efficients for the Reduced Model of Relationships Among Time 1 Predictors.

Outcome Variable	Predictor Variable	Direct & Indirect Paths	Effect Co-efficient
SLES-SN	SLES-DE	DP	+0.736
INVPCL	SLES-DE	DP IP through SLES-SN	-0.796
	SLES-SN	DP	-0.528
Secure	SLES-DE	IP through INVPCL IP through SLES-SN & INVPCL	-0.224
	SLES-SN	IP through INVPCL	-0.148
	INVPCL	DP	+0.281
Fearful	SLES-DE	DP IP through SLES-SN	+0.313
	SLES-SN	IP through INVPCL	+0.208
Fearful Continued	INVPCL	DP	-0.393
NOS	SLES-DE	IP through INVPCL & Secure	-0.082
		IP through SLES-SN, INVPCL, & Secure	
	SLES-SN	IP through PCL & Secure	-0.054
	INVPCL	IP through Secure	+0.103
	Secure	DP	+0.367

Note. Effect co-efficients represent the sum of the direct and indirect effects of each predictor variable on each outcome variable. DP: Direct Path; IP: Indirect Path; SLES-DE: Exposure to Trauma; SLES-SN: Current Stress Due to Trauma Exposure; INVPCL: Inverse Trauma Symptoms; Secure: Secure Attachment; Fear: Fearful-Avoidant Attachment; NOS: Network Orientation.

of the variance unexplained. They accounted for 29.5% of the variance in Fearful-Avoidant Attachment, leaving 70.5% unexplained. These results provide support for the links between trauma variables and adult attachment styles proposed in hypothesis 2.

At the third stage of analysis in the full model, participants' scores on the four attachment styles at time 1 were used to predict their scores on Network Orientation at time 1. Only scores on the Secure and Fearful-Avoidant attachment styles significantly predicted scores on Network Orientation. For the reduced model, new regression equations were calculated using only scores on Secure and Fearful-Avoidant attachment as direct predictors of Network Orientation. Overall this model was found to be significant; $F(2, 146) = 28.66, p < 0.0001$. The standardized beta coefficient for the path from Secure Attachment to Network Orientation was equal to $+0.367$; $t = 4.27, p < 0.0001$. The standardized beta coefficient for the path from Fearful-Avoidant Attachment to Network Orientation was equal to -0.227 ; $t = -2.65, p < 0.01$, and thus was no longer significant in the reduced model using the more stringent criterion for significance. These results provide partial support for hypothesis 4a. In addition, several indirect paths from the trauma variables to Network Orientation, through Secure attachment were calculated. These included two indirect paths from Exposure to Trauma, one indirect path from Current Stress Due to Trauma Exposure, and one indirect path from Trauma Symptoms. The indirect paths from the trauma variables, and the Effect Coefficients representing the total effect of each variable on Network Orientation are presented in Table 4. In total, these trauma and attachment style variables were able to account for 15.5% of the variance in Network Orientation, leaving 84.5% unexplained. These results provide partial support for the relationships between trauma variables, adult attachment styles, and network orientation proposed in hypothesis 4b.

Time 1 Predictors, Predicting Time 2 Outcomes

Fall GPA

In the full model, when time 1 scores for the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression

equation as predictors of participants' Fall Grade Point Averages (GPAs), only Network Orientation was found to have a significant direct effect. For the reduced model, a new regression equation was thus calculated using only Time 1 Network Orientation as a predictor of Fall GPA. The direct path between Network Orientation and Fall GPA was no longer significant in the reduced model after applying the more stringent criteria for significance. A reduced model is not presented.

Academic adjustment at time 2.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Academic Adjustment at time 2, three direct paths were found to be significant. These were paths from Trauma Symptoms, Secure Attachment and Dismissing-Avoidant Attachment. To compute the reduced model, a new regression equation was computed using only those three variables as direct predictors of time 2 Academic Adjustment (Academic Adjustment T2). None of these paths continued to be significant in the reduced model. No reduced model is presented.

Social adjustment at time 2.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Social Adjustment at time 2, three direct paths were found to be significant. These were paths from Trauma Symptoms, Secure Attachment and Dismissing-Avoidant Attachment. To compute the reduced model, a new regression equation was computed using only those three variables as direct predictors of time 2 Social Adjustment (Social Adjustment T2). Only the direct path between Secure Attachment and Social Adjustment T2 continued to be significant, $t=4.545$, $p<0.0001$. This reduced model is presented in Figure 3. As can be seen in Figure 3, there are also 4 indirect paths between time 1 trauma variables and Social Adjustment T2. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 5. In total, the significant paths in this

Table 5.

**Direct and Indirect Paths and Effect Co-Efficients for Reduced Models: Time 1 Predictors,
Predicting Time 2 Outcomes.**

Outcome Variable	Predictor Variable	Direct and Indirect Paths	Effect Co-efficient
Social Adjustment T2	SLES-DE	IP through INVPCL & Secure	-0.242
	SLES-SN	IP through SLES-SN, INVPCL & Secure	-0.16
	INVPCL	IP through Secure	+0.304
	Secure	DP	+0.344
Emotional Adjustment T2	SLES-DE	IP through INVPCL IP through SLES-SN & INVPCL	-0.302
	SLES-SN INVPCL	IP through INVPCL DP	-0.201 +0.144
	SLES-DE	IP through INVPCL IP through SLES-SN & INVPCL	+0.223
Drinking to Cope T2	SLES-SN INVPCL	IP through INVPCL DP	+0.148 -0.28
	Preoccupied Attachment	DP	+0.253

Note. Effect co-efficients represent the sum of the direct and indirect effects of each predictor variable on each outcome variable. DP: Direct Path; IP: Indirect Path; SLES-DE: Exposure to Trauma; SLES-SN: Current Stress Due to Trauma Exposure; INVPCL: Inverse Trauma Symptoms; Secure: Secure Attachment.

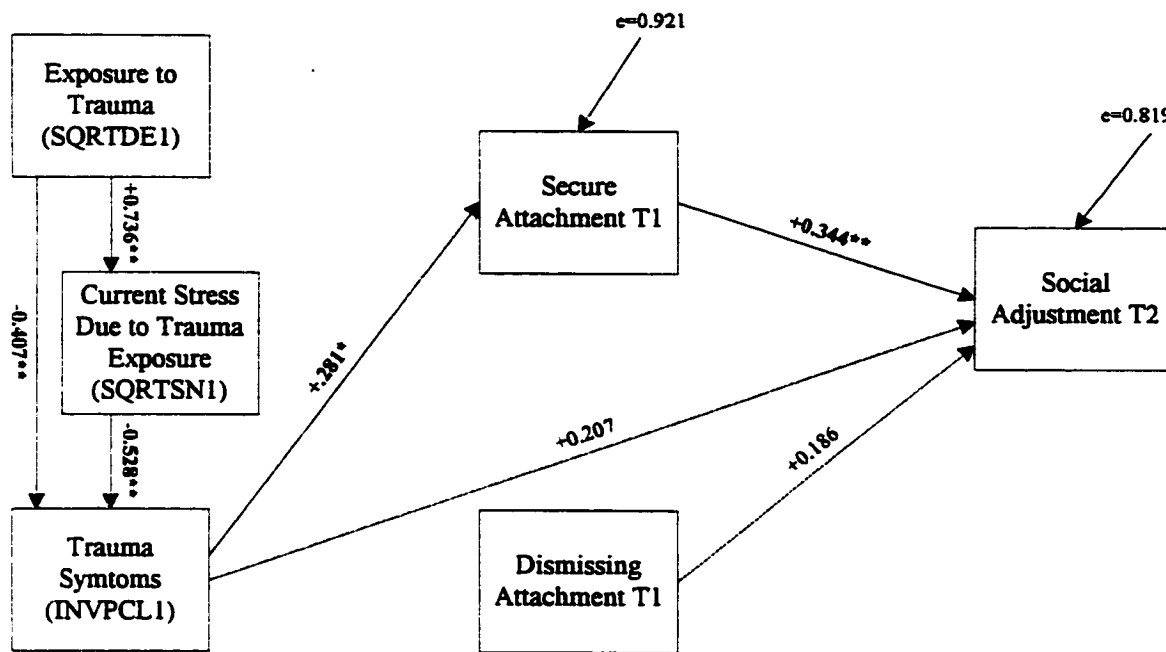


Figure 3. Reduced model for time 1 predictors, predicting Social Adjustment at time 2. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that were no longer significant in the reduced model. e=unexplained. Significance levels * = $p < .001$, ** = $p < .0001$

model accounted for 14% of the variance in Social Adjustment T2, leaving 86% unexplained. These results provide partial support for the role of adult attachment style proposed in hypothesis 6 and 6b. With regard to the trauma variables, these results also provide support for hypotheses 9c, but not for 9a, 9b, or 9d. They do not provide support for the role of orientation toward seeking social support proposed in hypotheses 5, 7, 8b and 9d. They also do not support the indirect role of attachment to parents proposed in hypotheses 8 and 8b.

Emotional adjustment at time 2.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Emotional Adjustment at time 2, five direct

paths were found to be significant. These were paths from Exposure to Trauma, Current Stress Due to Trauma, Trauma Symptoms, Secure Attachment, and Dismissing-Avoidant Attachment. To compute the reduced model, a new regression equation was computed using only those five variables as direct predictors of time 2 Emotional Adjustment (Emotional Adjustment T2). One of the five paths continued to be significant in the reduced model. This was the direct path from Trauma Symptoms to Emotional Adjustment T2; Trauma Symptoms, $t=4.52$, $p < 0.0001$. The other four direct paths were no longer significant in the reduced model. This reduced model is presented in Figure 4. As can be seen in Figure 4, there are also 3 indirect paths between time 1 trauma variables and Emotional Adjustment T2. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 5. In total, the significant paths in this model accounted for 15.25% of the variance in Emotional Adjustment T2, leaving 84.75% unexplained. With regard to the trauma variables, these results also provide support for hypothesis 9b, but not for 9a, 9c, or 9d. These results do not provide support for the role of adult attachment style proposed in hypothesis 6 and 6c, nor do they support the role of orientation toward seeking social support proposed in hypotheses 5, 7, 8b and 9d. They also do not support the indirect role of attachment to parents proposed in hypotheses 8 and 8b.

Drinking to cope at time 2.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Drinking to Cope at time 2, only the direct path from Trauma Symptoms was found to be significant. To compute the reduced model, a new regression equation was computed using only that variable as a predictor of Drinking to Cope at time 2 (Drink to Cope T2). The path was found to be significant; $t=-3.53$, $p < 0.001$. The reduced model is presented in Figure 5. As can be seen in Figure 5 there are also 3 indirect paths between the trauma variables and Drinking to Cope T2. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 5. In total, the significant paths in this model accounted for 15% of the variance in Drinking to Cope T2, leaving 85% unexplained.

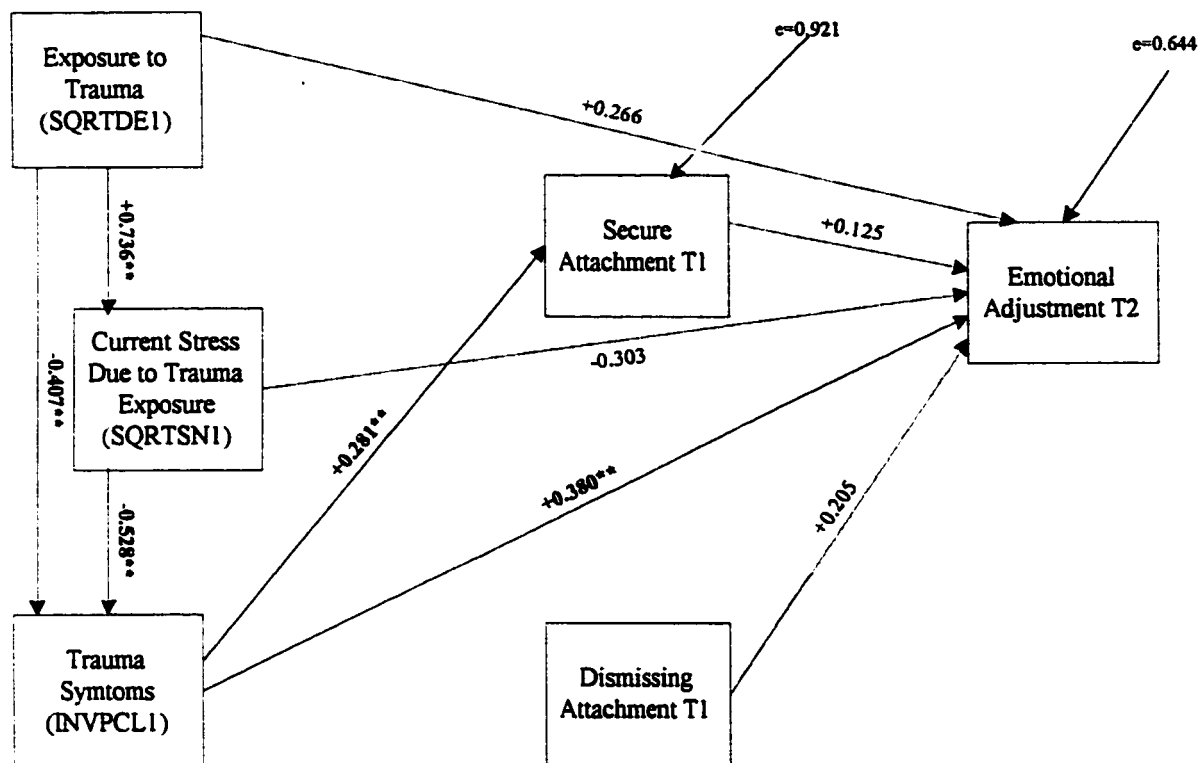


Figure 4. Reduced model for time 1 predictors, predicting Emotional Adjustment at time 2. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma symptoms indicate higher reported levels of symptoms. e =unexplained. Dotted lines indicate paths that were no longer significant in the reduced model. Significance levels: $*$ = $p < .001$, $**$ = $p < .0001$

With regard to the trauma variables, these results provide support for hypotheses 9b, but not for 9a, 9c, or 9d. They do not provide support for the role of adult attachment style as proposed in hypothesis 6e. They also do not provide support for the role of orientation toward seeking social support proposed in hypotheses 5, 7, 8b and 9d, nor do they support the indirect role of attachment to parents proposed in hypotheses 8 and 8b.

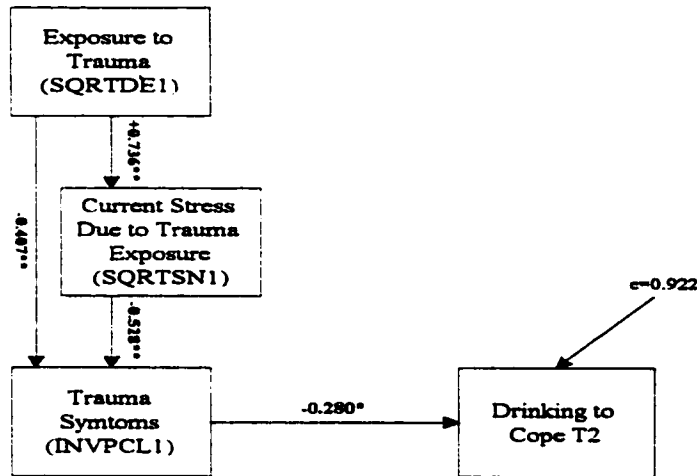


Figure 5. Reduced model for time 1 predictors, predicting Drinking to Cope at time 2. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma Symptoms indicate higher reported levels of symptoms. e=unexplained. Significance levels: * = $p < .001$, ** = $p < .0001$

Drinking for social reasons and drinking to enhance positive affect at time 2.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Drinking for Social Reasons at time 2, none of the variables were significant predictors. The same held true when these variables were entered into a regression equation as predictors of Drinking to Enhance Positive Affect. The model was thus unable to contribute to the prediction of these two reasons for drinking. Reduced models are not presented. In the literature, these two drinking patterns are not associated with problems in adjustment. These results are thus consistent with previous research. They were not linked with more secure attachment as proposed in hypothesis 6 and 6e.

Drinking to conform at time 2.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression

equation as predictors of participants' self-reported Drinking to Conform at time 2, one direct path was found to be significant. The only significant path was from participants' scores on Preoccupied Attachment. To compute the reduced model, a new regression equation was computed using only Preoccupied Attachment as a predictor of Drinking to Conform at time 2 (Drink to Conform T2). This path continued to be significant in the reduced model; $\beta = +0.253$, $t=3.17$, $p < 0.002$. Preoccupied attachment accounted for 6.4% of the variance in Drinking to Conform T2. There were no indirect effects. Given that there is only one direct path, a reduced model will not be visually presented.

Time 1 Predictors, Predicting Time 3 Outcomes

Cumulative GPA.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' Cumulative Grade Point Averages (CGPA), only Network Orientation was found to have a significant direct effect. For the reduced model, a new regression equation was thus calculated using only Time 1 Network Orientation as a predictor of CGPA. In the reduced model, the direct path between Network Orientation and CGPA was no longer significant. No reduced model will be presented.

Academic adjustment at time 3.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Academic Adjustment at time 3, two direct paths were found to be significant. These were paths from Current Stress Due to Trauma Exposure and Secure Attachment. To compute the reduced model, a new regression equation was computed using only those two variables as direct predictors of time 3 Academic Adjustment (Academic Adjustment T3). The direct path between Current Stress Due to Trauma Exposure and Academic Adjustment T3 continued to be significant; $t=-3.18$, $p < 0.002$. The direct path between

Secure Attachment and Academic Adjustment T3 was also found to be significant; $t=4.04$, $p<0.0001$. This reduced model is presented in Figure 6. As can be seen in Figure 6, there are also four indirect paths between time 1 predictor variables and Academic Adjustment T3. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 6. In total, the significant paths in this model accounted for 24.5% of the variance in Academic Adjustment T3, leaving 75.5% of the variance unexplained. These results provide partial support for the role of adult attachment style proposed in hypothesis 6 and 6a. With regard to the trauma variables, these results also provide support for hypotheses 9b and 9c, but not for 9a or 9d. They do not provide support for the role of orientation toward seeking social support proposed in hypotheses 5, 7, 8b and 9d. They also do not support the indirect role of attachment to parents proposed in hypotheses 8 and 8b.

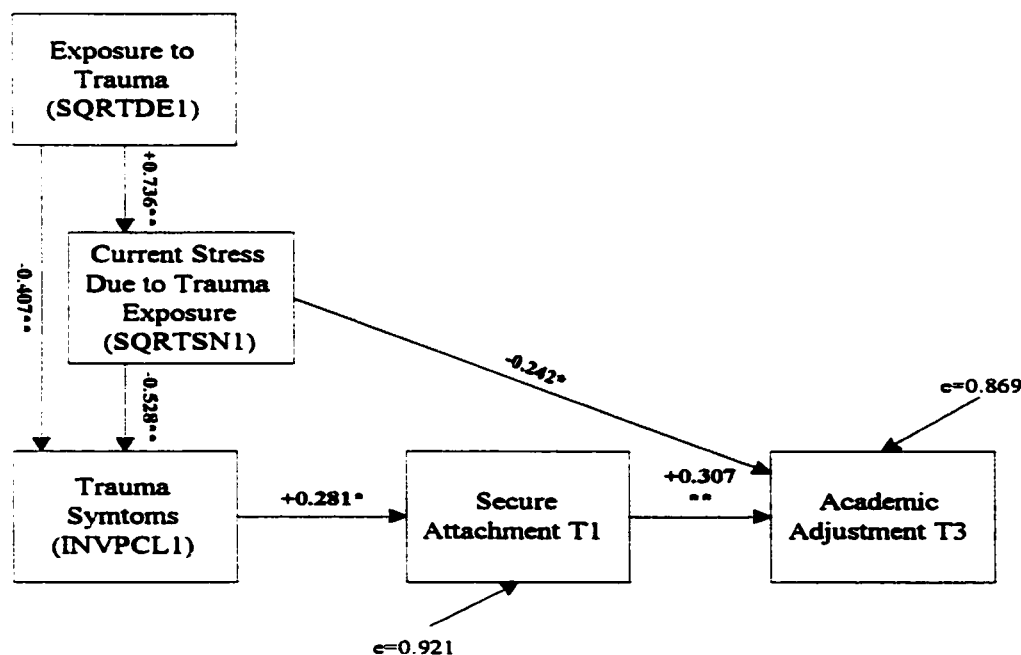


Figure 6. Reduced model for time 1 predictors, predicting Academic Adjustment at time 3. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that are not significant in the reduced model. e =unexplained. Significance levels: *= $p<.002$, **= $p<.0001$

Social adjustment at time 3.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Social Adjustment at time 3, two direct paths were found to be significant. These were paths from Exposure to Trauma and Secure Attachment. To compute the reduced model, a new regression equation was computed using only those two variables as direct predictors of time 3 Social Adjustment (Social Adjustment T3). The direct path between Exposure to Trauma and Social Adjustment T3 was no longer significant in the reduced model. The direct path between Secure Attachment and Social Adjustment T3 was significant; $t=5.65$, $p < 0.0001$. This reduced model is presented in Figure 7. As can be seen in Figure 7, there are also four indirect paths between time 1 predictor variables and Social Adjustment T3. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 6. In total, the significant paths in this reduced model accounted for 20% of the variance in Social Adjustment T3, leaving 80% of the variance unexplained. These results provide partial support for the role of adult attachment style proposed in hypothesis 6 and 6b. With regard to the trauma variables, these results also provide support for hypothesis 9c. They do not provide support for the role of orientation toward seeking social support proposed in hypotheses 5, 7, 8b and 9d. They also do not support the indirect role of attachment to parents proposed in hypotheses 8 and 8b.

Table 6.

Direct and Indirect Paths and Effect Co-efficients for Reduced Models: Time 1 Predictors, Predicting Time 3 Outcomes.

Outcome Variable	Predictor Variable	Direct and Indirect Paths	Effect Co-efficient
Academic Adjustment T3	SLES-DE	IP through INVPCL and Secure IP through SLES-SN, INVPCL & Secure	-0.247
	SLES-SN	DP IP through INVPCL & Secure	-0.288
	PCL	IP through Secure	+0.086
	Secure	DP	+0.307
Social Adjustment T3	SLES-DE	IP through INVPCL & Secure IP through SLES-SN, INVPCL & Secure	-0.095
	SLES-SN	IP through INVPCL & Secure	-0.063
	PCL	IP through Secure	+0.119
	Secure	DP	+0.423
Emotional Adjustment T3	SLES-DE	IP through INVPCL IP through SLES-SN & INVPCL	-0.337
	SLES-SN	IP through INVPCL	-0.223
	PCL	DP	+0.423
Drinking to Cope T3	SLES-DE	IP through SLES-SN	+0.294
	SLES-SN	DP	+0.4

Note. Effect co-efficients represent the sum of the direct and indirect effects of each predictor variable on each outcome variable. DP: Direct Path; IP: Indirect Path; SLES-DE: Exposure to Trauma; SLES-SN: Current Stress Due to Trauma Exposure; INVPCL: Inverse Trauma Symptoms; Secure: Secure.

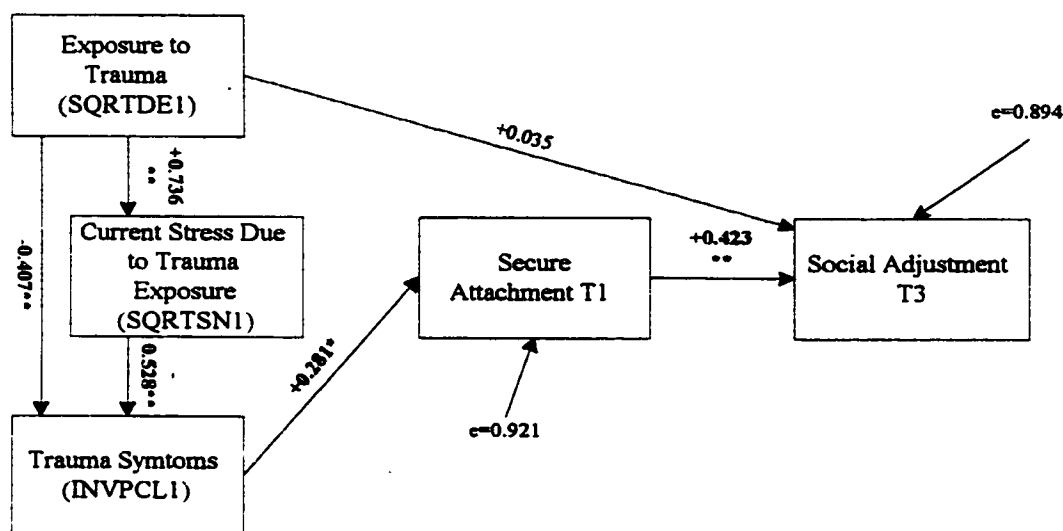


Figure 7. Reduced model for time 1 predictors, predicting Social Adjustment at time 3. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that are not significant in the reduced model. e =unexplained. Significance levels: * = $p < .001$, ** = $p < .0001$

Emotional adjustment at time 3.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Emotional Adjustment at time 3, three direct paths were found to be significant. These were paths from Exposure to Trauma, Current Stress Due to Trauma (CSDT) and Trauma Symptoms. To compute the reduced model, a new regression equation was computed using only those three variables as direct predictors of time 3 Emotional Adjustment (Emotional Adjustment T3). Only the direct path from Trauma Symptoms continued to be significant. The paths from Exposure to Trauma and Current Stress Due to Trauma Exposure approached significance using the stringent criterion for significance. The t values and significance levels are as follows: Exposure to Trauma, $t=2.93$, $p < 0.005$, CSDT, $t=-2.85$, $p < 0.005$, and Inverse Trauma Symptoms, $t=5.125$, $p < 0.0001$. This reduced model is

presented in Figure 8. As can be seen in Figure 8, there are also three indirect paths between time 1 predictor variables and Emotional Adjustment T3. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 6. In total, the significant paths in this model accounted for 34% of the variance in Emotional Adjustment T3, leaving 66% of the variance unexplained. With regard to the trauma variables, these results also provide support for hypotheses 9b, but not for 9a, 9c, or 9d. They do not provide support for the role of adult attachment style proposed in hypothesis 6c, nor do they provide support for the role of orientation toward seeking social support proposed in hypotheses 5, 7, 8b and 9d. They also do not support the indirect role of attachment to parents proposed in hypotheses 8 and 8b.

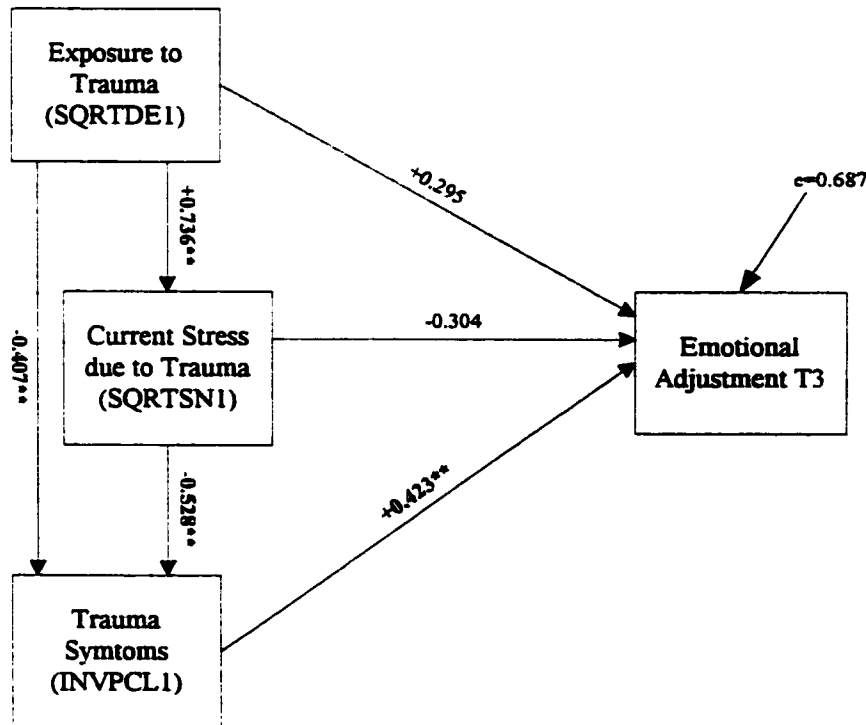


Figure 8. Reduced model for time 1 predictors, predicting Emotional Adjustment at time 3. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that are not significant in the reduced model. e =unexplained. Significance levels: $*$ = $p < .001$, $**$ = $p < .0001$

Drinking to cope at time 3.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Drinking to Cope at time 3, two direct paths, from Exposure to Trauma and Current Stress Due to Trauma Exposure (CSDT), were found to be significant. To compute the reduced model, a new regression equation was computed using only Exposure to Trauma and CSDT as predictors of Drinking to Cope at time 3 (Drink to Cope T3). Only the path from CSDT continued to be significant in the reduced model; CSDT, $t=3.59$, $p < 0.0001$. This reduced model is presented in Figure 9. As can be seen in Figure 9, there is also one indirect path between Exposure to Trauma and Drink to Cope T3 through CSDT. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 6. In total, the significant paths in this model accounted for 25% of the variance in Drinking to Cope T3, leaving 75% of the variance unexplained. With regard to the trauma variables, these results provide support for hypothesis 9b, but not for 9a, 9c, or 9d. They do not provide support for the role of adult attachment style as proposed in hypothesis 6e. They also do not provide support for the role of orientation toward seeking social support proposed in hypotheses 5, 7, 8b and 9d, nor do they support the indirect role of attachment to parents proposed in hypotheses 8 and 8b.

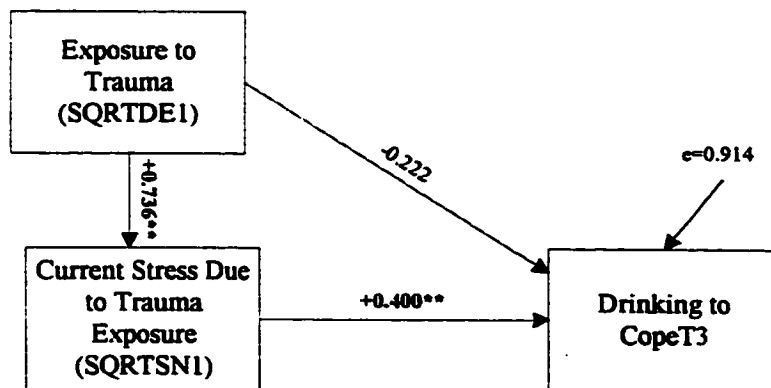


Figure 9. Reduced model for time 1 predictors, predicting Drinking to Cope at time 3. Values shown are standardized Beta weights. Dotted lines indicate paths that are not significant in the reduced model. e=unexplained. Significance levels: * = $p < .001$, ** = $p < .0001$

Drinking for social reasons, to enhance positive affect, and to conform at time 3.

In the full model, when time 1 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Drinking for Social Reasons at time 3, none of the variables were significant predictors. The same held true when these variables were entered into regression equations as predictors of Drinking to Enhance Positive Affect and as predictors of Drinking to Conform. The model was thus unable to contribute to the prediction of these three reasons for drinking. Reduced models are not presented. In the literature, Drinking for Social Reasons and Drinking to Enhance Positive Affect are not associated with problems in adjustment. These results are thus consistent with previous research. Drinking for Social Reasons and Drinking to Enhance Positive Feelings were not linked with more secure attachment as proposed in hypothesis 6e. Drinking to Conform was not linked with Preoccupied Attachment as proposed in hypothesis 6e.

Relationships Among Time 2 Predictors

The reduced path model representing the relationships between the time 2 predictor variables is presented in Figure 10. At the first stage of analysis in the full model, the proposed causal links between the three trauma variables at time 2 were assessed. All of the causal links proposed were significant. The standardized beta coefficient for the path from Exposure to Trauma to Inverse Trauma Symptoms was equal to -0.395 ; $t = -5.15$, $p < 0.0001$. The standardized beta coefficient for the path from Current Stress Due to Trauma Exposure to Inverse Trauma Symptoms was equal to -0.491 ; $t = -6.74$, $p < 0.0001$. Finally, the standardized beta coefficient for the path from Trauma Exposure to Current Stress Due to Trauma Exposure was equal to $+0.734$; $t = 12.93$, $p < 0.0001$. There was also one indirect path from Exposure to Trauma to Inverse Trauma Symptoms through Current Stress Due to Trauma Exposure. The calculated path coefficient for this indirect path is equal to -0.36 . The Effect Coefficients for each variable are presented in

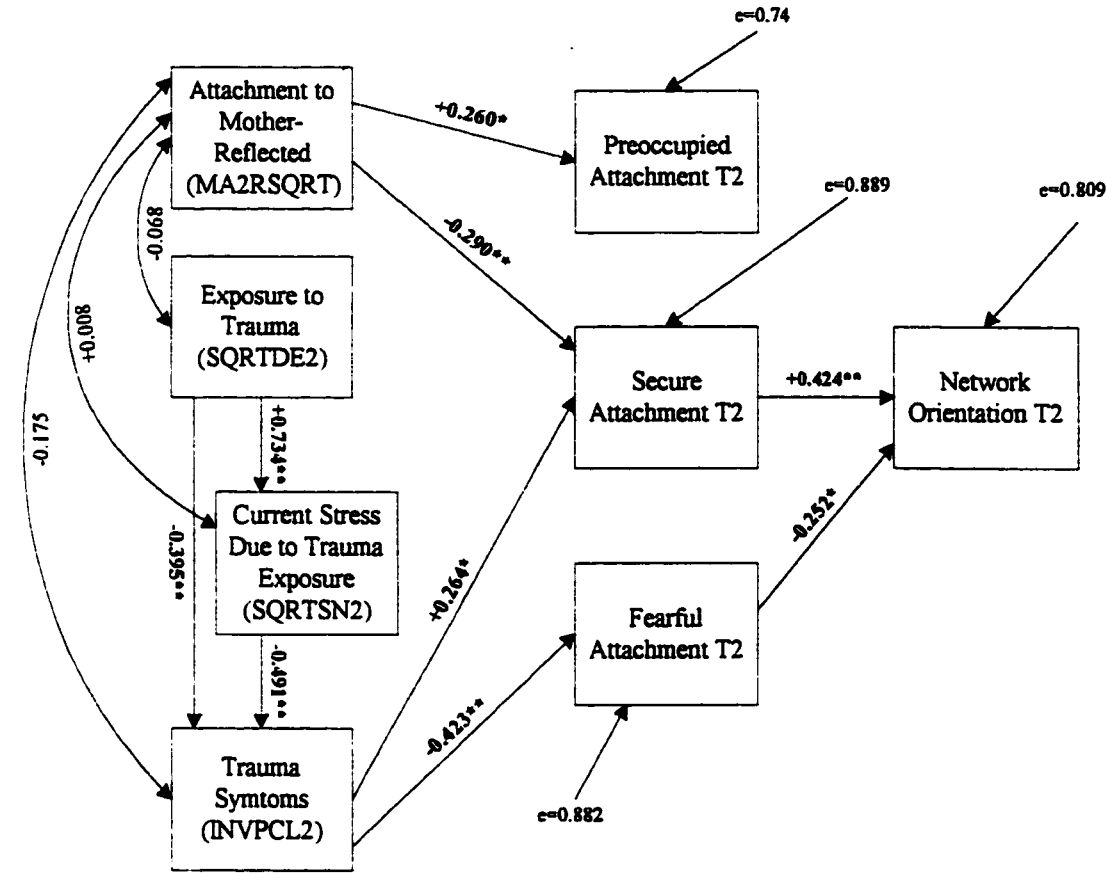


Figure 10. Reduced model for relationships among time 2 predictors. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that were not significant in the reduced model. e=unexplained. Significance levels: $*=p<.002$, $**=p<.0001$

Table 7. In total, Exposure to Trauma accounted for 54% of the variance in Current Stress Due to Trauma Exposure, leaving 46% of the variance unexplained. In total, Exposure to Trauma and Current Stress Due to Trauma Exposure were able to account for 81% of the variance in Trauma Symptoms, leaving 19% of the variance unexplained. These results are consistent with hypothesis 1 and 1b.

Table 7.

Direct and Indirect Paths and Effect Co-efficients for the Reduced Model of Relationships among Time 2 Predictors.

<u>Outcome Variable</u>	<u>Predictor Variable</u>	<u>Direct & Indirect Paths</u>	<u>Effect Co-efficient</u>
SLES-SN	SLES-DE	DP	+0.734
INVPCL	SLES-DE	DP IP through SLES-SN	-0.755
	SLES-SN	DP	-0.491
Secure	SLES-DE	IP through INVPCL IP through SLES-SN and INVPCL	-0.199
	SLES-SN	IP through INVPCL	-0.13
	PCL	DP	+0.264
	IPPA-Mother	DP	-0.29
Fearful	SLES-DE	IP through INVPCL IP through SLES-SN & INVPCL	-0.015
	SLES-SN	IP through INVPCL	+0.208
	INVPCL	DP	-0.423
Preoccupied	IPPA-Mother	DP	+0.26
NOS	SLES-DE	IP through INVPCL & Secure IP through SLES-SN, INVPCL & Secure IP through INVPCL & Fearful IP through SLES-SN, INVPCL & Fearful	-0.165

Table 7. Continued

Direct and Indirect Paths and Effect Co-efficients for the Reduced Model of Relationships among Time 2 Predictors.

<u>Outcome Variable</u>	<u>Predictor Variable</u>	<u>Direct & Indirect Paths</u>	<u>Effect Co-efficient</u>
NOS Continued	SLES-SN	IP through INVPCL & Secure	-0.107
		IP through INVPCL & Fearful	
	INVPCL	IP through Secure	+0.219
		IP through Fearful	
	IPPA-Mother	IP through Secure	-0.123
	Secure	DP	+0.424
	Fearful	DP	-0.252

Note. Effect co-efficients represent the sum of the direct and indirect effects of each predictor variable on each outcome variable. DP: Direct Path; IP: Indirect Path; SLES-DE: Exposure to Trauma; SLES-SN: Current Stress Due to Trauma Exposure; INVPCL: Inverse Trauma Symptoms; IPPA-Mother: Attachment to Mother; Secure: Secure Attachment; Fearful: Fearful-Avoidant Attachment; Preoccupied: Preoccupied Attachment; NOS: Network Orientation.

At the second stage of analysis in the full model, the two time 2 parental attachment variables and three time 2 trauma variables were entered in multiple regression equations, and used to predict each of the attachment styles at time 2. Two of these five variables, Attachment to Mother and Trauma Symptoms significantly predicted scores on Secure Attachment. Only Trauma Symptoms significantly predicted scores on Fearful-Avoidant Attachment. Finally, only Attachment to Mother significantly predicted scores on Preoccupied Attachment. None of the five variables significantly predicted scores on Dismissing-Avoidant Attachment. For the reduced model, new regression equations were calculated using only the significant variables to predict each attachment style. No new analyses were conducted for Dismissing-Avoidant Attachment.

For Secure Attachment, both Attachment to Mother and Trauma Symptoms continued to be significant in the reduced model. The standardized beta coefficients, *t* values and significance levels are as follows: Attachment to Mother, Beta=-0.29, *t*=-3.81, *p*< 0.0001, Inverse Trauma

Symptoms $\text{Beta}=0.264$, $t=3.47$, $p < 0.001$. In addition, 2 indirect paths from Exposure to Trauma and 1 indirect path from Current Stress Due to Trauma Exposure were calculated. The indirect paths from these variables, and the Effect Coefficients representing the total effect of each variable are presented in Table 7. In total, the direct and indirect paths in the reduced model were able to account for 21% of the variance in Secure Attachment, leaving 79% of the variance unexplained. These results provide partial support for the relationship between security of attachment to parents and adult attachment style as proposed in hypothesis 3. They also provide support for hypothesis 2.

For Fearful-Avoidant Attachment, Inverse Trauma Symptoms continued to be significant in the reduced model; $\text{Beta}=-0.423$, $t = -5.663$, $p < 0.0001$. In addition, 2 indirect paths from Exposure to Trauma and 1 indirect path from Current Stress Due to Trauma Exposure were calculated. The indirect paths from these variables, and the Effect Coefficients representing the total effect of each variable are presented in Table 7. In total, the direct and indirect paths in the reduced model were able to account for 22% of the variance in Fearful-Avoidant Attachment, leaving 78% of the variance unexplained. These results provide partial support for the relationships between the trauma variables and adult attachment styles proposed in hypothesis 2.

Finally for Preoccupied Attachment, Attachment to Mother continued to be significant in the reduced model; $\text{Beta} = .26$, $t = 3.26$, $p < 0.001$. This accounted for 6.75% of the variance in Preoccupied Attachment, leaving 93.25% unexplained. These results provide partial support for the relationship between security of attachment to parents and adult attachment style as proposed in hypothesis 3.

At the third stage of analysis in the full model, participants' scores on the four attachment styles at time 2 were used to predict their scores on Network Orientation at time 2. Only scores on the Secure and Fearful-Avoidant attachment styles significantly predicted scores on Network Orientation. For the reduced model, new regression equations were calculated using only scores on Secure and Fearful-Avoidant attachment as direct predictors of Network Orientation. Overall this model was found to be significant; $F(2, 146) = 40.94$, $p < 0.0001$. The standardized beta

coefficient for the path from Secure Attachment to Network Orientation was equal to +0.424; $t=5.37$, $p < 0.0001$. The standardized beta coefficient for the path from Fearful-Avoidant Attachment to Network Orientation was equal to -0.252 ; $t=-3.2$, $p < 0.002$, and thus was also significant. In addition, several indirect paths from the trauma variables to Network Orientation, through Secure attachment were calculated. These included four indirect paths from Exposure to Trauma, two indirect paths from Current Stress Due to Trauma Exposure, and two indirect paths from Trauma Symptoms. There was also one indirect path from Attachment to Mother through Secure. The indirect paths and Effect Coefficients representing the total effect of each variable on Network Orientation are presented in Table 7. In total, the significant paths in the reduced model at time 2 were able to account for 34.5% of the variance in Network Orientation, leaving 65.5% unexplained. These results provide support for the relationships between adult attachment style and orientation toward seeking social support proposed in hypothesis 4a, and for the relationships between trauma variables, adult attachment styles, and orientation toward seeking social support proposed in hypothesis 4b. They also provide partial support for the relationships between attachment to parents, adult attachment style, and orientation toward seeking social support proposed in hypothesis 4c.

Time 2 Predictors, Predicting Time 3 Outcomes

Cumulative GPA.

In the full model, when time 2 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' Cumulative Grade Point Averages none of the variables had significant direct effects. No reduced model was produced.

Academic adjustment at time 3.

In the full model, when time 2 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Academic Adjustment at time 3, two direct

paths were found to be significant. These were paths from Exposure to Trauma and Trauma symptoms at time 2. To compute the reduced model, a new regression equation was computed using only those two variables as direct predictors of time 3 Academic Adjustment (Academic Adjustment T3). The direct path between Exposure to Trauma and Academic Adjustment T3 was no longer significant in the reduced model. The direct path between Inverse Trauma Symptoms and Academic Adjustment T3 was found to be significant; $t=4.63$, $p<0.0001$. This reduced model is presented in Figure 11. As can be seen in Figure 11, there are also three indirect

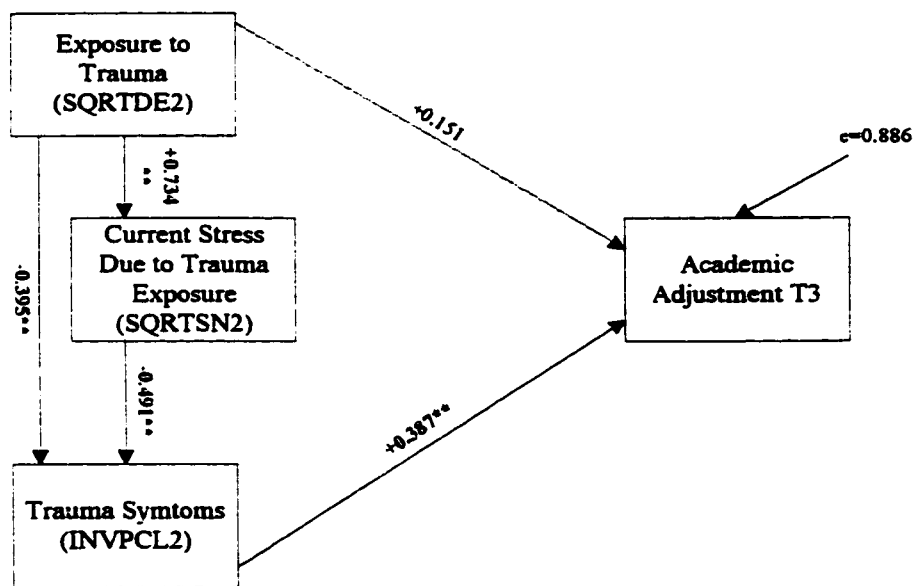


Figure 11. Reduced model for time 2 predictors, predicting Academic Adjustment at time 3. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that were not significant in the reduced models. e =unexplained. Significance levels: *= $p<.001$, **= $p<.0001$

paths between time 2 predictor variables and Academic Adjustment T3. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 8. In total, the significant paths in this model accounted for 27% of the variance in Academic Adjustment T3, leaving 73% of the variance unexplained. These results support hypothesis 9b. The results do not provide support for hypotheses 5, 6, 6a, 7, 8, 8b, 9a, 9c, and 9d.

Table 8.

Direct and Indirect Paths and Effect Co-Efficients for Reduced Models: Time 2 Predictors, Predicting Time 3 Outcomes.

Outcome Variable	Predictor Variable	Direct and Indirect Paths	Effect Co-efficient
Academic Adjustment T3	SLES-DE	IP through INVPCL IP through SLES-SN & INVPCL	-0.292
	SLES-SN	IP through INVPCL	-0.19
	PCL	DP	+0.387
Social Adjustment T3	SLES-DE	IP through INVPCL IP through SLES-SN & INVPCL	-0.208
	SLES-SN	IP through INVPCL	-0.136
	PCL	DP	+0.276
Emotional Adjustment T3	SLES-DE	IP through INVPCL IP through SLES-SN & INVPCL	-0.443
	SLES-SN	IP through INVPCL	-0.288
	INVPCL	DP	+0.587
Drinking to Cope T3	SLES-DE	IP through INVPCL IP through SLES-SN & INVPCL	+0.236
	SLES-SN	IP through INVPCL	+0.154
	INVPCL	DP	-0.313
Drinking to Conform T3	Preoccupied Attachment	DP	+0.257

Note. Effect co-efficients represent the sum of the direct and indirect effects of each predictor variable on each outcome variable. DP: Direct Path; IP: Indirect Path; SLES-DE: Exposure to Trauma; SLES-SN: Current Stress Due to Trauma Exposure; INVPCL: Inverse Trauma Symptoms.

Social adjustment at time 3.

In the full model, when time 2 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Social adjustment at time 3, four direct paths were found to be significant. These were paths from Exposure to Trauma, Trauma Symptoms, Secure Attachment, and Network Orientation. To compute the reduced model, a new regression equation was computed using only those four variables as direct predictors of time 3 Social Adjustment (Social Adjustment T3). Only Trauma Symptoms continued to be significant in the reduced model; Inverse Trauma Symptoms, $t=3.384$, $p < 0.001$. This reduced model is presented in Figure 12. As can be seen in Figure 12, there are also 3 indirect paths between time 2 predictor variables and Social Adjustment T3. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 8. In total, the significant paths in this model accounted for 14% of the variance in Social Adjustment T3, leaving 86% of the variance unexplained. As only the trauma variables continued to be significantly linked to Social Adjustment T3, these results support only hypothesis 9b.

Emotional Adjustment at Time 3.

In the full model, when time 2 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation, were entered into a regression equation as predictors of participants' self-reported Emotional Adjustment at time 3, two direct paths were found to be significant. These were paths from Exposure to Trauma, and Trauma Symptoms. To compute the reduced model, a new regression equation was computed using only those two variables as direct predictors of time 3 Emotional Adjustment (Emotional Adjustment T3). Only Trauma Symptoms continued to be a significant contributor to the prediction of Emotional Adjustment T3; Inverse Trauma Symptoms, $t=7.581$, $p < 0.0001$.

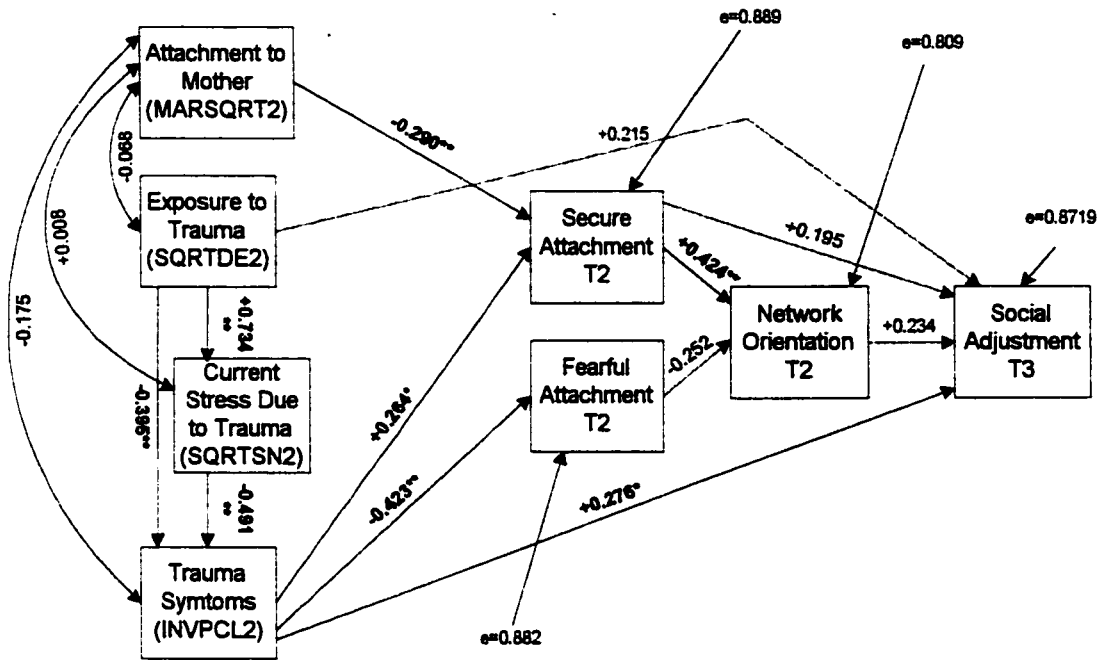


Figure 12. Reduced model for time 2 predictors, predicting Social Adjustment at time 3. Values shown are standardized Beta weights. Due to reflection during transformation, higher scores on Attachment to Mother indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that were not significant in the reduced model. e =unexplained. Significance levels: $*$ = $p < .001$, $**$ = $p < .0001$

This reduced model is presented in Figure 13. As can be seen in Figure 13, there are also three indirect paths between time 2 predictor variables and Emotional Adjustment T3. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 8. In total, the significant paths in this model accounted for 62% of the variance in Emotional Adjustment T3, leaving 38% of the variance unexplained. These results support only hypothesis 9b.

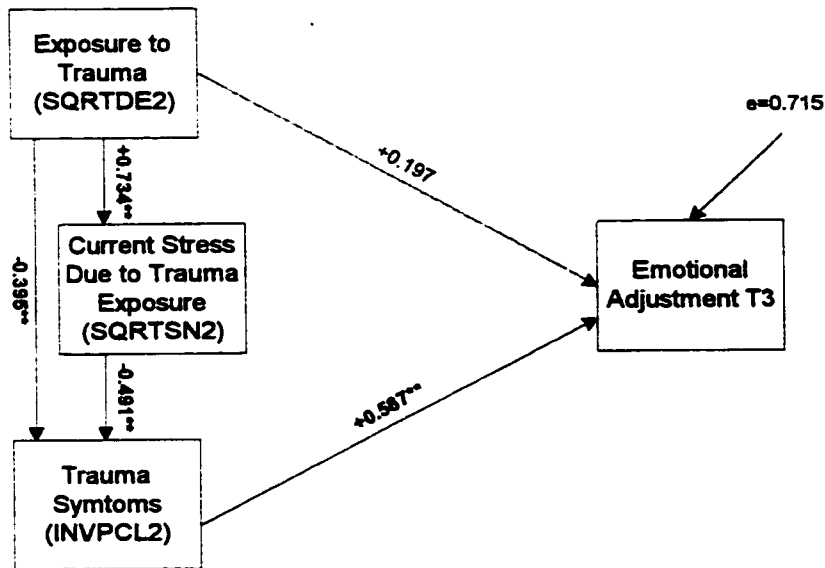


Figure 13. Reduced model for time 2 predictors, predicting Emotional Adjustment at time 3. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that were not significant in the reduced model. e =unexplained. Significance levels: * = $p < .001$, ** = $p < .0001$

Drinking to cope at time 3.

In the full model, when time 2 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Drinking to Cope at time 3, only the direct path from Trauma Symptoms was found to be significant. To compute the reduced model, a new regression equation was computed using only Inverse Trauma Symptoms at time 2 to predict Drinking to Cope at time 3 (Drink to Cope T3). This path was significant in the reduced model; $t = -3.99$, $p < 0.0001$. This reduced model is presented in Figure 14. As can be seen in Figure 14, there are also three indirect paths between Exposure to Trauma and Current Stress Due to Trauma at time 2 and Drink to Cope T3. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 8. In total, this model accounted for 17.75% of the

variance in Drink to Cope T3, leaving 82.25% of the variance unexplained. These results support only hypothesis 9b.

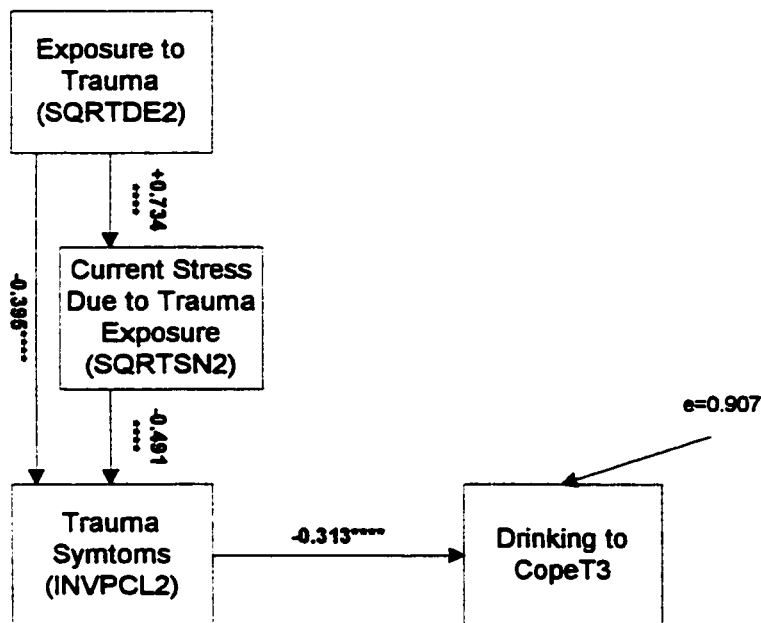


Figure 14. Reduced model for time 2 predictors, predicting Drinking to Cope at time 3. Values shown are standardized Beta weights. Due to inverse transformation, low scores on Trauma Symptoms indicate higher reported levels of symptoms. e=unexplained. Significance levels: * = $p < .05$, ** = $p < .01$, *** = $p < .001$, **** = $p < .0001$

Drinking for social reasons and to enhance positive affect at time 3.

In the full model, when time 2 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Drinking for Social Reasons at time 3, none of the variables were significant predictors. The same held true when these variables were entered into regression equations as predictors of Drinking to Enhance Positive Affect. The model was thus unable to contribute to the prediction of these two reasons for drinking. Reduced models are not presented. In the literature, Drinking for Social Reasons and Drinking to Enhance Positive Affect are not associated with problems in adjustment. These results are thus consistent with

previous research. Drinking for Social Reasons and Drinking to Enhance Positive Affect were not linked with more secure attachment as proposed in hypotheses 6 and 6e.

Drinking to conform at time 3.

In the full model, when time 2 scores on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Drinking to Conform at time 3, only the direct path from Preoccupied Attachment was found to be significant. To compute the reduced model, a new regression equation was computed using only Preoccupied Attachment at time 2 to predict Drinking to Conform at time 3 (Drink to Conform T3). This path continued to be significant in the reduced model; Beta = +0.257, $t=3.228$, $p < 0.002$. Preoccupied Attachment at Time 2 accounted for 7% of the variance in Drink to Conform T3. As there was only one direct path and no indirect paths, the reduced model will not be visually presented.

Relationships Among Predictors for Residuals (Change Time 1 – Time 2)

The reduced path model representing the relationships between the residual predictor variables, that reflect changes in scores between time 1 and time 2, is presented in Figure 15. At the first stage of analysis in the full model, the proposed causal links between the residuals for the three trauma variables were assessed. The path from Changes in Exposure to Trauma to Changes in Trauma Symptoms was not significant. The paths from Changes in Current Stress Due to Trauma Exposure to Changes in Trauma Symptoms, and from Changes in Trauma Exposure to Changes in Current Stress Due to Trauma Exposure were both significant. In the reduced model, the path from Changes in Current Stress Due to Trauma Exposure to Changes in Trauma Symptoms was no longer significant. Only the path from Changes in Trauma Exposure to Changes in Current Stress Due to Trauma Exposure was significant; Beta = +0.552; $t = 7.87$, $p < 0.0001$. In total, Changes in Exposure to Trauma accounted for 30% of the variance in Changes in Current Stress Due to Trauma Exposure, leaving 70% of the variance unexplained. Since changes in the other

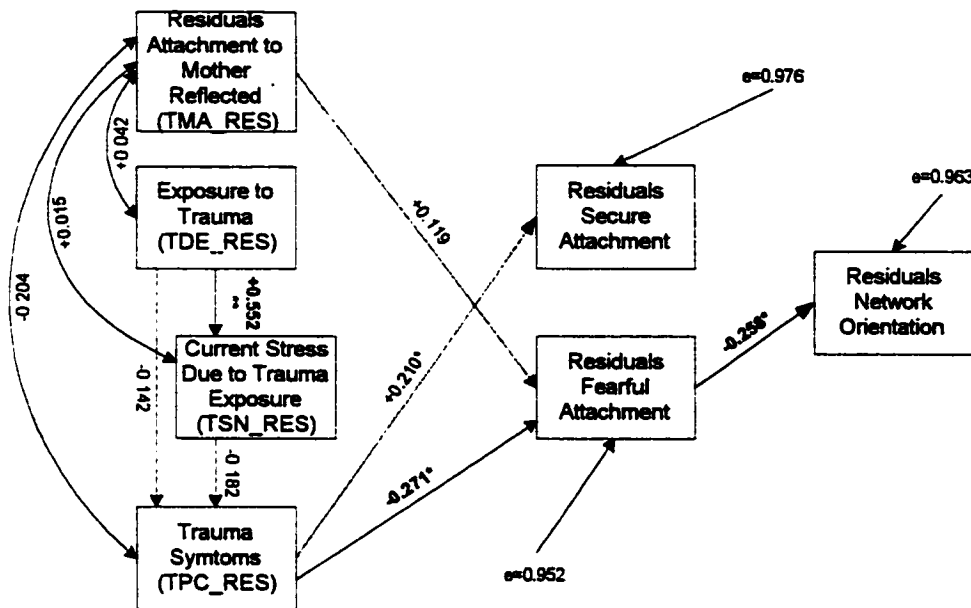


Figure 15. Reduced model for relationships among predictors for residuals reflecting changes in scores between time 1 and time 2. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines represent paths that were not significant in the reduced model. e =unexplained. Significance levels: $*$ = $p < .001$, $**$ = $p < .0001$

trauma variables did not significantly predict changes in trauma symptoms, these results are not consistent with hypothesis 1 and 1b.

At the second stage of analysis in the full model, residuals reflecting changes in the two parental attachment variables and three trauma variables were entered in multiple regression equations, and used to predict residuals reflecting changes in each of the attachment styles. Changes in Attachment to Mother significantly predicted Changes in Fearful-Avoidant-Attachment. Changes in Trauma Symptoms significantly predicted changes in scores on Secure and Fearful-Avoidant Attachment. None of the five residual variables predicted significant changes in scores for Preoccupied or Dismissing-Avoidant Attachment. For the reduced model, new regression equations were calculated using Changes in Trauma Symptoms to predict Changes in Secure Attachment, and both Changes in Attachment to Mother and Changes in Trauma Symptoms to predict Changes in Fearful-Avoidant Attachment. The path between

Changes in Attachment to Mother and Changes in Fearful-Avoidant Attachment was no longer significant in the reduced model. The results therefore are not consistent with hypotheses 3 and 4c. The path between Changes in Inverse Trauma Symptoms and Changes in and Fearful-Avoidant Attachment continued to be significant in the reduced model and accounted for 9.4% of the variance in Fearful-Avoidant attachment; $Beta=-0.271$, $t=-3.37.6$, $p < 0.001$. The path between Changes in Trauma Symptoms and Changes in and Secure Attachment was no longer significant in the reduced model. These results are thus partially consistent with hypothesis 2.

Table 9.

Direct and Indirect Paths and Effect Co-Efficients for the Reduced Model of Relationships among Predictors, for Residuals reflecting Changes in scores between Time 1 and Time2.

Outcome Variable	Predictor Variable	Direct & Indirect Paths	Effect Co-efficient
SLES-SN	SLES-DE	DP	+0.552
Fearful	INVPCL	DP	-0.271
NOS	Fearful	DP	-0.258
	INVPCL	IP through Fearful	+0.07

Note. Effect co-efficients represent the sum of the direct and indirect effects of each predictor variable on each outcome variable. DP: Direct Path; IP: Indirect Path; SLES-DE: Exposure to Trauma; SLES-SN: Current Stress Due to Trauma Exposure; PCL: Trauma Symptoms; Fearful: Fearful-Avoidant Attachment; NOS: Network Orientation.

At the third stage of analysis in the full model, residuals reflecting changes in participants' scores on the four attachment styles between time 1 and time 2 were used to predict residuals reflecting changes in their scores on Network Orientation between time 1 and time 2. Only changes in scores on the Fearful-Avoidant attachment style significantly predicted changes in scores on Network Orientation. For the reduced model, a new regression equation was calculated using only residual scores for Fearful-Avoidant attachment as a direct predictor of changes in scores for Network Orientation. This path continued to be significant in the reduced model. The standardized beta coefficient for the path from Changes in Fearful-Avoidant Attachment to Changes in Network Orientation was equal to -0.258 ; $t=-3.2$, $p < 0.001$. In addition, there was

one indirect path from changes in Inverse Trauma Symptoms through Fearful-Avoidant attachment with an effect co-efficient of .07. In total, this reduced model was able to account for 7% of the variance in Network Orientation, leaving 93% unexplained. These results are partially consistent with hypotheses 4a and 4b.

Residuals Reflecting Changes in Scores Between Time 1 and time 2, Predicting Time 3

Outcomes

Cumulative GPA

In the full model, when residuals reflecting changes in scores between time 1 and time 2 on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' Cumulative Grade Point Averages (CGPA), only Changes in Secure Attachment was found to have a significant direct effect. For the reduced model, a new regression equation was thus calculated using only Changes in Secure Attachment as a predictor of CGPA. The direct path between Changes in Secure Attachment and CGPA approached significance in the reduced model; $t=-2.89$, $p < 0.005$, but did not meet the stringent criterion for significance. No reduced model is presented.

Academic adjustment at time 3.

In the full model, when residuals reflecting changes in scores between time 1 and time 2 on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Academic Adjustment at time 3, only Changes in Network Orientation was found to have a direct effect. To compute the reduced model, a new regression equation was computed using only Changes in network Orientation as a direct predictor of time 3 Academic Adjustment (Academic Adjustment T3). This direct path approached significance; $t=2.9$, $p < 0.005$, but was no longer significant in the reduced model. No reduced model is presented.

Social adjustment at time 3.

In the full model, when residuals, reflecting changes in scores between time 1 and time 2, on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Social Adjustment at time 3, only Changes in Network Orientation was found to have a direct effect. To compute the reduced model, a new regression equation was computed using only Changes in network Orientation as a direct predictor of time 3 Social Adjustment (Social Adjustment T3). This direct path continued to be significant in the reduced model; $t=3.9$, $p < 0.0001$. This reduced model is presented in Figure 16. As can be seen in Figure 16, there are also three indirect paths between other residual variables and Social Adjustment T3. The direct and indirect paths and the Effect Coefficients for each variable are presented in Table 10. In total, the significant paths in this model accounted for 10% of the variance in Social Adjustment T3, leaving 90% of the variance unexplained. These results are partially consistent with hypotheses 5, 7, 9d.

Emotional adjustment at time 3.

In the full model, when residuals, reflecting changes in scores between time 1 and time 2, on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Emotional Adjustment at time 3, only Changes in Trauma Symptoms was found to have a direct effect. To compute the reduced model, a new regression equation was computed using only Changes in Inverse Trauma Symptoms as a direct predictor of time 3 Emotional Adjustment (Emotional Adjustment T3). This direct path continued to be significant in the reduced; Beta = + .251, $t=3.1$, $p < 0.002$. This path accounted for 6.3% of the variance in Emotional Adjustment T3. As there is only one significant direct path and no indirect paths, the reduced model will not be visually presented.

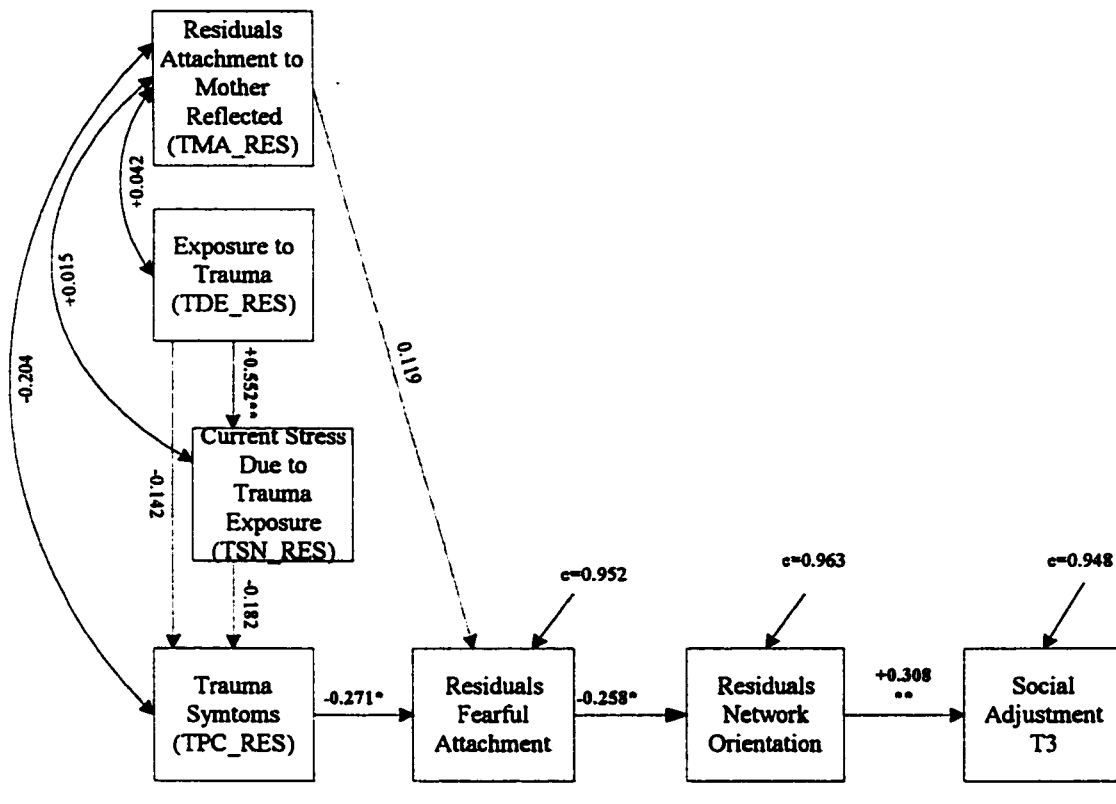


Figure 16. Reduced model for residuals reflecting changes in scores between time 1 and time 2, predicting Social Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. Dotted lines indicate paths that are not significant in the reduced model. e=unexplained. Significance levels: * = $p < .001$, ** = $p < .0001$

Drinking to cope, for social reasons, and to enhance positive affect at time 3.

In the full model, when residuals, reflecting changes in scores between time 1 and time 2, on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Drinking to Cope at time 3, none of the variables were significant predictors. The same held true when these variables were entered into regression equations as predictors of Drinking for Social Reasons, and Drinking to Enhance Positive Affect. The model was thus unable to

contribute to the prediction of these three reasons for drinking. Reduced models are not presented. These results are not entirely consistent with hypothesis 6e.

Drinking to conform at time 3.

In the full model, when residuals, reflecting changes in scores between time 1 and time 2, on the two parental attachment variables, three trauma variables, four attachment styles, and Network Orientation were entered into a regression equation as predictors of participants' self-reported Drinking to Conform at time 3, one direct path was found to be significant. This path was from Changes in Preoccupied Attachment. To compute the reduced model, a new regression equation was computed using only Changes in Preoccupied Attachment as a predictor of Drinking to Conform at time 3 (Drink to Conform T3). The path continued to be significant; Beta = +0.249, $t=3.12$, $p < 0.002$. This path accounted for 6.2% of the variance in Drink to Conform T3. As there is only one significant direct path and no indirect paths, the reduced model will not be presented visually.

Table 10.

Direct and Indirect Paths and Effect Co-Efficients for Reduced Models: Residuals, reflecting changes in scores between time 1 and time 2, Predicting Time 3 Outcomes.

<u>Outcome Variable</u>	<u>Predictor Variable</u>	<u>Direct and Indirect Paths</u>	<u>Effect Co- Efficient</u>
Social Adjustment	INVPCL	IP through Fearful & NOS	+0.022
	Fearful	IP through NOS	-0.079
	NOS	DP	+0.308
Emotional Adjustment	Fearful	DP	+0.251
Drinking to Conform	Preoccupied	DP	+0.249

Note. DP: Direct Path; IP: Indirect Path; INVPCL: Inverse Trauma Symptoms; Fearful: Fearful-Avoidant Attachment; Preoccupied: Preoccupied Attachment; NOS: Network Orientation.

Relationships Between Attachment to Parents and Adjustment to University

The path models tested predicted that the relationships between security of attachment to parents and adjustment to university would be indirect. Security of attachment to parents was hypothesized to have its impact through adult attachment style. The results however indicate that these indirect paths are not significant. An examination of the correlations between attachment to parents and the various indices of adjustment to university, as presented in Table 11, reveals that the relationships between these variables are not accounted for by the path models that were tested. In particular more secure attachment to both mother and father is significantly correlated with better self-reported academic, social, and emotional adjustment. Less secure attachment to mother is significantly correlated with higher reported drinking to cope at the end of the school year. Finally, less secure attachment to mother is significantly correlated with higher reported drinking to conform both in December and at the end of the school year, and less secure attachment to father is significantly correlated with higher reported drinking to conform at the end of the school year.

Table 11.

Correlations Between Attachment to Parents and Outcome Variables

	Reflected IPPA-M Time 1	Reflected IPPA-F Time 1	Reflected IPPA-M Time 2	Reflected IPPA-F Time 2
Time 2 Outcomes				
Fall GPA	.091	.095	N/A	N/A
Academic Adjustment Time 2	-.175*	-.364**	N/A	N/A
Social Adjustment Time 2	-.271**	-.395**	N/A	N/A
Emotional Adjustment Time 2	-.231**	-.446**	N/A	N/A
Drinking to Cope Time 2	.113	.049	N/A	N/A
Drinking to Socialize Time 2	-.003	-.104	N/A	N/A
Drinking for Enhancement Time 2	-.100	-.126	N/A	N/A
Drinking to Conform Time 2	.303**	.129	N/A	N/A
Time 3 Outcomes				
Cumulative GPA	.086	.103	.079	.120
Academic Adjustment Time 3	-.271**	-.332**	-.334**	-.313**
Social Adjustment Time 3	-.243**	-.342**	-.312**	-.297**
Emotional Adjustment Time 3	-.140	-.369**	-.210*	-.338**
Drinking to Cope Time 3	.223**	.124	.289**	.160
Drinking to Socialize Time 3	.038	-.028	-.023	-.019
Drinking For Enhancement Time 3	-.066	-.099	-.022	-.055
Drinking To Conform Time 3	.232**	.244**	.246**	.188*

Note. N=149 (N=129 for GPA). Reflected IPPA-M: Inventory of Parent and Peer Attachment- Mother, reflected in transformation; Reflected IPPA-F: Inventory of Parent and Peer Attachment- Father, reflected in transformation.

** $p < .01$, * $p < .05$.

Summary and Integration of Results

A large number of path models have been presented. One consequence of this is that the pattern of results is complex, and the overall degree to which they support or fail to support the research hypotheses is not immediately clear. A summary and integration of the results will thus be presented prior to proceeding to their discussion. The two primary goals of the current study were to examine the impact of correspondence to the attachment styles on adjustment over the course of the year, and to examine the impact of trauma on adjustment over the course of the year. The integrated results with regard to these two primary goals will thus be presented first, followed by a summary of the results according to their support for each of the individual research hypotheses. The pattern of results regarding the paths by which the predictor variables influence each of the outcome variables will also be presented briefly at the end of this section.

With regard to the first primary goal of examining the impact of correspondence to the attachment styles over the course of the year, it is clear from the results that degree of correspondence to the secure attachment style was a better predictor of adjustment than was correspondence to the three insecure styles. The pattern of results over the course of the year for the secure style is presented in Table 12. As can be seen, security of attachment style in September is a more important predictor of adjustment than is security of attachment style later in

Table 12.

Effect of Security of Attachment Style on Adjustment Indices over time.

Period	Academic	Social
Sept. to Dec.	None	12%
Sept. to March	9.5%	18%
Dec. to March	None	None

Note: Percentages refer to percentage of variance accounted for.

the year. While security of attachment style in September was predictive of academic and social adjustment later in the year, there was no relationship between security of attachment style in December and any of the indices of adjustment. Distinct patterns of adjustment were not found for the three insecure attachment styles except that Preoccupied Attachment was consistently related to drinking to conform.

With regard to the second primary goal of the current study, the pattern of results for the impact of history of trauma and its negative aftereffects over the course of the year is presented in Table 13. As can be seen trauma had minimal and specific impacts on adjustment at the beginning of the year. In contrast, trauma had considerable and more pervasive impacts on adjustment later in the year. As can also be seen, most links between trauma and adjustment were not mediated by the attachment styles. However, where such indirect links did exist they were through the Secure attachment style.

Table 13.

Effect of Trauma on Adjustment Indices over time.

Period	Academic	Social	Emotional	Drinking to Cope
Sept to Dec.	None	Small Indirect*	15%	15%
Sept. to March	7% Dir + 8% Ind*	Small Indirect*	34%	25%
Dec. to March	27%	14%	62%	18%

Note: Percentages refer to percentage of variance accounted for. *through secure.

Hypothesis 1: Relationships Among the Trauma Variables

The first finding of interest with regard to the specific hypotheses relates to the relationships among the trauma variables. When respondents reported retrospectively on traumatic events they had experienced, their ratings of how stressful those events were at the time they were experienced are extremely highly correlated with their reports of what events they experienced ($r > .90$). The ratings of stress at the time of the trauma, at least in this study, therefore appear to be redundant. This is not consistent with hypothesis 1a.

In contrast, respondents' ratings of how stressful those events continue to be in the present do add important predictive power, as do their reports of their current experience of trauma symptoms resulting from those traumas. Both in September and in December, respondents' reports of their exposure to trauma accounted for 54% of the variance in their reports of how stressful that exposure continued to be in the present. Both exposure to trauma and current stress due to trauma were important predictors of current trauma symptoms, accounting for approximately 60% and 25% of the variance in trauma symptoms respectively (63% and 28% in September, and 57% and 24% in December). When reports of exposure to trauma and current stress due to trauma were taken together, they thus accounted for 91% and 81% of respondents' reported trauma symptoms in September and December respectively. The relationships between the trauma variables were thus consistent for the two data collection periods. When the effects of changes in scores between September and December were examined, changes in reported exposure to trauma accounted for approximately 30% of the variance in changes in reported current stress due to trauma. Changes in scores for exposure to trauma and current stress due to trauma did not however account for significant variance in trauma symptoms. The above results, especially those for the separate September and December data, point to the importance of examining both exposure to trauma, and the perceived effects of that exposure, as indicated by reported current stress due to trauma and trauma symptoms. All three variables appear to be

important, and as will be seen, contribute to the prediction of other variables. These results are consistent with hypotheses 1 and 1b.

Hypothesis 2: Role of Trauma Variables in Predicting Attachment Style

With regard to the effects of trauma on attachment style, results of the current study suggest that trauma tends to decrease the degree to which respondents see themselves as corresponding to the secure attachment style, and increase the extent to which they report correspondence to the fearful-avoidant style. The results were consistent for both September and December, as the trauma variables taken together accounted for 15% and 12.5% of the variance in the secure attachment style and 29.5% and 22% of the variance in the fearful-avoidant style for the two periods respectively. Changes in scores for trauma symptoms between September and December also predicted changes in scores for the fearful-avoidant style, accounting for 9.4% of the variance. If participants reported increased trauma symptoms, they also reported increased correspondence to the fearful-avoidant style and vice-versa. These results are consistent with Hypothesis 2. As predicted, the trauma variables were not significantly related to the preoccupied or dismissing-avoidant attachment styles at any time.

Hypothesis 3: Role of Current Attachment to Parents in Predicting Attachment Style

The proposed link between security of attachment to parents and the four attachment styles was only very weakly supported. There were only two significant findings, and these held true only in December. Security of attachment to mother accounted for about 8.5% of the variance in reported correspondence to the secure attachment style, and 6.75% of the variance in reported correspondence to the preoccupied style. There were no significant findings for security of attachment to father. When correlations between these variables were examined, a similar pattern was found. Security of attachment to both mother and father were moderately correlated ($r = .25$ to $.35$) with reported correspondence to the secure attachment style in both September and

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When changes in scores between September and December were examined, it was found that changes in trauma symptoms predicted changes in fearful-avoidance, which in turn led to corresponding changes in orientation toward seeking social support in the directions that would be expected. These changes in Trauma symptoms and fearful-avoidance accounted for 7% of the changes in orientation toward seeking social support. These results provide significant support for hypothesis 4b.

One indirect path from security of attachment to mother, through secure attachment style, to orientation toward seeking social support was also found to be significant in December, providing very limited support for hypothesis 4c. However, this path accounted for only 1.5% of the variance and thus is not important.

Hypothesis 5: Orientation Toward Seeking Social Support as a Predictor of Adjustment to University

There was very little support for the role of orientation toward seeking social support as a predictor of adjustment to university. The only finding providing any support for this hypothesis was that changes in orientation toward seeking social support between September and December were a significant predictor of self-reported social adjustment in March, accounting for 9.5% of the variance in social adjustment in March.

Hypothesis 6: Adult Attachment Style as a Direct Predictor of Adjustment to University

Overall, evidence for the role of degree of correspondence to the secure attachment style was stronger than that for the role of the three insecure styles. The only significant path between the attachment styles and academic adjustment was from degree of reported correspondence to the secure attachment style in September, accounting for 9.5% of the variance in academic adjustment in March. Higher reported correspondence to the secure prototype in September also predicted better social adjustment in both December and March, accounting for 12% and 18% of the variance respectively. Degree of correspondence to the secure attachment style was not a

significant predictor of emotional adjustment, nor was it a significant predictor of any of the reasons for drinking.

As hypothesized, correspondence to the preoccupied attachment style was a direct predictor of drinking to conform. It accounted for approximately 6-7% of the variance in the September to December and December to March intervals, as well as when changes in scores between September and December were used to predict scores in March.

There were no significant direct relationships between correspondence to the fearful or dismissing avoidant attachment styles and any of the various indices of adjustment to university.

Hypothesis 7: The Role of Orientation Toward Seeking Social Support as a Mediator between Adult Attachment Style and Adjustment to University

There was little evidence for the role of orientation toward seeking social support as a mediator between the adult attachment styles and the various indices of adjustment to university. The only significant path was the indirect path whereby changes in fearful-avoidance between September and December predicted changes in orientation toward seeking social support, which in turn predicted social adjustment in March. This indirect path accounted for very little variance and thus this is not an important finding.

Hypothesis 8: The Role of Attachment to Parents in Predicting Adjustment to University

It was hypothesized that the effects of students' reported security of attachment to their mothers and fathers on the various indices of adjustment to university would be indirect and mediated by attachment style and, in the case of hypothesis 8b, Network Orientation. There was no support for this hypothesis. When the correlations between security of attachment to mother and father and the various indices of adjustment to university were examined, several of the correlations were significant. The proposed model did not account for the relationships between these variables. More secure attachment to both mother and father was significantly correlated with better self-reported academic, social, and emotional adjustment for all three intervals. Less

secure attachment to mother was significantly correlated with higher reported drinking to cope at the end of the school year and higher reported drinking to conform both in December and March. Less secure attachment to father was related to higher reported drinking to conform only in March. Security of attachment to parents may thus directly predict adjustment to university, or the relationships may be mediated by other variables that were not included in this study.

Hypothesis 9: Direct and Indirect Effects of Trauma on Adjustment to University

The trauma variables had the largest and most consistent effects in predicting scores on the various indices of adjustment to university, indicating that trauma history, including stress due to trauma and trauma symptoms, is an important predictor of many facets of adjustment to university. Exposure to trauma was hypothesized to have direct negative effects on adjustment (9a), as well as indirect negative effects through the other trauma variables (9b), the adult attachment styles (9c), and orientation toward seeking social support (9d).

In the full models, history of exposure to trauma directly predicted self-reported emotional adjustment at all three intervals. This effect was, however, no longer significant in the reduced models. The results thus do not support hypothesis 9a. It may however be important to discuss this effect briefly, as the inclusion or exclusion of these paths affects the magnitude of other path coefficients in the analysis, due to the fact that contrary to expectations the path coefficients for the direct paths were positive. If these paths were significant this would indicate that exposure to trauma, in and of itself without accounting for the resulting stress and symptoms, had a small positive effect on adjustment. These paths were not significant in the reduced models and were thus removed. The result of removing these paths was an increase in the magnitude of the negative indirect effects of exposure to trauma through stress and symptoms, because the non-significant positive direct paths had been counteracting some of the negative indirect effects.

Hypotheses 9b, 9c, and 9d predicted that the effects of the trauma variables taken together, as well as their indirect effects through the adult attachment styles and Network Orientation, would yield a pattern of results whereby higher scores on the trauma variables would be related to lower

scores on the indices of adjustment. With regard to academic adjustment, there were no significant effects for the September to December interval. During the September to March interval, the significant effects of the trauma variables were both direct and indirect through their impact on secure attachment. The direct path from current stress due to trauma exposure accounted for 8% of the variance, and the indirect effects of the trauma variables through their impact on secure attachment accounted for another 7% of the variance in academic adjustment, providing support for hypotheses 9b and 9c. In total, scores on the trauma variables in September thus accounted for 15% of the variance in academic adjustment in March. For the December to March interval, the effects of the trauma variables were not mediated by attachment style. The direct and indirect effects of scores on the trauma variables in December accounted for 27% of the variance in academic adjustment in March, providing support for hypothesis 9b.

With regard to the effects of trauma on social adjustment, scores on the trauma variables reported in September had indirect effects on social adjustment in December and March through their impact on secure attachment, providing support for hypothesis 9c. They did not however account for much variance over and above that accounted for directly by secure attachment. For the December to March interval, the effects of the trauma variables were not mediated by other variables and accounted for 14% of the variance, providing support for hypothesis 9b. Finally, changes in levels of reported trauma symptoms between September and December predicted changes in scores on fearful-avoidance, which in turn predicted changes in scores for orientation toward seeking social support, and finally impacted on social adjustment in March, providing support for hypothesis 9d. The indirect effects of changes in trauma symptoms were however very small.

At all three time intervals, the trauma variables taken together accounted for significant variance in emotional adjustment. For the September to December interval, indirect effects of exposure to potentially traumatic events accounted for 9% of the variance in emotional adjustment, while indirect effects of current stress due to that exposure and current trauma symptoms accounted for an additional 4% and 2% respectively. In total, 15% of the variance in

emotional adjustment was accounted for by the trauma variables. For the September to March interval, indirect effects of exposure accounted for 11% of the variance, indirect effects of current stress due to exposure accounted for an additional 5%, and direct effects of current trauma symptoms added another 18% to the amount of variance accounted for. In total, 34% of the variance in emotional adjustment was accounted for by the trauma variables. Finally, for the December to March interval, the indirect effects of exposure to trauma accounted for 20%, indirect effects of current stress due to exposure accounted for 8%, and direct effects of current trauma symptoms accounted for 34% of the variance in emotional adjustment. In total, the trauma variables accounted for 62% of the variance in emotional adjustment. Changes in trauma symptoms between September and December accounted for an additional 6.3% of the variance in March. The significant role played by the trauma variables in predicting emotional adjustment is not surprising. Those who report significant distress due to trauma were expected to also report significant general distress, and anyone experiencing significant trauma symptoms would likely report significant difficulty with their emotional/personal adjustment.

The results with regard to reasons for drinking also reflect patterns that can be easily understood. Scores on the trauma variables taken together accounted for 15-25% of the variance in drinking to cope across all three intervals, with higher scores on the trauma variables predicting more reported drinking to cope.

Predictors of each of the Indices of Adjustment to University

An integrated review of the significant predictors of each outcome variable will now be presented. This information has already been presented above; sorted according to the support it provided for hypotheses 5 through 9. It will now be reorganized and presented briefly according to the relevant outcome variables.

Grade point averages.

Students' Grade Point Averages appear to be largely influenced by variables other than those examined in this study. Although several of the hypothesized paths were significant in the full models, none were significant in the reduced models.

Self-reported academic adjustment.

The significant relationships between the predictor variables and academic adjustment varied across the three intervals. There were no significant effects for the September to December interval, whereas the reduced models for the other two intervals accounted for approximately 25% of the variance in academic adjustment in March (24.5% for September predictors and 27% for December predictors). Students with a history of exposure to trauma, who were experiencing stress due to that trauma and trauma symptoms, reported more difficulty meeting academic expectations. The effect of trauma on academic adjustment was found to be both direct, and in the case of the September to March interval, indirect through its impact on secure attachment. At that interval, higher correspondence to the secure attachment style predicted better academic adjustment.

Self-reported social adjustment.

The reduced models were also able to predict significant variance in social adjustment, with scores on the significant predictor variables accounting for 14% of the variance each for the September-December and December-March intervals, and 20% for the September-March interval. Trauma was an important predictor only for the December to March interval, when its effects were not mediated by correspondence to the secure attachment style, and it accounted for 14% of the variance in social adjustment. At the other two intervals, the effects of trauma were mediated by degree of reported correspondence to the secure attachment style. Degree of reported correspondence to the secure attachment style accounted for 12% of the variance during the September-December interval and 18% for the September-March interval. The indirect effects of the trauma variables thus only accounted for approximately 2% of the variance at those intervals. Finally, changes in orientation toward seeking social support between September and December

accounted for almost 10% of the variance in social adjustment in March, with indirect paths from the trauma variables and fearful-avoidance contributing very little after accounting for the direct effect of orientation toward seeking social support.

Self-reported emotional adjustment.

The predictor variables accounted for significant percentages of variance in emotional adjustment across the three intervals (15.25%, 34%, and 62%) all of which can be attributed to the trauma variables. Changes in trauma symptoms between September and December also accounted for significant variance (6.3%) in emotional adjustment. This is not surprising, as it would be expected that those who report significant distress due to trauma would also report significant general distress and anyone experiencing significant trauma symptoms would likely report significant difficulty with their emotional adjustment. No other predictor variables contributed significantly to the prediction of emotional adjustment.

Self-reported reasons for drinking.

The results with regard to reasons for drinking also reflect patterns that can be easily understood. Scores on the trauma variables taken together accounted for 15-25% of the variance in drinking to cope across all three intervals, with higher scores on the trauma variables related to more drinking to cope. No other variables were significant predictors of drinking to cope. Drinking to socialize and drinking to enhance positive feelings are normative reasons for drinking among college students. Scores on these were not related to any of the attachment or trauma variables. Variance in drinking to conform was significantly predicted by preoccupied attachment for all intervals except the September to March interval, accounting for approximately 6% of the variance for each interval.

Discussion

The discussion of the results of the current study will begin with a reiteration of the initial research questions and their corresponding hypotheses, a discussion of the degree to which the results support the hypotheses, and explanations for the findings based on how they fit with the findings of previous research and theory. The findings regarding the outcome variables will then be discussed. The limitations of the current study will then be presented, followed by discussions of the practical implications of these findings and directions for future research.

Explanations for Findings

Relationships Among the Trauma Variables

The first question that this study addressed was whether levels of lifetime exposure to traumatic events would predict current trauma symptoms. It was hypothesized that respondents who reported higher levels of lifetime exposure to trauma would report experiencing higher levels of current trauma symptoms. The results of this study provided strong support for the primary hypothesis. Respondents who reported exposure to more traumatic events over the course of their lives also reported experiencing many more trauma symptoms in the present. In fact lifetime exposure to traumatic events accounted for 3/5 of the variance in trauma symptoms.

A secondary question was whether knowing how stressful respondents perceived their exposure to trauma to be would add to the prediction of trauma symptoms. It was predicted that those who reported experiencing more stress as a direct result of their exposure to traumatic events, both at the time they were experienced and currently, would report higher levels of current trauma symptoms, and that these ratings would add to the prediction of trauma symptoms over and above knowledge of exposure. Results for the secondary hypothesis were mixed. As anticipated, both respondents' retrospective reports of how stressful it was for them to have been exposed to traumatic events at the time that they happened, and their reports of levels of current stress resulting from that exposure predicted levels of current trauma symptoms, with higher levels of perceived stress leading to reports of higher levels of current trauma symptoms.

Respondents' retrospective reports of how stressful it was for them to have been exposed to traumatic events at the time that they happened did not, however, add to the prediction of trauma symptoms over and above their reports of exposure to the traumatic events. This finding can be best understood when one briefly reviews the measure from which the ratings were obtained. On the Stressful Life Experiences Screening respondents were presented with a list of potentially traumatic life events. They were first asked how closely each event described their own experience and gave that a rating between 0 and 10, with 0 indicating they had not experienced anything like that event and 10 indicating that they had experienced something exactly like the described event. They were then asked to rate on a scale of 0 to 10 how stressful that event was at the time it happened and how stressful it continues to be now. In the current study, respondents' ratings of how closely each of the described events matched their own experience, and their ratings of how stressful they remember the events to have been at the time, were almost identical. The correlation between these two scales was greater than $r = .90$, which led to the elimination of the scale reflecting stress at the time of the trauma from further analyses.

In contrast, respondents' ratings of how much stress they were currently experiencing as a result of their exposure to the traumatic events differed significantly from their ratings of exposure to the events. Ratings of exposure and ratings of current stress only shared about half of their variance with each other. Ratings of current stress due to exposure to the traumatic events did add to the prediction of current levels of trauma symptoms, predicting an additional $\frac{1}{4}$ of the variance in trauma symptoms.

It is interesting to note that the combination of reported exposure to traumatic events and reported current stress due to that exposure predicted most of the variance in trauma symptoms (80-90%). In other words, the results suggest that if one knows someone's history of exposure to traumatic events and their perception of how much stress they are currently experiencing as a direct result of having experienced those events, one can estimate roughly the level of current trauma symptoms they are likely to report. A measure of trauma symptoms, however, continues to be important, as it provides an independent measure of the impact of the traumatic events, and

allows one to better understand how the traumatic stress is actually impacting upon a particular individual.

Although in the current study reported stress experienced at the time of exposure to traumatic events correlated so highly with reported exposure that it was redundant, from a conceptual point of view this variable would seem to be important. When Stamm and Rudolph (in press) included it in their measure it was in an attempt to reflect the DSM IV criteria for traumatic events. They note that in the move from the DSM III-R to the DSM IV the list of specified traumatic events was eliminated and replaced with a person-event model. They note that this change “adds complexity to understanding a person’s event history as it must address both the event and the person’s response to the event.” The addition of the scale measuring stress at the time of exposure to stressful life events was an attempt to get at the latter. In the absence of that scale one must assume that the events were highly stressful at the time. In the current study it is not necessary, however, to make this assumption since we know that the ratings of stress at the time of exposure were in fact almost identical to the ratings of how closely respondents’ own experiences matched those listed. The more closely a respondent’s experience matched the potentially traumatic experiences listed, the more stressful exposure was remembered to have been.

Relationships Between Trauma and Attachment Style

The second research question addressed in this study was whether exposure to trauma, stress resulting from that exposure, and trauma symptoms predict the degree to which people see themselves as corresponding to the four different attachment styles. It was hypothesized that respondents who reported higher levels of lifetime exposure to trauma, higher levels of stress resulting from that exposure, and higher levels of current trauma symptoms would report less correspondence to the secure attachment style and more correspondence to the fearful-avoidant attachment style. There were no hypotheses regarding the relationships between history of trauma and the preoccupied or dismissing-avoidant attachment style.

The results of this study provided strong support for this hypothesis. As predicted higher scores on the trauma variables predicted lower scores for correspondence to the secure attachment style and higher scores for correspondence to the fearful-avoidant attachment style. There were also no significant paths from the trauma variables to the preoccupied or dismissing-avoidant attachment styles. Both at the beginning of their first year of university and at the end of their first semester, students' scores on the trauma variables predicted significant portions of the variance in their reported correspondence to the secure and fearful-avoidant attachment styles. In addition, when students' reported increases or decreases in their trauma exposure, stress, or symptoms between September and December, this also led to corresponding changes in their reported correspondence to the fearful-avoidant attachment style over that same period.

Exposure to potentially traumatic life events, and experiencing negative after-effects of that exposure, appears to have a significant impact on students' internal working models of attachment. Theoretically, the secure model of attachment consists of positive working models of both self and others, whereas fearful-avoidance consists of negative working models of both self and others. As hypothesized in the constructivist self-development theory of the effects of trauma (McCann & Pearlman, 1990), exposure to trauma and its negative after-effects appear to lead to more negative internal models of both self and others. The results also indicate that students' who have had few traumatic experiences and are experiencing low levels of resulting stress and symptoms tend to see themselves as more secure and less fearful in their relationships, indicating more positive models of both self and others. These findings are also consistent with previous studies that found that fearful-avoidance was associated with histories of abuse and other traumatic experiences, and with experiencing more trauma symptoms (e.g. Alexander, 1993, and Clark, Shaver, & Calverley, 1994). Alexander (1993) also found that those incest survivors who reported being more secure experienced fewer flashbacks or other intrusive trauma symptoms.

It thus makes sense that trauma was found to relate to the secure and fearful-avoidant styles, but not the preoccupied or dismissing-avoidant styles. Both of the latter styles are thought to result from contrasting internal working models of self and others, whereas trauma appears to

result in consistently negative models. The results are also consistent with conclusions reached by Shaver and Clark (1994) after reviewing the literature on adult attachment. They found that much of the empirical work in this area implicates two dimensions, one representing a continuum from secure to fearful and the other a continuum from dismissing to preoccupied attachment. The first continuum appears to represent degree of attachment anxiety, whereas the second seems to represent degree of attachment avoidance. Shaver and Clark (1994) noticed that when predicting and exploring mental health outcomes in general the secure-to fearful dimension appears to be most important, and that many more correlates have been found for the secure-to-fearful dimension than for the dismissing-to-preoccupied dimension.

Some recent studies have also examined trauma and attachment style. These studies have generally selected a sample known to have experienced some form of trauma, most commonly survivors of sexual or physical abuse, and then examined whether attachment style can account for why some survivors of trauma develop symptoms and others do not. For example, Muller, Sicoli, and Lemieux (2000) used a sample of adults who had experienced childhood abuse, and found that a negative view of the self, as represented by the fearful-avoidant and preoccupied attachment styles, was significantly related to the development of trauma symptoms, whereas negative view of other, as represented by the secure and dismissing styles was not. The only measure of adjustment pathology was that of trauma symptoms. In their discussion, these researchers note that their model was based on the assumption that a negative attachment schema predisposes abused individuals to develop trauma symptoms, but acknowledge that “one’s view of self in relation to others may be itself influenced by posttraumatic stress symptomatology” (p. 330). In the current study the latter assumption was made, and exposure to trauma and resulting symptoms were used together to predict correspondence to the attachment styles and in turn other indices of adjustment. Unlike in other studies, the participants in the current study were asked to report exposure to trauma on a continuous measure, and thus a range of levels of exposure was possible. The effects of trauma and attachment on other indices of adjustment were also measured. In addition, although this study was not prospective with regard to reports of

trauma, it did track adjustment over the course of one year, thus allowing for the prediction of later outcomes from earlier reports of attachment and trauma. It is not possible from the current study to determine whether trauma symptoms influence models of attachment or models of attachment influence the development of trauma symptoms. In the absence of long-term prospective longitudinal research, the answer to this question remains theoretical rather than empirical. Most likely the influences are in fact circular, with one's initial internal working models of attachment influencing the degree of symptomatology one develops as a result of exposure, and the degree of symptomatology experienced in turn leading to changes in one's internal working models of attachment.

Relationships Between Current Attachment to Parents and Attachment Style

The third major question addressed by this research was whether levels of students' reported security of attachment to their parents would predict the degree to which they saw themselves as corresponding to the four adult attachment styles. It was hypothesized that the more securely attached to their mothers and fathers students saw themselves as being, the more they would see themselves as corresponding to the secure attachment style. It was also predicted that low levels of security in attachment to their parents would lead students to see themselves as corresponding more to the three insecure attachment styles. No predictions were made regarding which insecure attachment styles would be related to different patterns of security in attachment to parents. Theoretically, most late-adolescents' working models of attachment should be highly related to their experiences of security or lack of security in their relationships with their parents, since most have not had extensive experience with true attachment relationships, other than those with their parents or other primary caregivers.

The results of the current study did provide some support for the hypotheses, but were not as strong or consistent as expected. In the path models, the two significant paths indicated that adolescents' security of attachment to their mothers was related positively with their reported correspondence to the secure attachment style and negatively with their reported correspondence

to the preoccupied attachment style. The relationships between these variables were significant in December, but not September. There were no significant paths between security of attachment to father and reported correspondence to any of the attachment styles. It is not surprising that relationships for security of attachment to mother were stronger than those for father, given that even today the mother serves as the primary attachment figure in most cases.

The complete lack of significant relationships for security of attachment to father was however surprising. Shaver and Clark (1994) reported that in an earlier study (Clark et al., 1994) they found that the way participants in their study viewed their fathers was significantly related to attachment style, and concluded in particular that “problems experienced by fearfully avoidant people are somehow related to an unpleasant, perhaps abusive, relationship with their fathers” (p. 132). This is consistent with the findings of Alexander (1993) who found that 58% of their sample of incest survivors reported corresponding to the fearful-avoidant attachment prototype.

Given that these results were surprising, in that the relationships were not as consistent or strong as expected, the correlations between these variables were examined directly. Again the correlations were not large, but degree of reported security of attachment to both parents was positively related to greater reported correspondence to the secure attachment style both in September and December. There were no significant correlations between security of attachment to parents and reported correspondence to the fearful-avoidant style. These results are consistent with those of Styron and Janoff-Bulman (1997) who found small but highly significant relationships between retrospective accounts of security of attachment to mother and father and security of adult attachment style. In their hierarchical regression analyses, they also found a somewhat stronger relationship for mother than father, with attachment to mother accounting for approximately 6.5% and attachment to father 4% of the variance in security of adult attachment style. Although the values in the current study are very similar, they are not as strong as was predicted based on theory and were not consistent across the intervals studied.

The fact that the relationships between these variables were not as strong or consistent as expected could be attributed to two possible factors. The first possible factor is that scores on the

measures used do not accurately or reliably reflect the constructs of interest. The second possible factor is that other variables, that were not considered in the current study, also have important impacts on late adolescents' internal working models of attachment, thus attenuating the relationship between security of their current relationships with their parents and their internal working models of attachment.

Given that the results are consistent with those of Styron and Janoff-Bulman (1997), and they used different measures, it is unlikely that the current findings are due solely to the choice of measures. Possible measurement factors were however reviewed. The measures of security of attachment to parents and correspondence to the four adult attachment prototypes were carefully chosen at the outset of the study and it was determined that they were the best self-report measures available to address the study's research questions. Like most measures, they were not however perfect. The only self-report measures available to measure correspondence to a four-category scheme of adult attachment prototypes were Bartholomew's RQ and RSQ. Scores for correspondence to the four adult attachment prototypes using the RQ and RSQ have been reliably related to many similar constructs. One concern was the small number of items used to assess correspondence to the attachment prototypes on Bartholomew's RSQ. Consequently, in the current study, scores from the RQ and RSQ were combined in an attempt to create a stronger and more reliable measure. Given that this procedure has not been used in the past, the first step taken was to examine whether the same pattern and strength of correlations would be obtained using only the RSQ, and this was in fact the case. This measure is believed to be a reliable and valid measure of self-reported correspondence to the adult attachment prototypes, however even with the combination of the two measures internal consistency reliability was low especially for the secure prototype. This low internal consistency could be one reason for the lack of strong and consistent relationships found.

Choosing of a measure of security of attachment to parents was less straightforward. Many different approaches have been taken to the measurement of security of attachment to parents, and studies have thus varied considerably in how they have measured attachment to parents.

Some have been longitudinal using infant assessments of attachment to parents and relating them to long-term outcomes. Others, like that of Styron and Janoff-Bulman (1997), have used retrospective accounts of childhood attachment relationships, and still others have measured current perceptions of attachment relationships with parents.

Much of the research linking attachment to parents with internal working models of attachment in adolescents and adults has involved the use of measures of attachment to parents made in infancy using the strange situation or retrospective accounts of early relationships with parents. In contrast, most of the literature on the relationship between security of attachment to parents and adjustment in late adolescents has used reports of current perceptions of attachment to parents. Kenny and Rice (1995) note that there is little or no research comparing retrospective and current perceptions of attachment to parents making it difficult to integrate the literature. Likewise, there does not appear to be previous studies linking current perceptions of attachment to parents to adult attachment style.

Even within the measurement of current perceptions of attachment to parents, several different measures have been used. Kenny and Rice (1995) note however that the Inventory of Parent and Peer Attachment, which was used in the current study, is one of the more common instruments used. They report that scores on the IPPA have been consistently related to relevant outcome measures, and it has been found to be a reliable measure. They note that the IPPA is intended to assess the internal working models of specific attachment figures, by tapping the affective and cognitive experiences associated with trust in the accessibility and consistent responsiveness of the attachment figure. In the absence of highly discrepant intervening experiences, students who report more confidence in the accessibility and consistent responsiveness of their parents on the IPPA, should also report higher correspondence to the secure adult attachment prototype on Bartholomew's Relationship Questionnaire and Relationship Scales Questionnaire. As noted above this pattern of correlations was found in the current study, although the correlations were not as strong as was expected. Again, this may in part be due to the low internal consistency of the measure of secure attachment style.

It appears that the measures used in this study provide reasonable estimates of the desired constructs. The fact, that the measures of both constructs were self-report measures, would be more likely to lead to inflated correlations due to shared method variance, and not to unexpectedly low correlations. Measurement difficulties alone are unlikely to account for the lack of strength and consistency in the correlations.

Research and theory regarding factors related to continuity and discontinuity in attachment may be relevant to the possibility that variables that were not considered in the current study have important impacts on late adolescents' internal working models of attachment. In a review of studies of continuity of attachment from infancy through late adolescence, Van IZendoorn and Bakerman-Kranenburg (1997) noted that continuity and discontinuity in attachment were lawful. Continuity was most common, but those who changed from secure to insecure usually experienced attachment related negative events such as loss of a parent, divorce of one's parents, or parental abuse. This indicates that attachment related traumatic events are often responsible for discontinuities in attachment over time. Traumatic life events may also impact on security of attachment to parents or internal working models of attachment independently, leading to a dampening of the correspondence between the two. Future research should examine this possibility.

In their comprehensive review of the literature examining attachment to parents and adjustment in late adolescent college students, Kenny and Rice (1995) indicate that attachments to parents likely impact on adjustment through two different mechanisms. First, they have a direct impact as secure students can turn to their parents and rely on them as a source of security and support. Second, they indirectly influence coping resources through their contributions to internal working models of self and others. Kenny and Rice (1995) note that secure working models theoretically lead to resilience, whereas insecure working models may be a source of vulnerability. They further note that internal working models are generally believed to mediate the association between quality of attachment to parents and psychological well-being, which is the relationship that was not strongly or consistently supported by the current study.

Kenny and Rice (1995) do however provide some clues as to why this might be. In their mental health trajectory model, they note that both internal and external coping resources buffer the impact of difficult life transitions such as challenges faced in adjusting to college. Security of parental attachment relationships may thus act both directly as an external coping resource, and indirectly as an influence on internal working models, which in turn act as an internal coping resource. Kenny and Rice (1995) then propose some mechanisms by which the transitions of late adolescence may lead to some incongruity between security of attachment to parents and security of internal working models. They note that for many adolescents the challenges of college will reinforce their already existing internal working models, however for others

the process of leaving home may challenge the existing quality of attachment, as late adolescents and their parents strive to negotiate a new balance or goal directed partnership between connection and autonomy... Difficulties in renegotiating this balance could lead to the loss of important parental support for some adolescents. Distance from parents and increasingly sophisticated cognitive skills may provide other late adolescents with the opportunity to develop new and corrective interpersonal experiences in the college environment and, with the abilities to reflect upon and reevaluate models of self and parents, contribute to more adaptive coping strategies (pp. 438-439).

This points to the fact that changes in the parent-adolescent relationship at this time of transition may also lead to less strong correspondence between current attachment to parents and internal working models of attachment. Some ideas have been presented in an attempt to explain the fact that, in the current study, the strength and consistency of relationships between security of attachment to parents and internal working models of attachment that were expected were not found. These ideas are however speculative and remain to be tested. It will be important for future research to further investigate the relationship between security of attachment to parents and general internal working models of attachment. This work should attempt to replicate the current findings using a measure of attachment styles with better internal consistency. If the relationships found continue to be weak and inconsistent, it will be important to determine what other factors mediate or moderate the relationship between the two.

Predictors of Orientation Toward Seeking Social Support

The fourth area of interest investigated in this study was how the attachment and trauma variables would influence orientation toward seeking social support. There were three hypothesized relationships. First, it was hypothesized that there would be direct relationships between the adult attachment styles and orientation toward seeking social support, with positive internal working models of others (reflected in the secure and preoccupied attachment styles) being related to more positive orientations toward seeking social support and negative working models of others (reflected in the fearful and dismissing avoidant styles) being related to more negative orientations toward seeking social support.

The results of the study provided partial support for this hypothesis. Orientation toward seeking social support was related to the secure and fearful-avoidant attachment styles in the expected directions, but not to the preoccupied or dismissing-avoidant attachment styles. It would thus seem that orientation toward seeking social support might be related to both model of self and model of others, rather than only to model of others. Positive models of both self and other lead to more positive orientations toward seeking social support, whereas negative models of both self and others lead to more negative orientations toward seeking social support. Upon reflection, this does make sense. Bowlby suggested that:

Confidence that that an attachment figure is, apart from being accessible, likely to be responsive can be seen to turn on at least two variables: (a) whether or not the attachment figure is judged to be the sort of person who in general responds to calls for support and protection; (b) whether or not the self is judged to be the sort of person towards whom anyone, and the attachment figure in particular, is likely to respond in a helpful way. (1973, p. 238)

Although Bowlby was referring primarily to attachment figures, he also indicated that these models are likely to generalize to other people in general. As hypothesized, it would be difficult for someone to have a positive orientation toward seeking social support if they felt that, in general other people tend not to be supportive. It also makes sense however, that someone

would have a negative orientation toward seeking social support if they felt that they were not the kind of person to whom others would provide support.

Shaver and Clark (1994) reported that when the four-prototype model of adult attachment is used, outcomes often differentiate participants along two diagonals, secure-fearful and dismissing-preoccupied, which they thought likely reflected degree of attachment anxiety and degree of attachment avoidance respectively. Within that framework, it would seem that orientation toward seeking social support is related to the diagonal that is thought to reflect degree of attachment anxiety and not the diagonal thought to reflect degree of attachment avoidance. It makes sense that those who are particularly anxious about relying on others, and fearful of rejection have more negative orientations toward seeking social support, and that those who experience less anxiety and fear would have more positive orientations toward seeking social support. This diagonal is comparing the two extremes of attachment security, where models of self and other are consistently positive or negative.

It is not immediately clear why orientation toward seeking social support was not related to the diagonal reflecting degree of attachment avoidance. It would be expected that those who are dismissing of attachment, who also report preferring a high level of self-reliance, would not report positive feelings regarding turning to others for support. Although the Network Orientation Scale has most often been used as a global measure, and this was how it was used in the current study, Vaux (1985) found three meaningful underlying factors reflecting independence, help-seeking history, and mistrust. The only previous study relating orientation toward seeking social support to adult attachment style used Hazan and Shaver's (1987) three-category model of attachment. In that study Wallace and Vaux (1993) found that using global Network Orientation scores, secure participant's reported more positive orientations toward seeking social support than either avoidant or ambivalent participants. When the three factors were examined separately, they found that the avoidant group obtained higher scores for the independence factor than the other two groups, and both the avoidant and ambivalent groups reported greater mistrust than the secure group. It is difficult to relate these results directly to those of the current study as Wallace and

Vaux (1993) did not use the four-category model of adult attachment. It may however, be surmised that degree of attachment avoidance, as represented by the dismissing-preoccupied diagonal may have been most related to the independence factor. This relationship would not however be apparent using the Global Network Orientation scores. Theory would suggest that those who reported greater correspondence to the dismissing prototype may have scored high on independence, but would not necessarily have reported negative past experiences with seeking help or high levels of mistrust. In contrast, those who are more preoccupied with attachment may have scored low on the independence factor, indicating a more positive orientation toward seeking social support, but low on the trust factor, indicating a more negative orientation toward seeking social support. They have likely also had mixed positive and negative past experiences with seeking help. In the past they are likely to have been intermittently reinforced for seeking help from others, they may thus have a strong urge to seek such support, but may also be wary and doubtful about the probable outcome. Those reporting higher correspondence to the dismissing-avoidant and preoccupied prototypes may thus have been more likely to have mixed positive and negative answers to the items on the Network Orientation Scale, thus attenuating any possible relationships between overall orientation toward seeking social support and correspondence to those attachment prototypes.

Shaver and Clark (1994) have also proposed that the avoidance diagonal compares the two prototypes that likely reflect intermediate levels of overall security, given that each of the dismissing and preoccupied prototypes reflect one positive and one negative internal model. If orientation toward seeking social support is most related to overall level of security, then the present results make sense. Those scoring highest on security would have the most positive overall orientation toward seeking social support, those scoring highest on fearful-avoidance would have the most negative overall orientations toward seeking social support, and those scoring highest on the dismissing-avoidant or preoccupied prototypes would be expected to have orientations toward seeking social support that are not entirely positive or negative.

The second hypothesis proposed that traumatic experiences would influence orientation toward seeking social support indirectly through the impact of trauma on attachment style. The path of influence would thus be from higher levels of trauma to higher fearful-avoidance and lower security, and finally more negative orientations toward seeking social support. Lower levels of trauma, in contrast, would lead to greater security and less fearful-avoidance, and finally more positive orientations toward seeking social support. The results were consistent with this hypothesis.

The third and final hypothesis was that more secure attachment to parents would lead to higher reported correspondence to the secure attachment style and lower correspondence to the insecure attachment styles, and thus a more positive orientation toward seeking social support. In contrast, insecure attachment to parents would lead to greater correspondence to the insecure attachment styles and lower correspondence to the secure style, and thus more negative orientations toward seeking social support. There was little support for this hypothesis, which is a direct result of the unexpected lack of consistent or strong relationships between security of attachment to parents and attachment style. The only finding supporting this hypothesis was that in December security of attachment to mother was related to greater correspondence to the secure attachment style and in turn more positive orientations toward seeking social support. The finding was negligible, however, accounting for only 1.5% of the variance in orientation toward seeking social support.

Orientation Toward Seeking Social Support as a Predictor of Adjustment to University

The fifth question addressed by this research was whether orientation toward seeking social support predicts adjustment to university. It was hypothesized that more positive orientations toward seeking social support would lead to better academic, social, and emotional adjustment, and that more negative orientations toward seeking social support would predict more frequent drinking in order to cope. In turn, the seventh question asked was whether orientation toward social support mediated some or all of the relationships between correspondence to the adult

attachment styles and adjustment to university. It was hypothesized that orientation toward seeking social support would mediate some, but not all, of the relationships between adult attachment style and adjustment to university.

The one significant finding in support of the direct role of orientation toward seeking social support reflected the impact of changes in one's orientation toward seeking social support over the course of the first semester, rather than an influence based on degree of positivity in one's orientation per se. It was found that, the degree to which students' orientations toward seeking social support changed over the course of their first semester had a significant impact on their self-perceived social adjustment at the end of the year, accounting for almost 10% of the variance in their perceptions of how well-adjusted they were at the end of the year. If students' orientations toward seeking social support became more positive over the course of their first semester, they felt better adjusted socially at the end of the academic year. In contrast, if their orientations toward seeking social support became more negative over the course of their first semester, they felt less well socially adjusted at the end of the year. There was no support for the role of orientation toward seeking social support in predicting academic or emotional adjustment or drinking to cope.

It makes sense that the strongest relationship was with social adjustment, as orientation toward seeking social support would directly influence the ease with which students' were able to reach out to their peers, and thus make connections with them. It is interesting however that changes in students' orientations toward seeking social support over the course of their first semester at university was a better predictor of adjustment in March than were their actual September or December scores. If future research replicates this finding, it will be important to determine the mechanisms through which changes in orientation toward seeking social support impact students' perceptions of their social adjustment. This finding illustrates the importance of using longitudinal as well as cross-sectional studies in exploring adjustment. Without longitudinal designs, it would be impossible to study the impact of changes over time.

Given that there was only one significant path between orientation toward seeking social support and any of the outcome measures, there was little evidence to support its mediating role between adult attachment style and adjustment to university. The only possible path, where orientation toward seeking social support could mediate the impact of attachment style on adjustment, was the path from changes in orientation toward seeking social support over the first semester to social adjustment in March. When that one possible path was examined, changes in fearful-avoidance did predict changes in orientation toward social support, which in turn predicted social adjustment in March. However, the path accounted for very little variance, and thus this is not an important finding.

Adult Attachment Style as a Direct Predictor of Adjustment to University

The sixth avenue of investigation for this study was an examination of whether degree of correspondence to the four adult attachment styles directly impacted upon adjustment to university. It was hypothesized that high degrees of reported correspondence to the secure style would predict better academic, social, and emotional adjustment. It was also predicted that high degrees of correspondence to each of the three insecure attachment styles would lead to predictable patterns of strengths and weaknesses on the various indices of adjustment.

The results of this study were partially consistent with the first part of the hypothesis. Degree of correspondence to the secure prototype was related to better academic and social adjustment. These findings are consistent with Bowlby's assertion that secure attachments allow individuals to go out into the world, explore their environments, and meet new challenges without excess anxiety. Students who reported high levels of security at the beginning of the academic year, soon after arriving on campus and into a completely new environment, also reported better academic adjustment at the end of the academic year. It could be argued that arriving at university with secure internal working models of attachment allowed these students to adjust to and explore their new environment without experiencing excess levels of anxiety resulting from leaving home. This likely allowed them more energy and freedom to focus on academic

challenges. Students who began the year with relatively more secure internal models of attachment also reported better social adjustment both at the end of the first semester and at the end of the year. Arrival at university is often a time when late adolescents must begin to form completely new social networks. They have moved to a new community leaving behind friends, family, and other important members of their home community. As with the effects of security on academic adjustment, it could be argued that greater security at the beginning of the year allowed these students more freedom to develop new healthy and fulfilling interpersonal relationships, while their less secure peers likely experienced considerably more anxiety and difficulty in meeting this challenge.

It is interesting to note that correspondence to the secure adult attachment prototype in September was a significant predictor of later academic and social adjustment, but correspondence to the secure prototype in December was not. This suggests that the degree to which one is secure is more important upon arrival at university than it is later in the academic year. It may be that arriving with more secure internal working models allows one to explore a new environment freely and take advantage of the opportunities available more easily. In contrast, arriving with less secure internal working models may lead to high initial levels of anxiety, and less confidence and comfort in exploring this new environment. These results are consistent with Kenny's (1987) proposal that arrival at university may truly be an adolescent equivalent of the strange situation. Degree of correspondence to the secure adult attachment prototype was not related to emotional adjustment or to any of the reasons for drinking. It could be anticipated that these would be more highly related to the insecure prototypes.

The findings of the current study were less successful in determining patterns of strengths and weaknesses in adjustment corresponding to the insecure attachment prototypes. In fact, correspondence to the three insecure attachment prototypes did not significantly predict academic, social, or emotional adjustment. It may be that global level of security of one's internal working models is a more important factor in predicting adjustment to university than is the specific form that relative insecurity takes. It may also be, however, that the analyses in this study

were not strong enough to distinguish subtle differences. There were for example, non-significant trends suggesting that correspondence to the dismissing-avoidant prototype may be related to better self-reported academic and social adjustment, which if significant would have been consistent with the study's hypotheses. More research is needed to determine whether there are in fact differences in adjustment related to correspondence to the insecure prototypes.

With regard to the drinking motives, as predicted correspondence to the preoccupied attachment style was a consistent direct predictor of drinking to conform. Preoccupied adolescents likely experience a strong need to be accepted by their peers, particularly upon arrival in a new setting where it is necessary for them to establish a new social network. Their motivation to be accepted is likely to be particularly strong, and they may be more likely to engage in a variety of activities, including drinking, as means of being accepted. This propensity may place them at increased risk of experiencing problems related to their drinking. In a large sample of adolescents, Cooper (1994) found that drinking to conform was related to light and infrequent drinking, and drinking most often at parties. Despite this pattern, drinking to conform directly predicted drinking problems. She noted that among individuals who drink equal amounts, adolescents who drink to conform are at increased risk of experiencing problems related to their drinking, relative to those who drink primarily for social or enhancement motives. In their descriptions of typical characteristics associated with each of the attachment prototypes, Griffen and Bartholomew (1994b) indicate that more preoccupied individuals tend to try to bolster their inadequate sense of self-worth through their relationships with others. This may lead them to be particularly vulnerable to making poor decisions when faced with social pressure. This possibility should be pursued by examining vulnerability to social pressure in various different domains in addition to drinking.

Security of Attachment to Parents and Adjustment to University

The eighth question that was addressed by the current study was whether security of attachment to parents was related to the various indices of adjustment to university. It was

hypothesized that the influence of security of attachment to parents would be entirely mediated through its impact on adult attachment style. This hypothesis was not supported, due to the already discussed lack of strong and consistent relationships between security of current attachment to parents and the four adult attachment prototypes. Previous research has found relationships between security of attachment to parents and adjustment to university when a non-mediated model was used (see, for example, the review by Kenny & Rice, 1995). In the current study, there were also significant positive correlations between security of attachment to both mother and father and academic, social, and emotional adjustment at all three intervals. There were also significant negative correlations between security of attachment to both mother and father and drinking to cope and drinking to conform at various intervals. The results are thus consistent with previous research, but do not support the hypothesized mediating role of adult attachment style. Possible explanations for the lack of strength and consistency in the relationships between security of attachment to parents and correspondence to the adult attachment styles were provided above. In future research, it will be important to explore additional mechanisms through which security of attachment to parents influences adjustment to university.

The Impact of Trauma on Adjustment to University

The trauma variables had the largest and most consistent effects in predicting scores on the various indices of adjustment to university, indicating that trauma history, including stress due to trauma and trauma symptoms, is an important predictor of many facets of adjustment to university. It was hypothesized that exposure to trauma would have direct negative effects on adjustment, as well as indirect negative effects through the other trauma variables, the adult attachment styles, and orientation toward seeking social support. Trauma impacted on adjustment to university throughout the academic year, however the magnitude of its impact and pervasiveness of the impact across different indices of adjustment increased over the course of the

year. The short-term longitudinal nature of the current study thus contributes significantly to understanding the effects of trauma on adjustment to university.

Students were first asked to report their history of exposure to trauma, current stress due to that exposure, and experience of trauma symptoms upon their arrival at university in September. Those September reports of history, stress, and symptoms did not impact on their self-reported academic adjustment at the end of the first semester, and had only minimal and indirect effects on their self-reported social adjustment at that time. Those reports did account for approximately 15% of the variance in self-reported emotional adjustment and a similar proportion of variance in their reported drinking in order to cope at that time. Overall, the impact of trauma reported at the beginning of the year on adjustment at the end of the first semester was relatively small, especially in contrast to its greater impact later in the year, as will be demonstrated.

Trauma reported in September had somewhat stronger and more pervasive impacts on self-reported adjustment at the end of the academic year. It continued to have only a minimal impact on self-reported social adjustment, however now showed a significant impact on self-reported academic adjustment as well as continued and stronger impacts on emotional adjustment and drinking to cope. Specifically, trauma reported in September accounted for 15% of the variance in self-reported academic adjustment, 34% of the variance in self-reported emotional adjustment, and 25% of the variance in reported drinking to cope in March.

The same measures of trauma were re-administered at the end of the first semester, and trauma reported in December had even stronger and more pervasive impacts on adjustment at the end of the school year than did trauma reported in September. Trauma reported in December significantly impacted upon academic, social, and emotional adjustment, as well as drinking in order to cope in March. It also accounted for more of the variance in each of these domains with the exception of drinking to cope. It accounted for 27% of the variance in self-reported academic adjustment, 14% of the variance in self-reported social adjustment, 62% of the variance in self-reported emotional adjustment, and 18% of the variance in reported drinking to cope.

The impact of trauma on adjustment to university thus increases over the course of the year. Trauma reported at the beginning of the year has minimal and specific impacts on adjustment at the end of the first semester. The impact of trauma at this interval is limited to its impact on emotional adjustment and on drinking to cope. It can most likely be accounted for by the fact that the measure of trauma symptoms asked questions regarding distress specific to trauma and the measure of emotional adjustment asked questions regarding general levels of experienced distress. It would be expected that anyone reporting distress due to trauma would also report general emotional distress. Cooper (1994) notes that the drinking to cope scale measures respondents' use of drinking as a means to regulate negative affect. It would thus be expected that students who are reporting higher levels of emotional distress would also be more likely to drink as a means of regulating that distress than students who are experiencing less distress.

By the end of the second semester, students reporting histories of exposure to trauma and trauma-related stress and symptoms appear to experience more difficulties resulting from the trauma than they did earlier in the year. This is especially the case for those who continue to report high levels of exposure, stress, and symptoms at the end of the first semester. By the end of the academic year, the effects of trauma appear to be pervasive, impacting on academic, social, and emotional adjustment as well as drinking in order to cope with negative affect. The impact of trauma by the end of the year appears to be strong and likely reflects considerable difficulties in adjustment for those reporting relatively high levels of trauma.

It seems safe to conclude from these results that experiencing trauma and related stress and symptoms puts students at risk for having considerable difficulties in adjusting to university. These adjustment difficulties are likely to become apparent during the second semester, and are often pervasive, affecting adjustment over several domains. Given the above pattern of results, one question that arises is that of why the impact of trauma is so much stronger and pervasive later in the academic year than it is at the beginning. Arrival at university can be conceptualized as a very stressful experience. It may be that the effects of trauma on adjustment are more apparent later in the year because at the beginning of the year most new students feel somewhat

lost and overwhelmed, whether they are trauma survivors or not. When students arrive in residence they are all faced with the challenge of building new social networks and figuring out how to meet the academic challenges of university. For many students successfully negotiating these challenges, and arriving at a point where they feel comfortable with how they are adjusting to this new experience can take a full semester or more. Students who are trauma survivors may thus not stand out from their peers with regard to their self-perceived adjustment in the first semester due to the wide variability in perceived adjustment across the entire group of first year students. Most students are however eventually able to settle, to form social networks, and to develop workable plans for coping with the academic challenges with which they are faced. Students who are trauma survivors may however have more difficulty reaching this point of greater comfort and satisfaction with how they are coping, and in contrast may feel that their ability to cope decreases over the course of the year. This likely becomes more apparent when their non-traumatized peers begin to feel more settled in the second semester and they do not. Students who are trauma survivors may thus have considerably more difficulty with the later academic and social challenges of university, that require ongoing and steady attention such as daily homework and studying, and maintaining and deepening interpersonal relationships. Students who are trauma survivors may thus experience more emotional distress than their peers do later in the year. This in turn may result in their feeling more need to drink alcohol in order to cope with the negative affect they are experiencing.

Current research in the field of trauma indicates that previously traumatized individuals usually have more difficulty coping with subsequent highly stressful events in comparison to those who have not been exposed to prior traumatic events, and that this greater difficulty can even be understood on a biochemical level (Yehuda, 2000). Trauma survivors may however be able to employ previously learned dissociative coping strategies to cope with the initial crisis. The use of such strategies may lead them and others to perceive that they are coping quite well at the time. The use of such strategies in initial coping has however been associated with experiencing greater levels of difficulty after the crisis has passed. For example, Freinkel, Koopman and Spiegel

(1994) found that among a group of reporters who were witnesses to an execution, many employed dissociative coping strategies during the execution and in the period immediately thereafter. This allowed them to witness the event, return to their offices, and prepare their reports for publication. In the initial phase, they thus appeared to be adjusting quite well. These dissociative strategies did however have a cost, in that those who relied on these strategies the most were also found to have the greatest levels of anxiety later. It must be noted however that none of these reporters reported severe or long-lasting psychological trauma from witnessing the execution. The process of adjusting to university may be somewhat analogous. Because they are more likely to have developed such strategies in the past, students who are trauma survivors may employ more dissociative strategies to cope with the initial very stressful experience of arriving in a completely new environment. These strategies may lead them to feel that they are adjusting well during the first semester. Later in the year, however, they become particularly susceptible to higher levels of anxiety.

Further research is needed in order to examine the differential courses of adjustment to university for traumatized and non-traumatized students. It will be important to replicate the current findings, and determine specifically how trauma leads to increasing divergence in adjustment over time. The possible role of dissociative coping strategies proposed above remains speculative at this time, but future research could examine whether the use of dissociative coping strategies plays a role in the diverging adjustment of previously traumatized and non-traumatized university students over the course of their first year.

Prediction of the Individual Indices of Adjustment

This section will provide a brief overview of the interesting findings regarding the various outcome variables. Detailed explanations for these findings have already been presented throughout the relevant sections above.

The current study was unable to predict variation in students' grade point averages. This is most likely a result of the inability to control for students' intellectual ability. If the opportunity to

control for ability exists in the future, these relationships should be further investigated. The attachment and trauma variables did, however, significantly impact upon both self-perceived academic and social adjustment. In both cases, degree of security was the more important predictor from the beginning of the year and trauma was the more important predictor later in the year. Together these variables accounted for about 25% of the variance in academic and 15-20% of the variance in social adjustment at the end of the year. As described in relevant sections above, this is consistent with literature in the fields of attachment and trauma. These findings point to the importance of considering the significant impact that students' models of attachment and trauma histories might have on their ability to meet the academic and social demands of university. In addition to the attachment and trauma variables, changes in students' orientations toward seeking social support over the course of the first semester also added to the prediction of social adjustment. Students whose orientations became more positive reported better adjustment, and students whose orientations became more negative reported poorer adjustment at the end of the year. As indicated in the relevant section above, further research is needed to better understand the mechanisms through which changes in students' orientations toward seeking social support impact upon social adjustment. It will also be important to investigate factors that lead to such changes.

Only the trauma variables were significant predictors of self-perceived emotional adjustment, and they were highly significant in predicting emotional adjustment throughout the year. Of particular interest is that the impact of trauma on emotional adjustment increases significantly over the course of the year, accounting for four times more variance in emotional adjustment for the December to March interval than for the September to December interval. As explained above in more detail, it seems likely that the 15% variance in emotional adjustment accounted for by trauma at the beginning of the year could be attributed to the overlapping nature of some questions from both measures, in that both inquire about current levels of distress. This overlap cannot however entirely account for the increases in variance accounted for over the course of the

year. Possible explanations for the increasing role of trauma over the course of the year are detailed above in the section on the role of trauma in adjustment to university.

The final outcome variables reflected students' reasons for drinking. Four reasons for drinking were assessed using Cooper's (1994) four-factor drinking motives questionnaire. The results with regard to reasons for drinking are consistent with Cooper's findings regarding the four drinking motives. Cooper (1994) found that drinking problems were related to the two negative reinforcement motives (coping and conformity) and not the two positive reinforcement motives (enhancement and social). Among the adolescents in her sample, the two positive reinforcement motives were also more normative reasons for drinking than were the negative reinforcement motives. She concluded that her findings suggested that "drinking to avoid aversive experience reflects a more maladaptive, pathological type of drinking than does drinking to pursue a positive incentive or reward" (p.126). In the current study, only the two negative reinforcement motives were related to the attachment and trauma variables. Drinking to cope was consistently related to history of exposure to trauma and its negative after effects, and drinking to conform was consistently related to correspondence to the preoccupied attachment style. The results thus provide further confirmation of the validity of the four-factor model of drinking motives. The meaning of the current results, relating drinking to conform with preoccupied attachment, and drinking to cope with trauma, are explained in detail in the above sections on the impact of attachment and trauma on adjustment to university.

Summary

Examination of relationships among the attachment and trauma variables suggested that almost all of the variance in trauma symptoms could be accounted for by knowledge of an individual's history of exposure to potentially traumatic events, and his or her perceptions of how stressful having experienced those events continued to be. History of exposure to trauma and its negative aftereffects led to less secure and more fearfully-avoidant internal working models of attachment, and these in turn contributed to the prediction of orientation toward seeking social support.

Those who reported more secure and/or less fearfully-avoidant internal models reported orientations toward seeking social support that were more positive, whereas those who reported less secure and/or more fearfully-avoidant internal models reported orientations toward seeking social support that were more negative. Links found between security of current attachments to parents and correspondence to the adult attachment styles were consistent with past findings, but were not as strong or consistent as was predicted based on theory.

Interesting associations were also found between the attachment and trauma variables and the indices of adjustment to university. The attachment and trauma variables predicted significant amounts of variance in self-perceived academic and social adjustment, with security of internal working models of attachment being the most important predictor at the beginning of the year, and trauma being the most important predictor later in the year. Only history of exposure to trauma and its negative aftereffects predicted self-perceived emotional adjustment, and the impact of trauma was again stronger later in the year than it was at the beginning of the year. With regard to orientation toward seeking social support, only changes in orientation toward seeking social support over the first semester, and not actual scores on this measure, predicted adjustment. Those students whose orientations became more positive reported better social adjustment and those students whose orientations became more negative reported worse adjustment at the end of the year. Finally, the attachment and trauma variables predicted the negative, but not the positive, reinforcement drinking motives. Drinking to cope with negative affect resulted from exposure to trauma and its negative after effects, and drinking to conform resulted from more preoccupied internal working models of attachment. These findings point to important relationships between attachment and trauma, and the significant impacts these can have on adjustment among first year university students living in residence.

Limitations of the Current Study

The goals of the current study were to examine relationships among the attachment and trauma variables, and to determine how trauma and attachment impact on the ability to adjust to a novel

setting among late adolescents who have recently left home and moved to a new community. A university residence sample was chosen for two reasons. One reason was that first year residence students represent a significant portion of late adolescents who move away from their home communities. A second reason was that there is interest in understanding and facilitating adjustment to university in particular. The extent to which the results of this study would reflect the experience of late adolescents who have left home for reasons other than to attend university is unknown. It would be interesting to know if similar patterns would hold for those who left home for other reasons such as to travel or to work or even to attend community college rather than university.

The current sample was 80% female. In general, the first year residence student population at the institution studied is 60-65% female. The current sample thus has an over-representation of young women and under-representation of young men. However, even when a very liberal criteria for significance was used ($p < .05$, uncorrected for number of analyses), only one variable showed significant mean differences for male and female participants when scores on each of the variables at each data collection point were examined. That variable was security of attachment to mother. It remains unclear whether the male participants in the current study are representative of the general population of male first-year university students. Considerable caution should thus be exercised in generalizing these findings to male first-year university students.

The analyses for the current study were exploratory in nature. The model trimming approach that was employed is a data driven approach. The results are thus more likely to be specific to the current sample than if a less exploratory procedure was used. The current findings will thus be very useful in pointing to potentially fruitful avenues for future research. Use of these findings to inform policy or practice with regard to helping students in their adjustment to university may however be premature. If these findings are replicated using new samples of participants, however, they will be able to inform university and residence personnel in planning programs and services aimed at helping students to adjust to university life.

Only self-report questionnaires were used in the current study. At the exploratory stage of research, this approach allowed for the study of a relatively large sample of students over the course of their first year. Even using this minimally intrusive method, only 58% of students who participated in September continued to participate for all three data collection periods. It could be anticipated that retention of participants would have been even more difficult if methods that are more intrusive were used. The methodology thus allowed for the examination of important changes over the course of the year. The use of only self-report measures may have resulted in inflated findings that in part could be attributable to shared method variance rather than actual associations between the variables. At this point, it will be important to include other methodologies in attempts to replicate the current findings and in future research in this area. These methodologies should include interviews, observations, and reports made by respondents other than the direct participants in the study. These methods have been employed successfully in the past, in particular with regard to the study of internal working models of adult attachment. The use of such methods would allow researchers to tap into important aspects of these constructs that may not be consciously available to the respondents, and would reduce the degree of shared method variance.

Finally, only about 35% of first year residence students agreed to participate in the study, and of that 35%, only 58% completed the entire study. An examination of demographic variables did not reveal any obvious differences between those who continued and those who did not, and there were no differences between the mean scores for these two groups on any of the September predictor variables. It is difficult to determine the extent to which the current findings would generalize to those who chose not to participate in the study.

Practical Implications of the Findings

The analyses for the current study were exploratory in nature, and it will thus be important to replicate the findings before using them to inform theory or practice. It is important however to note what the implications will be if the results are successfully replicated. The findings of the

current study suggest that security of attachment style and trauma both have significant impacts on adjustment to university. The results thus have important implications for those interested in facilitating the adjustment of students in their first year, such as university residence personnel and university counseling centers. For example, given that many students have histories of exposure to potentially traumatic events, knowledge of the ways that trauma and its negative aftereffects affect adjustment to university would be helpful in the design and delivery of programs and interventions for those students.

The current findings are important in that they suggest that impact of trauma tends to be greater later in the year than at the beginning of the year. There may thus be opportunities during the first semester to educate students about the potential impacts that stress and symptoms related to past trauma exposure may have. Students could thus be taught to identify warning signs and adaptive strategies for coping. They could also be informed of available resources and signs that they could benefit from accessing those resources. Residence advisors could also benefit from such knowledge so that they could better identify students who may need help and support in coping with adjustment to university. Similarly, given that security of internal working models of attachment was found to have its greatest impact on adjustment at the beginning of the year, it could be useful to be able to identify insecure students early in the year, and then provide assistance to them in negotiating the challenges of adjusting to university, such as the establishment of supportive social networks.

Finally, there are already educational programs on most university campuses regarding safe and responsible consumption of alcohol. Given the current findings, it would seem important to inform students that their reasons for drinking are important factors in predicting problems related to drinking. Students could learn that those experiencing stress and symptoms resulting from past exposure to trauma may be predisposed to drink in order to cope with their negative feelings, and that reason for drinking is associated with more problematic outcomes than drinking to socialize or to enhance positive feelings. They could also be taught that drinking to conform is related to some forms of insecurity, and is also associated with more problematic outcomes than drinking to

socialize or to enhance positive feelings. Such knowledge would allow students to be more aware of potentially problematic patterns in themselves and their peers.

In summary, if the findings of the current study are replicated, efforts should be made to design and evaluate programs to educate students about the impact of attachment insecurity and trauma on adjustment to university. It would then be necessary to have appropriate interventions to help insecure students and those experiencing the negative aftereffects of trauma to adjust.

Future Research Directions

The first course of action needed is to replicate the current findings. Studies could be designed in which each of the important findings could be replicated and then extended by testing alternative hypotheses to explain the relationships, or lack of relationships, found. For example, given that the relationships between security of current attachment to parents and degree of correspondence to the secure attachment style were not as strong or consistent as expected, it will be important to examine factors that might intervene and lead to divergence between the two. Knowledge of intervening factors would contribute significantly to the literature regarding continuity and change in internal working models of attachment.

The current study found differences in the strength of relationship between security of internal working models of attachment and adjustment depending on when security of attachment was assessed. It will be important to replicate this finding to determine whether degree of security is consistently a more important factor in later adjustment when it is measured at the beginning of the year, rather than later in the year. It will then be important to empirically test explanations for this finding. It will also be important to further explore factors that mediate the relationship between security of attachment and adjustment. Orientation toward seeking social support did not emerge as an important mediator. There are many other possible mediating factors and it will be important to examine the roles they play. It would also be interesting to further explore the differential impact of the insecure attachment styles. Finding unique outcomes related to these styles has proved relatively difficult. The current findings suggest some potential avenues to

explore and others have been suggested elsewhere. For example, the current findings indicate that preoccupied attachment is related to drinking to conform. It would be interesting to explore whether preoccupied individuals are particularly susceptible to peer-pressure in multiple domains, and if so what consequences this has for them. In order to find unique outcomes related to the insecure attachment styles it will likely be necessary to move away from reliance on self-report measures. The use of interviews, observations, and reports from other sources would likely lead to more success.

With regard to trauma, the current study tested the model whereby exposure to potentially traumatic events leads to stress and symptoms resulting from that exposure, which in turn leads to less secure and more fearful internal working models of attachment, and that trauma and its negative aftereffects impact upon adjustment both directly and indirectly through attachment. Other studies have ordered the variables differently, and have shown that the development of trauma symptoms after exposure to potentially traumatic events is dependent upon attachment style. The current findings could also have been interpreted using that model. Only prospective longitudinal studies could empirically test the relative validity of these two models, and possible circular relationships among the variables. Although costly and labour-intensive, such studies would contribute valuable information in this area. It will be important in future studies to replicate the current finding that the effects of trauma on adjustment are greater later in the year than at the beginning. Such research could also explore possible factors to explain this timing, such as whether the use of dissociative coping plays a role as speculated.

The current study was unable to determine whether trauma and attachment have impacts on academic success, because there was no available means of controlling for academic ability. Academic success is an extremely important outcome in adjustment to university, and it would thus be important to conduct a study where it was possible to control for ability.

The current study examined the impact of overall exposure to many different types of traumatic experiences. It will be important in future studies to examine whether different types of traumatic experiences have different impacts on adjustment. It may be, for example, that

interpersonal forms of trauma, such as abuse, have stronger impacts on attachment style than do other forms of trauma such as natural disasters. It is also known that some forms of trauma, such as sexual abuse, are more common among women than men. It is also likely that other forms of trauma, such as experiencing serious accidents, may be more common among men. In the current study, such gender differences did not emerge. There were no significant differences between men and women for any of the forms of trauma reported including sexual abuse. The only finding that approached significance was that of men reporting more exposure to serious accidents or injuries. This lack of differences is likely due to the disproportionate number of women in the current study, which likely resulted in an unrepresentative sample of men. It will be important in future studies to examine the differential incidence and impact of various forms of trauma for men and women.

In addition to replicating and extending the findings of the current study in examinations of adjustment to university, it would also be valuable to examine the impact of trauma and attachment on other types of adjustment among late adolescents. These could include adjustment to working, travelling, joining the armed forces, or going to community college.

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Appendix A.

Detailed Description of Data Screening Procedures

NOTE TO USERS

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respectively. Scores from the first time were not used in the analyses for the current study. Moving in the extreme scores significantly reduced the skewness of these distributions.

After correcting for skewness, all scales were examined for univariate outliers (data points more than three standard deviations from the mean). Only one outlier was found, reflecting an extremely low score on social adjustment at time 2. This outlier was moved in to the third standard deviation.

Multivariate outliers were handled using the recommendations of Tabachnick and Fidell (1989). For each regression analysis, multivariate outliers were detected using Mahalanobis distance. Only one multivariate outlier was found. One participant was thus eliminated from the regression analysis predicting secure attachment at time 1 in the full model. This participant was not removed from other analyses, as her scores were not found to exert undue influence in any other regression equations.

Appendix B.

Information Sheet and Consent Forms for Study and to Obtain Grades

Information About the Study

This information sheet will explain what will be asked of you if you agree to participate in this study and what your rights are as a participant in the study.

Alison Smerek, M.A.
School of Psychology
University of Ottawa
562-3150

Dr. Susan Johnson
School of Psychology
University of Ottawa
562-5800, X4119

This study is being carried out by Alison Smerek, a doctoral student in the School of Psychology at the University of Ottawa. The research is supervised by Dr. Johnson, who is a professor at the School of Psychology. The purpose of this study is to look at how relationships with family and friends and exposure to very stressful experiences affect the ways in which students adjust to their new lives, living in residence at university. We are asking first year students who are living in residence at the University of Ottawa to participate.

If you agree to participate, your participation will consist of completing a package of multiple-choice format questionnaires at each of three times during your first year at university. The first package of questionnaires will be filled out right at the beginning of your school-year, early in September. The second package will be filled out towards the end of your first semester, late in November. The final package will be filled out near the end of your school-year, at the end of March. Each package of questionnaires should take about one hour to complete. The questionnaires will ask about your relationships with parents, your general style of relating to people you are close to, and how you feel about using others for support during times of stress. You will also be asked about your history of exposure to very stressful life events and about some of the effects that those events might have had on you. Another short questionnaire will ask you about several different reasons for drinking alcohol. In November and March, after you have been at the university for a while, you will also be asked questions about how well you feel you are adjusting to different aspects of university life. Finally, if you give us your consent (see the attached separate consent form), we will obtain a report of your final grades for your first school-year.

The confidentiality of your completed questionnaires and your grades will be respected. Personal information, such as your name, will be kept locked separately from the questionnaires and your grades. The questionnaires and grades will be associated with you only through a study identification number. Only the primary investigator will have access to the list that links your name with your study identification number. Your personal information will be used only for the purposes of contacting you when it is time to fill out questionnaires or to inform you if you win a draw (the draws will be described below). No personal information will be disclosed. The list with your name on it will be destroyed at the end of the year, after all of the questionnaires have been completed. Furthermore, all completed questionnaires will be kept in a locked filing cabinet. Only the researchers directly involved with the study will have access to the questionnaires. Results of the study will be reported with respect to groups of students. No individual information will be reported.

Since these questionnaires ask about personal information, answering them may induce emotional reactions which may, at times, be negative. If you feel a need to discuss any issues that arise from answering these questionnaires you may want to talk to your residence advisor or you may wish to contact the university's counseling service at 562-5200.

Your participation in this study is strictly voluntary and you are free to withdraw from the study at any time or refuse to participate without any penalty. Although it is preferable that you answer all of the questions in the questionnaires, if you are uncomfortable with any particular question you may refuse to answer.

Although our funding does not allow us to compensate all participants individually for their participation, we will hold a draw at the end of each of the three questionnaire completion points. All students who complete the questionnaires at each point will be entered into a draw to win \$100.00 or an equivalent prize. The winners of the draws will be contacted by telephone or letter and arrangements will be made to give them their prize.

If you have any questions or concerns about the study, you may call either Alison Smerek or Dr. Johnson at the numbers listed above. If you want to participate in this study, please keep one copy of this information sheet and sign and return one copy with your first package of questionnaires.

I wish to participate in the study described above. _____
(Participant's Signature) (Date)

I wish to receive a summary of the results of the study when it becomes available. (It will probably be available towards the end of August 1999.) Please send it to: _____

Keep this copy for your records.

Information About the Study

This information sheet will explain what will be asked of you if you agree to participate in this study and what your rights are as a participant in the study.

Alison Smerek, M.A.
School of Psychology
University of Ottawa
562-3150

Dr. Susan Johnson
School of Psychology
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562-5800, X4119

This study is being carried out by Alison Smerek, a doctoral student in the School of Psychology at the University of Ottawa. The research is supervised by Dr. Johnson, who is a professor at the School of Psychology. The purpose of this study is to look at how relationships with family and friends and exposure to very stressful experiences affect the ways in which students adjust to their new lives, living in residence at university. We are asking first year students who are living in residence at the University of Ottawa to participate.

If you agree to participate, your participation will consist of completing a package of multiple-choice format questionnaires at each of three times during your first year at university. The first package of questionnaires will be filled out right at the beginning of your school-year, early in September. The second package will be filled out towards the end of your first semester, late in November. The final package will be filled out near the end of your school-year, at the end of March. Each package of questionnaires should take about one hour to complete. The questionnaires will ask about your relationships with parents, your general style of relating to people you are close to, and how you feel about using others for support during times of stress. You will also be asked about your history of exposure to very stressful life events and about some of the effects that those events might have had on you. Another short questionnaire will ask you about several different reasons for drinking alcohol. In November and March, after you have been at the university for a while, you will also be asked questions about how well you feel you are adjusting to different aspects of university life. Finally, if you give us your consent (see the attached separate consent form), we will obtain a report of your final grades for your first school-year.

The confidentiality of your completed questionnaires and your grades will be respected. Personal information, such as your name, will be kept locked separately from the questionnaires and your grades. The questionnaires and grades will be associated with you only through a study identification number. Only the primary investigator will have access to the list that links your name with your study identification number. Your personal information will be used only for the purposes of contacting you when it is time to fill out questionnaires or to inform you if you win a draw (the draws will be described below). No personal information will be disclosed. The list with your name on it will be destroyed at the end of the year, after all of the questionnaires have been completed. Furthermore, all completed questionnaires will be kept in a locked filing cabinet. Only the researchers directly involved with the study will have access to the questionnaires. Results of the study will be reported with respect to groups of students. No individual information will be reported.

Since these questionnaires ask about personal information, answering them may induce emotional reactions which may, at times, be negative. If you feel a need to discuss any issues that arise from answering these questionnaires you may want to talk to your residence advisor or you may wish to contact the university's counseling service at 562-5200.

Your participation in this study is strictly voluntary and you are free to withdraw from the study at any time or refuse to participate without any penalty. Although it is preferable that you answer all of the questions in the questionnaires, if you are uncomfortable with any particular question you may refuse to answer.

Although our funding does not allow us to compensate all participants individually for their participation, we will hold a draw at the end of each of the three questionnaire completion points. All students who complete the questionnaires at each point will be entered into a draw to win \$100.00 or an equivalent prize. The winners of the draws will be contacted by telephone or letter and arrangements will be made to give them their prize.

If you have any questions or concerns about the study, you may call either Alison Smerek or Dr. Johnson at the numbers listed above. If you want to participate in this study, please keep one copy of this information sheet and sign and return one copy with your first package of questionnaires.

Consent for Researchers to Obtain a Report of Your First Year Grades

I _____, give my permission and consent for Alison Smerek,
(Print first and last names)
a doctoral student who is conducting research at the School of Psychology, University of Ottawa, under the supervision of Dr. Susan Johnson, to obtain from the University of Ottawa records a transcript reporting my final grades for my first year of studies which will be completed during the 1998-1999 academic year. I understand that this transcript of my grades will be used for the purposes of the research project only. The information contained in the transcript will be kept confidential and will not be released to or reported to anyone other than the researchers directly involved with the research project. I further understand that my name and other identifying information will be removed from it so that it cannot be identified with me. My transcript will be kept in a locked filing cabinet.

I understand that I can refuse to give permission for the release of this transcript without any penalty whatsoever. I understand that this information would make a valuable contribution to the study, but that my refusal to give this permission will not prevent me from participating in other aspects of the study.

Student's full name (as it appears in university records) _____

Student number _____

Signature _____ Date _____

Researchers full name _____

Signature _____ Date _____

Appendix C.

Recruitment Script

Recruitment Script for Residence Floor Meetings in September

- 1) Hi, my name is _____, and I am a researcher working on a research project for Alison Smerek who is a graduate student completing her Ph.D. in the School of Psychology here at the University of Ottawa.
- 2) The project we are currently working on is a study of factors that affect the ways in which first year students living in residence adjust to their lives at university.
- 3) We are particularly interested in the impact of two types of experience on how students adjust to university. The first is how qualities of your relationships with family and close friends affect your adjustment to university life, and the second is how your history of very stressful experiences affects your adjustment to university life.
- 4) We would like to have as many of you as possible, who are beginning first year and living in residence, to participate in our study. That way our results will better represent the full range of your experiences in adjusting to university life.
- 5) We hope that the information that we get will help us to design better programs for students in the future, and that it will also help us to better understand and help students who have difficulty in adjusting to university.
- 6) If you decide to participate, your participation will involve filling out a package of multiple-choice type questionnaires at three different times during your first year here at the University of Ottawa.
- 7) The first package will be filled out right at the beginning of the year, and I have a bunch of those packages with me today. If you decide to participate I will give you one of these packages before you leave today. The second package will be filled out towards the end of your first

semester, at the end of November. The third package will be filled out close to the end of the school-year at the end of March.

8) Each package should take about half an hour to an hour or so, depending on how much you choose to think about the questions.

9) Remember that your participation in this study is completely voluntary and there are no consequences to you if you choose not to participate. Also, the confidentiality of your completed questionnaires will be respected.

10) Personal information, such as your name, will be kept locked separately from the questionnaires. Only the researchers directly involved with the study will have access to the questionnaires. The results of the study will be reported with respect to groups of students. No individual information will be reported.

11) In order to compensate those of you who choose to participate for your time, we will hold a draw at each of the three times when we ask you to fill out questionnaires. At each time the names of all those who complete the questionnaires will be put into a box and one winner will be selected. **The winner of the September draw will win \$100.00.** At the November and March draws an equivalent prize will be awarded. The winners of the draws will be contacted by telephone or letter and arrangements will be made to give them their prize. We are sorry that our funding does not allow us to pay each of you individually for your time, but hope that the chance to win \$100. will help to compensate you for the time you put into this project.

12) I will distribute questionnaires to those of you who are interested at the end of this meeting. If you are interested please pick up a package of questionnaires.

13) I will show you what a package of questionnaires looks like. As you can see, each of these envelopes is stamped with a return address here at the university so you can return the questionnaires by INTRA mail if you like. Inside there are two copies of an information sheet,

describing the study in more detail. Keep the one that says “Retain for your Records” , and sign and return the other one with the questionnaires. There is also a separate consent form attached for us to obtain a copy of your grades for this year, which you can choose whether to sign and return with the questionnaires. Then there is the package of questionnaires. On the front sheet you are asked for some demographic information. Any identifying information, below the dotted line will be detached by us after we code the questionnaires. Then there are 8 pages of multiple choice type questionnaires.

14) I or another researcher from the project will be available at a booth in the lobby of your building on Wednesday and Thursday in order to answer questions, distribute questionnaires to anyone who didn't get them today, and to collect completed questionnaires. There will be someone at the booth most of the day, but if they have to leave to go to class they will leave a note saying when they will be back. If you are not able to return your questionnaires at that time you can return them via internal mail in the envelope provided.

15) **Thank you all for your attention and good luck and best wishes for your first year here at the University of Ottawa**

Distribute Questionnaires

Appendix D.

Letter Included with Questionnaires in November

Alison Smerek
Adjustment to University Research Project
School of Psychology
University of Ottawa
Ottawa, Ontario
K1N 6N5

November 18, 1998

Dear «First_Name» «Last_Name»,

Thank you for completing the September questionnaires for my study of factors affecting first-year residence students' adjustment to university life. I really appreciate your effort. It will make a valuable contribution to my understanding of the experience of adjusting to life at university.

One student living in the Marchand Residence won the \$100.00 prize in September. The prize for the **November draw will also be \$100**. All students who complete questionnaires at all three time points (September, November and March) will be eligible for a **grand prize draw of \$300 in March**.

As I mentioned in September the purpose of my study is to follow students over the course of their first year at university. In order to do this I need as many students as possible to complete questionnaires at all three time points (September, November, and March). It is now November, and time to complete the second package of questionnaires. I have enclosed these questionnaires with this letter. This package of questionnaires is the same as the ones you filled out in September, except there is one new questionnaire asking about how you are adjusting to different aspects of the experience of being at university.

I would certainly appreciate it if you could complete and return these questionnaires via internal mail as soon as possible. At this point I hope that most of your mid-term exams and papers have been completed and you will have time to complete these questionnaires before your finals. In any case, I would appreciate it if you could complete them before your Christmas break. I will be telephoning participants at various intervals to remind them to return the questionnaires. If you have any questions please contact Alison Smerek at 562-3150. You may also call Dr. Johnson who is the faculty member supervising the project at 562-5800, X4119. If you decide not to participate at this point we thank you for your participation so far. Please return the blank questionnaires via internal mail if possible so we can reuse them.

Thank you once again for your participation in this study. Good Luck with your exams!

Sincerely,
Alison Smerek

Appendix E.

Information Sheet Included with Questionnaires in March

Adjustment to University Survey Time 3 – End of 1st Year

It's survey time again!

It's the end of first year, and a really busy time. I know! However, it is also time to fill out the final survey for the study. The purpose of the study is to examine adjustment to university, so it is important to see how you are doing at the end of the academic year.

Thank you for the time and effort you have put into this study. It is much appreciated! As an extra thank you the draw this time will be for

\$300.00

***** Important Note:** Please complete the entire survey even though the questions are the same as those you completed on previous occasions. One purpose of the study is to see how students' answers change over the course of the year.

If you have any questions or if you need a new copy of the survey please contact Alison Smerek at 562-3150 or email: smerek@istar.ca

Please return the survey before you leave for the summer!

(Put it in the red mail box in the lobby of the Stanton/Marchand or Thompson Residences)

If you are going to leave residence or move before you return the survey, please call or email to update your address and telephone number.

If you decide not to participate at this point, thank you for your participation so far.

**Thank you again and good luck with your
final exams and papers!**

Appendix F.

Script for Follow-Up Phone Calls for December and March

Follow-up Phone calls:

After distribution of November or March Surveys:

Leaving a message:

Hi, this is _____ from the adjustment to university survey. I'm just calling to be sure you received your survey in your mailbox about a week ago, and to see if you have any questions. If you did not receive it, or if you have any questions, please call 562-3150. Otherwise good luck with your exams and we look forward to receiving your survey. If you decide not to participate please drop your blank questionnaires in the internal mail. Thank you again for your contribution to this research.

Talking to the person:

Hi this is _____ from the adjustment to university surveys. Did you receive your copy in your mailbox last week? (If no): would you like us to send you a copy? (If yes): Do you have any questions? (answer any questions, reassure that it is okay if they do not wish to complete questionnaires, If they indicated they intend to complete them Finish with): I know it is a busy time , but I would appreciate it if you could return the questionnaires as soon as possible. Good luck with your exams! Thank you.

Appendix G.

**Letter of Permission and Sample Items from the
Student Adaptation to College Questionnaire (SACQ)**

September 13, 2000

Alison Smerek
School of Psychology
University of Ottawa
145 Jean Jacques Lussier
P.O. Box 450, Stn. A
Ottawa, ON K1N 6N5
Canada

Dear Ms. Smerek:

Thank you for your letter of August 21, which arrived by post last week.

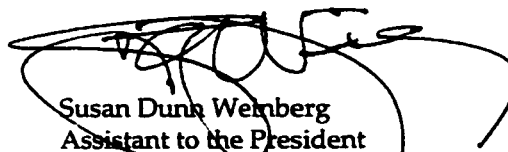
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Sincerely yours,



Susan Dunn Weinberg
Assistant to the President
WPS Rights and Permissions
e-mail: weinberg@wpspublish.com

SDW:se

Sample Items from the Student Adaptation to College Questionnaire

Academic Adjustment Scale

I am satisfied with the level at which I am performing academically.

I'm not really smart enough for the academic work I am expected to be doing now.

I'm not doing well enough academically for the amount of work I put in.

Social Adjustment Scale

I am meeting as many people and making as many friends as I would like at college.

I feel that I have enough social skills to get along well in the college setting.

I feel I am very different from other students at college in ways that I don't like.

Personal-Emotional Adjustment Scale

I haven't been able to control my emotions very well lately.

I've given a lot of thought lately to whether I should ask for help from the Psychological/Counseling Services Center or from a psychotherapist outside of college.

I am experiencing a lot of difficulty coping with the stresses imposed upon me in college.

Appendix H.

Questionnaire Package

INVENTORY OF PARENT AND PEER ATTACHMENT (IPPA)

Authors:

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This questionnaire asks about your relationship with important people in your life: your mother, your father, and your close friends. Please read the directions to each part carefully.

Part I

Some of the following statements asks about your feelings about your mother or the person who has acted as your mother. If you have more than one person acting as your mother (e.g. a natural mother and a step-mother) answer the questions for the one you feel has most influenced you.

Please read each statement and circle the ONE number that tells how true the statement is for you now.

	1	2	3	4	5
1. My mother respects my feeling	Almost Never	Not Very Often	Some-times True	Often True	Almost Always or Always True
2. I feel my mother does a good job as my mother.	1	2	3	4	5
3. I wish I had a different mother.	1	2	3	4	5
4. My mother accepts me as I am.	1	2	3	4	5
5. I like to get my mother's point of view on things I'm concerned about.	1	2	3	4	5
6. I feel it's no use telling my feelings about around my mother.	1	2	3	4	5
7. My mother can tell when I'm upset about something.	1	2	3	4	5
8. Talking over my problems with my mother makes me feel ashamed or foolish.	1	2	3	4	5
9. My mother expects too much from me.	1	2	3	4	5
10. I get upset easily around my mother.	1	2	3	4	5
11. I get upset a lot more than my mother knows about.	1	2	3	4	5
12. When we discuss things, my mother cares about my point of view.	1	2	3	4	5
13. My mother trusts my judgment.	1	2	3	4	5
14. My mother has her own problems, so I don't bother her with mine.	1	2	3	4	5
15. My mother helps me to understand myself better.	1	2	3	4	5
16. I tell my mother about my problems and troubles.	1	2	3	4	5
17. I feel angry with my mother.	1	2	3	4	5
18. I don't get much attention from my mother.	1	2	3	4	5
19. My mother helps me to talk about my difficulties.	1	2	3	4	5
20. My mother understands me.	1	2	3	4	5
21. When I am angry about something, my mother tries to be understanding.	1	2	3	4	5
22. I trust my mother.	1	2	3	4	5
23. My mother doesn't understand what I'm going through these days.	1	2	3	4	5
24. I can count on my mother when I need to get something off my chest.	1	2	3	4	5
25. If my mother knows something is bothering me, she asks me about it.	1	2	3	4	5

Part II

This part asks about your feelings about your father, or the man who has acted as your father. If you have more than one person acting as your father (e.g. natural and step-father) answer the question for the one you feel has most influenced you.

	Almost Never or Never True	Not Very Often True	Some- times True	Often True	Almost Always or Always True
1. My father respects my feelings.	1	2	3	4	5
2. I feel my father does a good job as my father.	1	2	3	4	5
3. I wish I had a different father.	1	2	3	4	5
4. My father accepts me as I am.	1	2	3	4	5
5. I like to get my father's point of view on things I'm concerned about.	1	2	3	4	5
6. I feel it's no use telling my feelings to or around my father.	1	2	3	4	5
7. My father can tell when I'm upset about something.	1	2	3	4	5
8. Talking over my problems with my father makes me feel ashamed or foolish.	1	2	3	4	5
9. My father expects too much from me.	1	2	3	4	5
10. I get upset easily around my father.	1	2	3	4	5
11. I get upset a lot more than my father knows about.	1	2	3	4	5
12. When we discuss things, my father cares about my point of view.	1	2	3	4	5
13. My father trusts my judgment.	1	2	3	4	5
14. My father has his own problems, so I don't bother him with mine.	1	2	3	4	5
15. My father helps me to understand myself better.	1	2	3	4	5

ii

	Almost Never or Never True	Not Very Often True	Some- times True	Often True	Almost Always or Always True
16. I tell my father about my problems and troubles.	1	2	3	4	5
17. I feel angry with my father.	1	2	3	4	5
18. I don't get much attention from my father.	1	2	3	4	5
19. My father helps me to talk about my difficulties.	1	2	3	4	5
20. My father understands me.	1	2	3	4	5
21. When I am angry about something, my father likes to be understanding.	1	2	3	4	5
22. I trust my father.	1	2	3	4	5
23. My father doesn't understand what I'm going through these days.	1	2	3	4	5
24. I can count on my father when I need to get something off my chest.	1	2	3	4	5
25. If my father knows something is bothering me, he asks me about it.	1	2	3	4	5

RELATIONSHIP QUESTIONNAIRE

Following are descriptions of four general relationship styles that people often report. Please rate each of the relationship styles according to the *extent* to which you think each description corresponds to your general relationship style.

- A. It is easy for me to become close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.
- B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.
- C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.
- D. I am comfortable without close relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

	Not at all like me		Somewhat like me			Very Much like me	
Style A.	1	2	3	4	5	6	7
Style B.	1	2	3	4	5	6	7
Style C.	1	2	3	4	5	6	7
Style D.	1	2	3	4	5	6	7

RSQ

Please read each of the following statements and rate the extent to which each describes your feelings about close relationships. Think about all of your close relationships, past and present, and respond in terms of how you generally feel in these relationships.

	Not at all like me		Somewhat like me			Very Much like me	
1. I find it difficult to depend on other people.	1	2	3	4	5	6	7
2. It is very important to me to feel independent.	1	2	3	4	5	6	7
3. I find it easy to get emotionally close to others.	1	2	3	4	5	6	7
4. I want to merge completely with another person.	1	2	3	4	5	6	7
5. I worry that I will be hurt if I allow myself to become too close to others.	1	2	3	4	5	6	7

Please Turn Over and Continue on Next Page

	Not at all like me		Somewhat like me			Very Much like me	
6. I am comfortable without close emotional relationships.	1	2	3	4	5	6	7
7. I am not sure that I can always depend on others to be there when I need them.	1	2	3	4	5	6	7
8. I want to be completely emotionally intimate with others.	1	2	3	4	5	6	7
9. I worry about being alone.	1	2	3	4	5	6	7
10. I am comfortable depending on other people.	1	2	3	4	5	6	7
11. I often worry that romantic partners don't really love me.	1	2	3	4	5	6	7
12. I find it difficult to trust others completely.	1	2	3	4	5	6	7
13. I worry about others getting too close to me.	1	2	3	4	5	6	7
14. I want emotionally close relationships.	1	2	3	4	5	6	7
15. I am comfortable having other people depend on me.	1	2	3	4	5	6	7
16. I worry that others don't value me as much as I value them.	1	2	3	4	5	6	7
17. People are never there when you need them.	1	2	3	4	5	6	7
18. My desire to merge completely sometimes scares people away.	1	2	3	4	5	6	7
19. It is very important to me to feel self-sufficient.	1	2	3	4	5	6	7
20. I am nervous when anyone gets too close to me.	1	2	3	4	5	6	7
21. I often worry that romantic partners won't want to stay with me.	1	2	3	4	5	6	7
22. I prefer not to have other people depend on me.	1	2	3	4	5	6	7
23. I worry about being abandoned.	1	2	3	4	5	6	7
24. I am somewhat uncomfortable being close to others.	1	2	3	4	5	6	7
25. I find that others are reluctant to get as close as I would like.	1	2	3	4	5	6	7 -
26. I prefer not to depend on others	1	2	3	4	5	6	7
27. I know that others will be there when I need them.	1	2	3	4	5	6	7
28. I worry about having others not accept me.	1	2	3	4	5	6	7
29. Romantic partners often want me to be closer than I feel comfortable being.	1	2	3	4	5	6	7
30. I find it relatively easy to get close to others.	1	2	3	4	5	6	7

Stressful Life Experiences Schedule

Please fill in the number that best represents how much the following statements describe your experiences. You will need to use two scales, one for how well the statement describes your experiences and one for how stressful you found this experience. The two scales are below.

Describes your Experience:

0	1	2	3	4	5	6	7	8	9	10
Did not experience this	a little like my experiences				somewhat like my experiences					exactly like my experiences

Stressfulness of Experience:

0	1	2	3	4	5	6	7	8	9	10
Not at all stressful	not very stressful				somewhat stressful					extremely stressful

Describes your Experience	Life Experience	Stressfulness Then	Stressfulness Now
	I have witnessed or experienced a natural disaster, like a hurricane or earthquake.		
	I have witnessed or experienced a human made disaster like a plane crash or industrial disaster.		
	I have witnessed or experienced a serious accident or injury.		
	I have witnessed or experienced chemical or radiation exposure happening to me, a close friend or a family member.		
	I have witnessed or experienced a life threatening illness happening to me, a close friend or a family member.		
	I have witnessed or experienced the death of my spouse or child.		
	I have witnessed or experienced the death of a close friend or family member (other than my spouse or child).		
	I or a close friend or family member has been kidnapped or taken hostage.		
	I or a close friend or family member has been the victim of a terrorist attack or torture.		
	I have been involved in combat or a war or lived in a war affected area.		
	I have seen or handled dead bodies other than at a funeral.		
	I have felt responsible for the serious injury or death of another person.		
	I have witnessed or been attacked with a weapon other than in combat or family setting.		
	As a child/teen I was hit, spanked, choked or pushed hard enough to cause injury.		
	As an adult, I was hit, choked or pushed hard enough to cause injury.		
	As an adult or child, I have witnessed someone else being choked, hit, spanked, or pushed hard enough to cause injury.		
	As a child/teen I was forced to have unwanted sexual contact.		
	As an adult I was forced to have unwanted sexual contact.		
	As a child or adult I have witnessed someone else being forced to have unwanted sexual contact.		
	I have witnessed or experienced an extremely stressful event not already mentioned. Please Explain: _____		

PCL-C

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful experience from the past?	1	2	3	4	5
2. Repeated, disturbing <i>dreams</i> of a stressful experience from the past?					
3. Suddenly <i>acting or feeling</i> as if a stressful experience from the past were happening again (as if you were reliving it)?	1	2	3	4	5
4. Feeling very <i>upset</i> when something reminded you of a stressful experience from the past?					
5. Having <i>physical reactions</i> (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience from the past?	1	2	3	4	5
6. Avoiding <i>thinking about or talking about</i> a stressful experience from the past or avoiding <i>having feelings</i> related to it?					
7. Avoiding <i>activities or situations</i> because they reminded you of a stressful experience from the past?	1	2	3	4	5
8. Trouble <i>remembering important parts</i> of a stressful experience from the past?					
9. <i>Loss of interest</i> in activities that you used to enjoy?	1	2	3	4	5
10. Feeling <i>distant or cut off</i> from other people?					
11. Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?	1	2	3	4	5
12. Feeling as if your <i>future somehow will be cut short</i> ?					
13. Trouble <i>falling or staying asleep</i> ?	1	2	3	4	5
14. Feeling <i>irritable</i> or having <i>angry outbursts</i> ?					
15. Having <i>difficulty concentrating</i> ?	1	2	3	4	5
16. Being " <i>super-alert</i> " or watchful or on-guard?					
17. Feeling <i>jumpy</i> or easily startled?	1	2	3	4	5

Network Orientation Scale

How much do you agree or disagree with each of the following statements?

Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
----- Circle One -----			

- | | | | | |
|---|---|---|---|---|
| 1) Sometimes it is necessary to talk to someone about your problems. | 1 | 2 | 3 | 4 |
| 2) Friends often have good advice to give. | 1 | 2 | 3 | 4 |
| 3) You have to be careful who you tell personal things to. | 1 | 2 | 3 | 4 |
| 4) I often get useful information from other people. | 1 | 2 | 3 | 4 |
| 5) People should keep their problems to themselves. | 1 | 2 | 3 | 4 |
| 6) It's easy for me to talk about personal and private matters. | 1 | 2 | 3 | 4 |
| 7) In the past friends have really helped me out when I had a problem. | 1 | 2 | 3 | 4 |
| 8) You can never trust people to keep a secret. | 1 | 2 | 3 | 4 |
| 9) When a person gets upset they should talk it over with a friend. | 1 | 2 | 3 | 4 |
| 10) Other people never understand my problems. | 1 | 2 | 3 | 4 |
| 11) Almost everyone knows someone they can trust with a personal secret. | 1 | 2 | 3 | 4 |
| 12) If you can't figure out your problems, nobody can. | 1 | 2 | 3 | 4 |
| 13) In the past, I have rarely found other people's opinions helpful when I have a problem. | 1 | 2 | 3 | 4 |
| 14) It really helps when you are angry to tell a friend what happened. | 1 | 2 | 3 | 4 |
| 15) Some things are too personal to talk to anyone about. | 1 | 2 | 3 | 4 |
| 16) It's fairly easy to tell who you can trust, and who you can't. | 1 | 2 | 3 | 4 |
| 17) In the past, I have been hurt by people I confided in. | 1 | 2 | 3 | 4 |
| 18) If you confide in other people, they will take advantage of you. | 1 | 2 | 3 | 4 |
| 19) It's okay to ask favours of people. | 1 | 2 | 3 | 4 |
| 20) Even if I need something, I would hesitate to borrow it from someone. | 1 | 2 | 3 | 4 |

Cooper's Four-Factor Drinking Motives Questionnaire

Thinking of all the times that you drink, how often would you say that you drink for each of the following reasons?

	almost never/ never 1	some of the time 2	half of the time 3	most of the time 4	almost always/ always 5
	----- Circle One -----				
1) To forget your worries	1	2	3	4	5
2) Because your friends pressure you to drink	1	2	3	4	5
3) Because it helps you enjoy a party	1	2	3	4	5
4) Because it helps you when you feel depressed or nervous	1	2	3	4	5
5) To be sociable	1	2	3	4	5
6) To cheer you up when you are in a bad mood	1	2	3	4	5
7) Because you like the feeling	1	2	3	4	5
8) So others won't kid you about <i>not</i> drinking	1	2	3	4	5
9) Because it's exciting	1	2	3	4	5
10) To get high	1	2	3	4	5
11) Because it makes social gatherings more fun	1	2	3	4	5
12) To fit in with a group you like	1	2	3	4	5
13) Because it gives you a pleasant feeling	1	2	3	4	5
14) Because it improves parties and celebrations	1	2	3	4	5
15) Because you feel more self-confident and sure of yourself	1	2	3	4	5
16) To celebrate a special occasion with friends	1	2	3	4	5
17) To forget about your problems	1	2	3	4	5
18) Because it's fun	1	2	3	4	5
19) To be liked	1	2	3	4	5
20) So you won't feel left out	1	2	3	4	5

Appendix I.

Full Path Models of Time 1 Predictors, Predicting Time 2 Outcomes

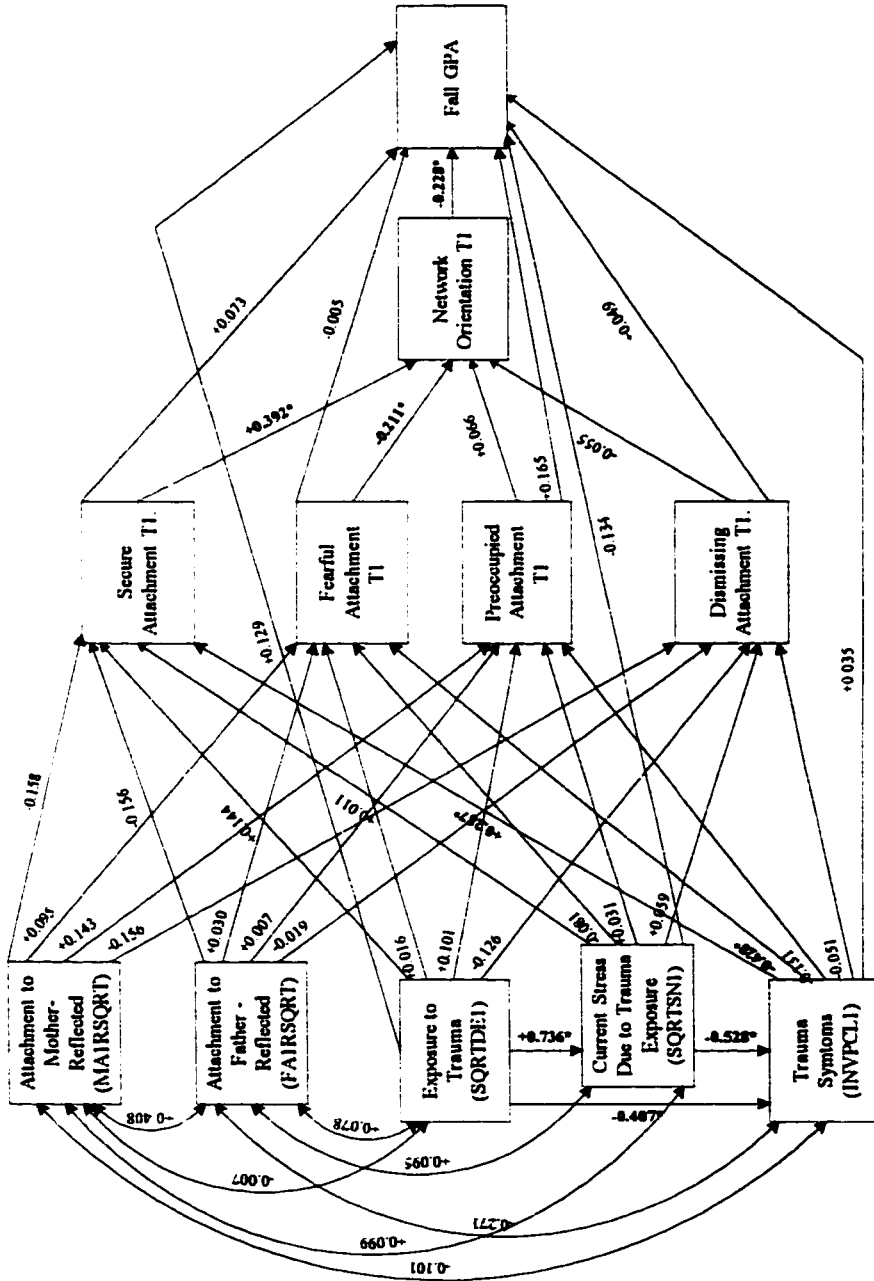


Figure 11. Full model of time 1 predictors, predicting Fall GPA. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

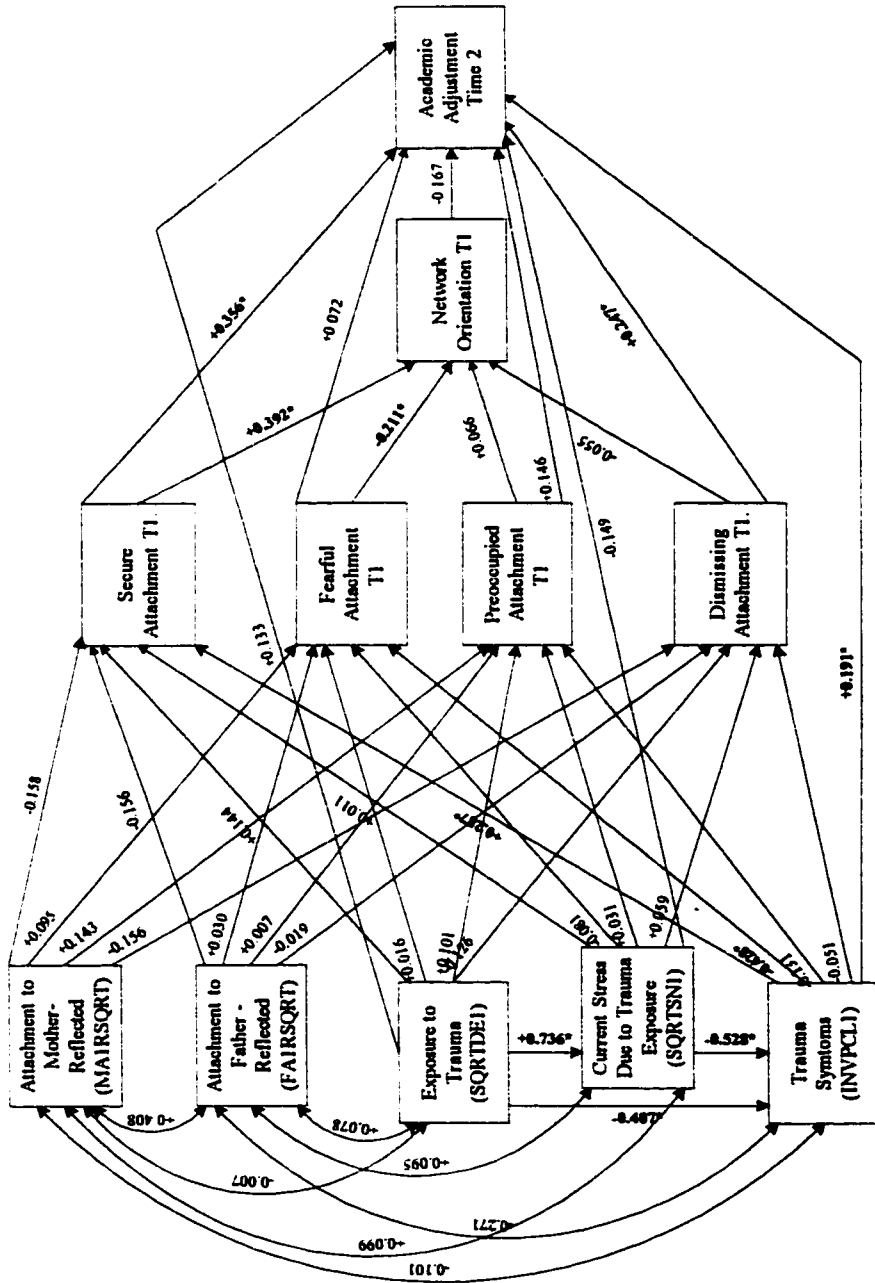


Figure 12. Full model of time 1 predictors, predicting Academic Adjustment at Time 2. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. * = Significant at $p < .05$ or better.

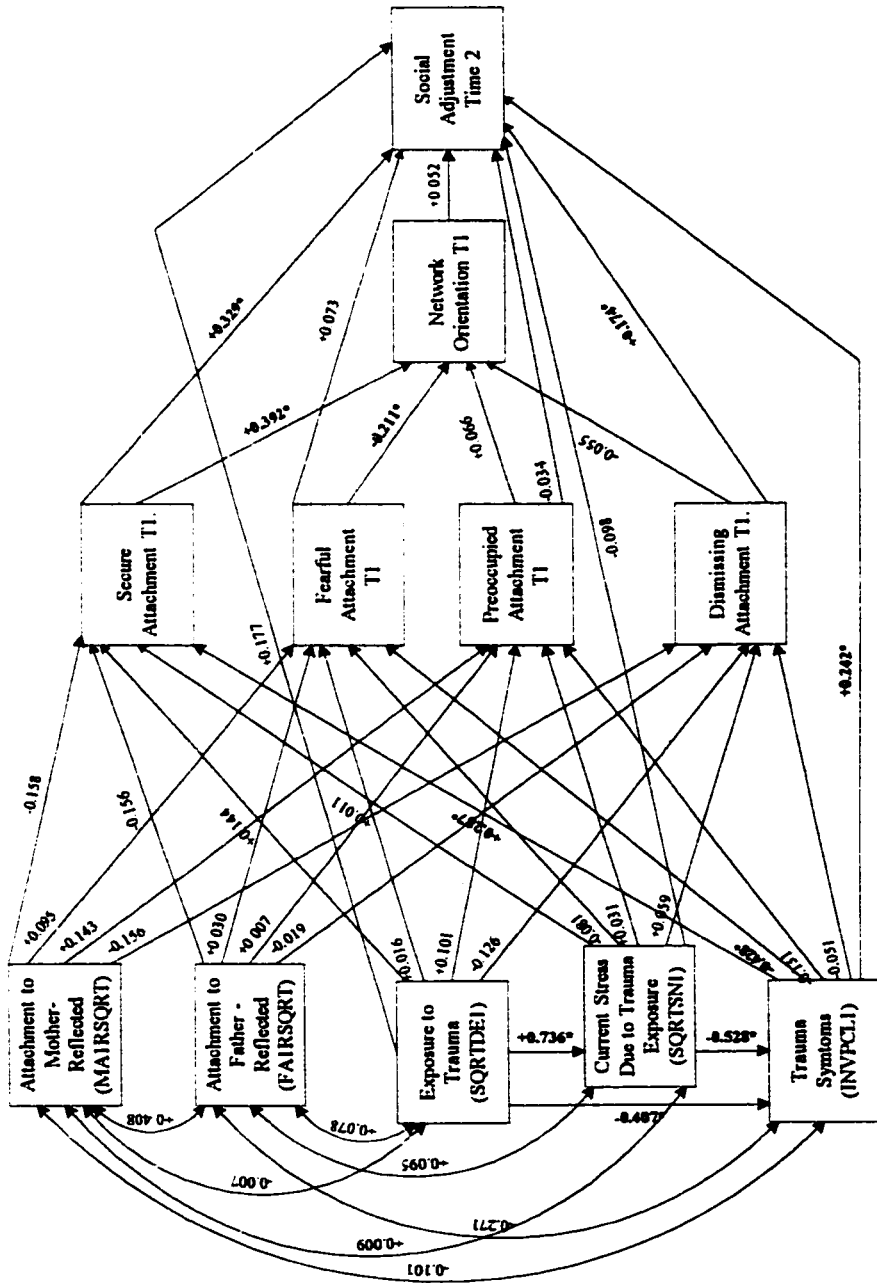


Figure 13. Full model of time 1 predictors, predicting Social Adjustment at Time 2. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better

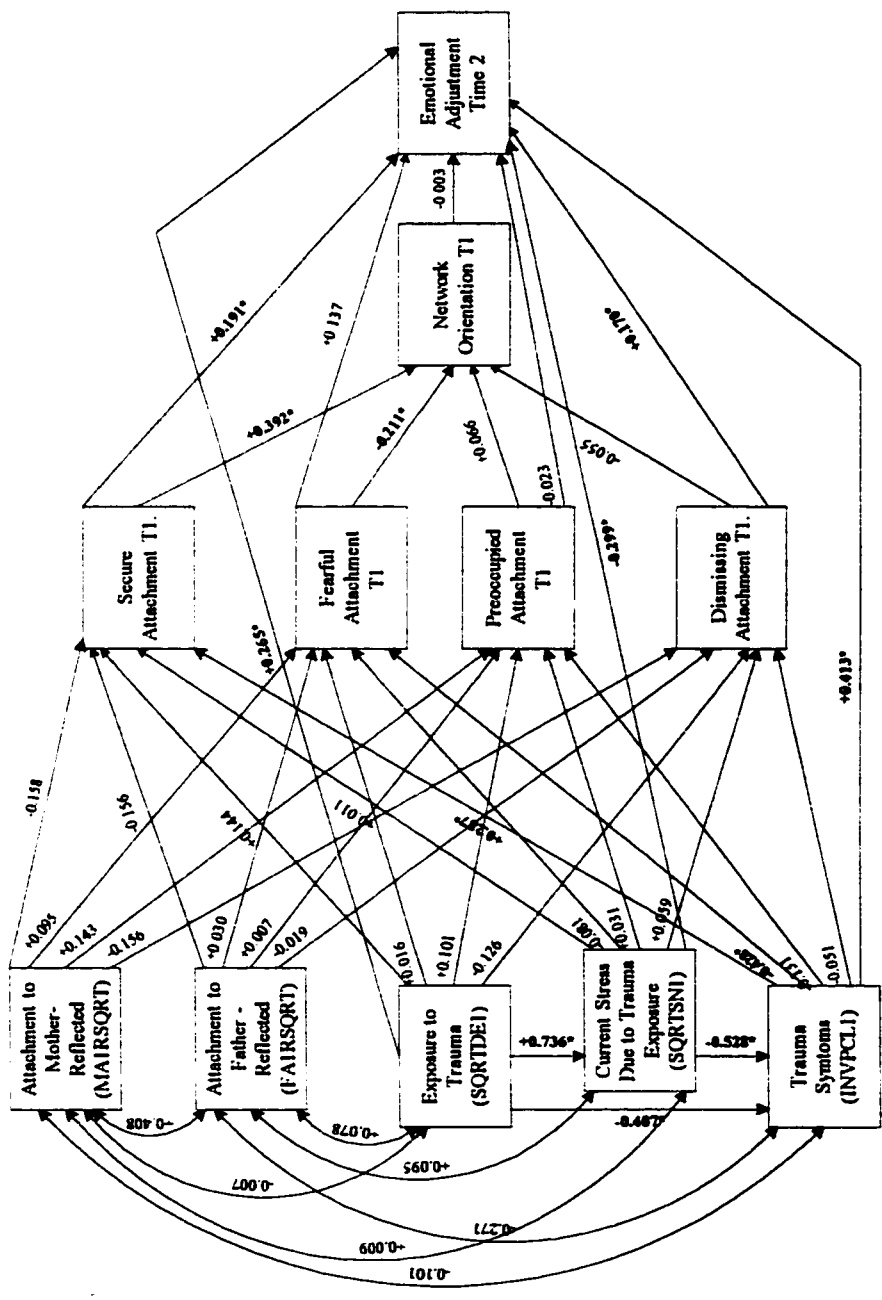


Figure 14. Full model of time 1 predictors, predicting Emotional Adjustment at Time 2. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. * = Significant at $p < .05$ or better.

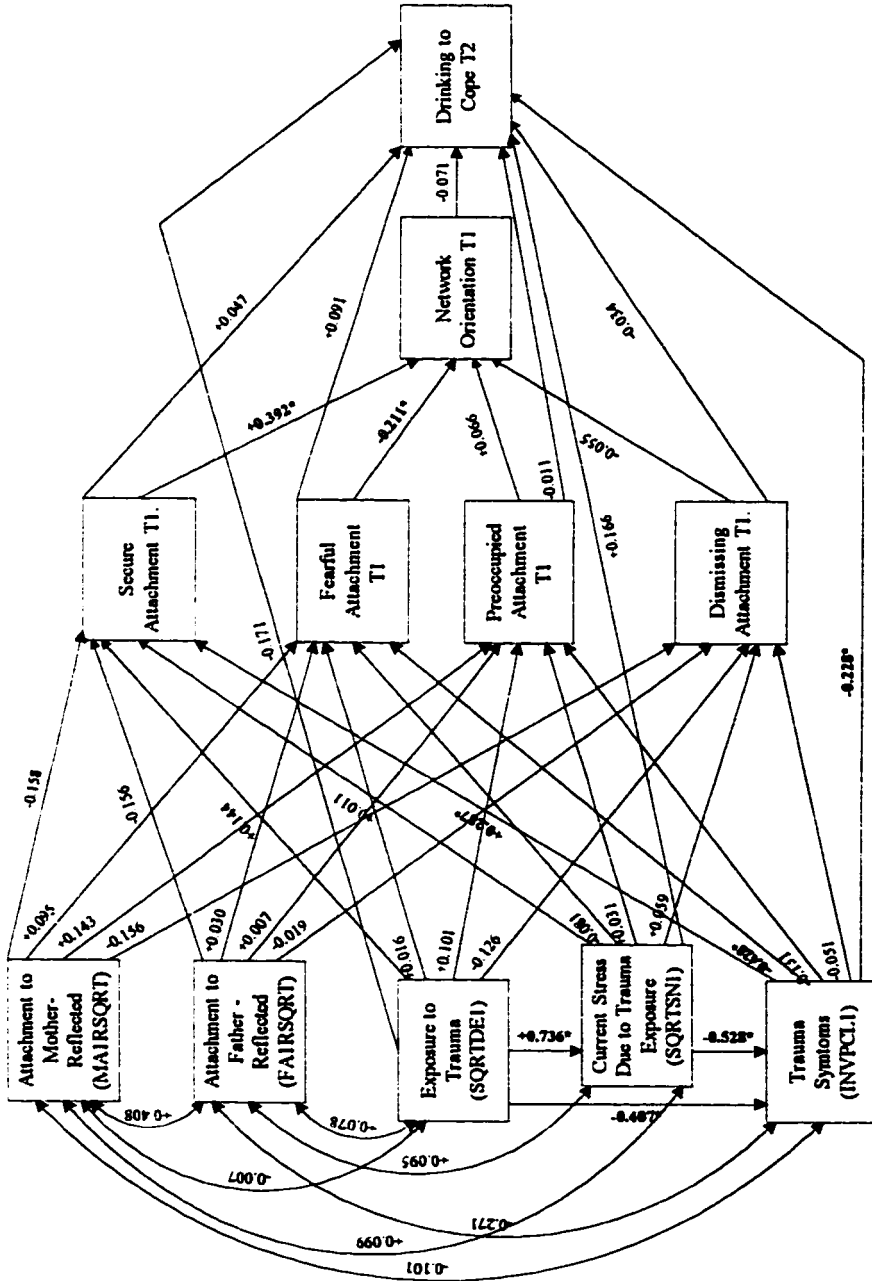


Figure 15. Full model of time 1 predictors, predicting Drinking to Cope at Time 2. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < 0.05$ or better.

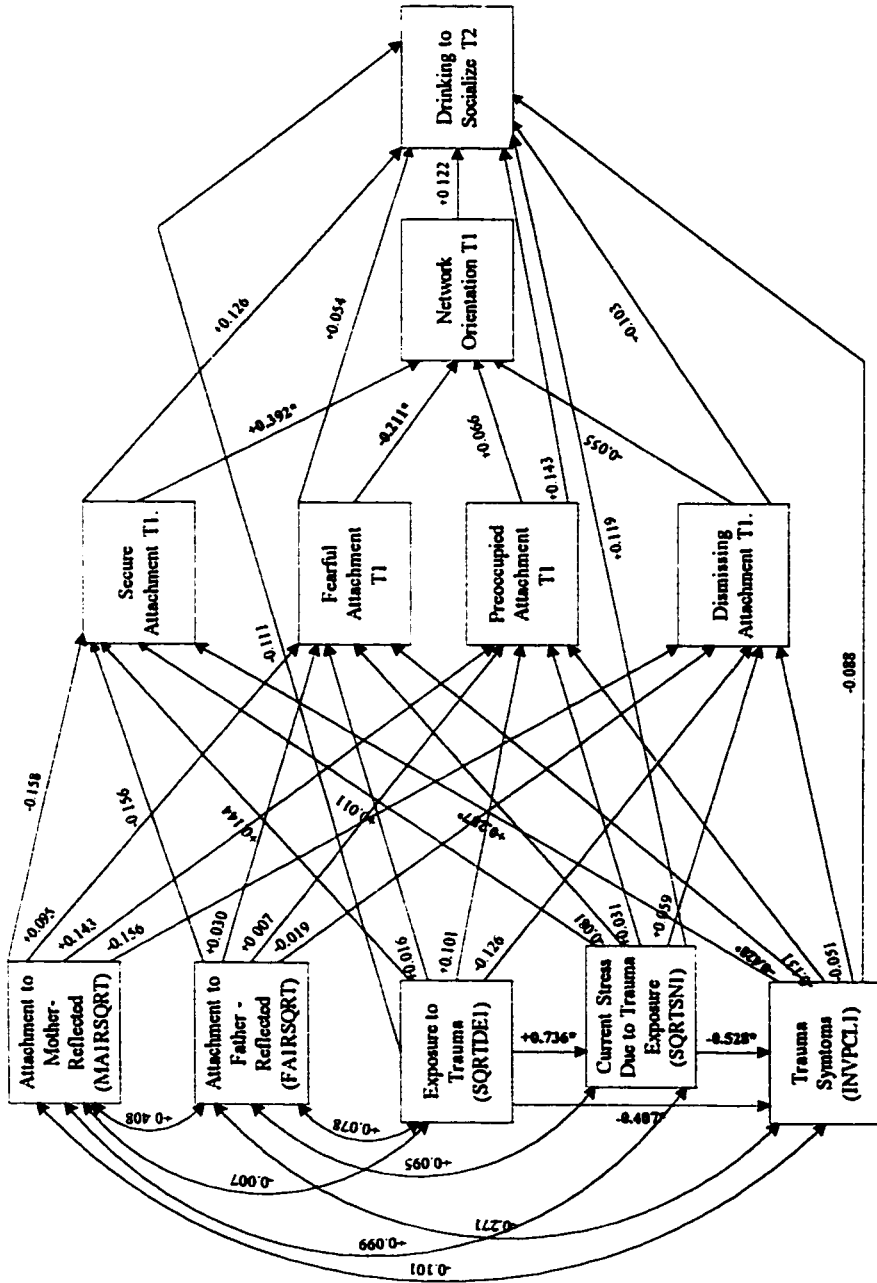


Figure 16. Full model of time 1 predictors, predicting Drinking to Socialize at Time 2. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

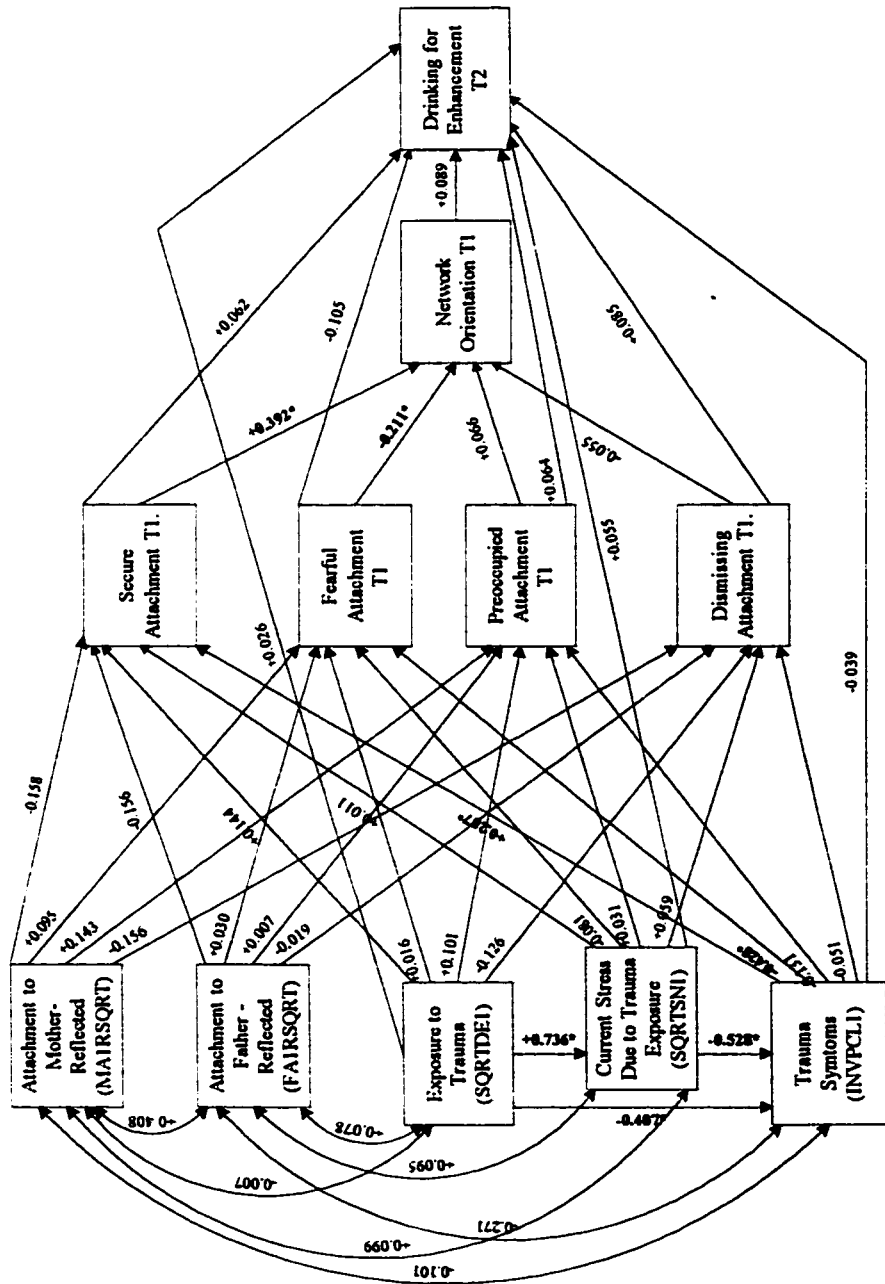


Figure 17. Full model of time 1 predictors, predicting Drinking for Enhancement at Time 2. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

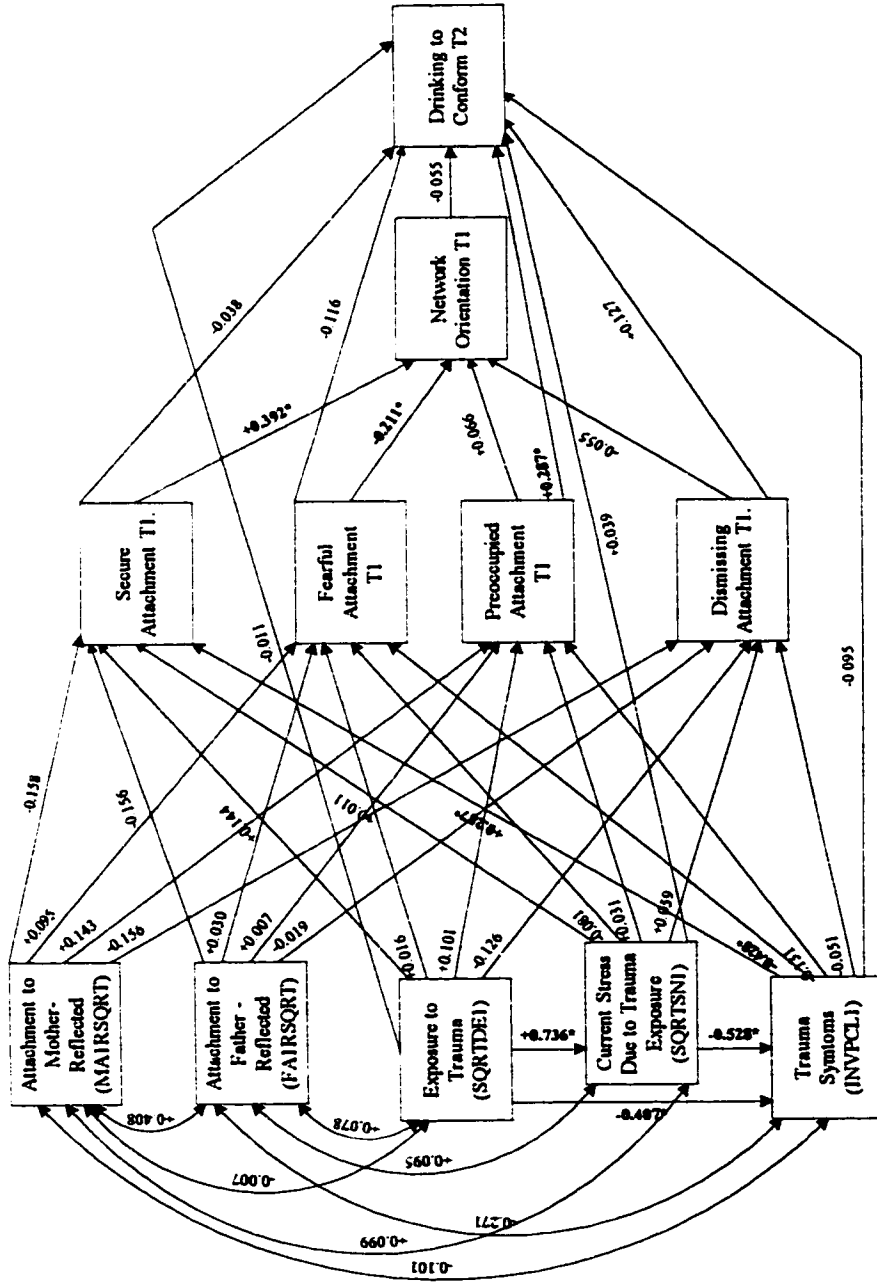


Figure 18. Full model of time 1 predictors, predicting Drinking to Conform at Time 2. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

Appendix J.

Full Path Models of Time 1 Predictors, Predicting Time 3 Outcomes

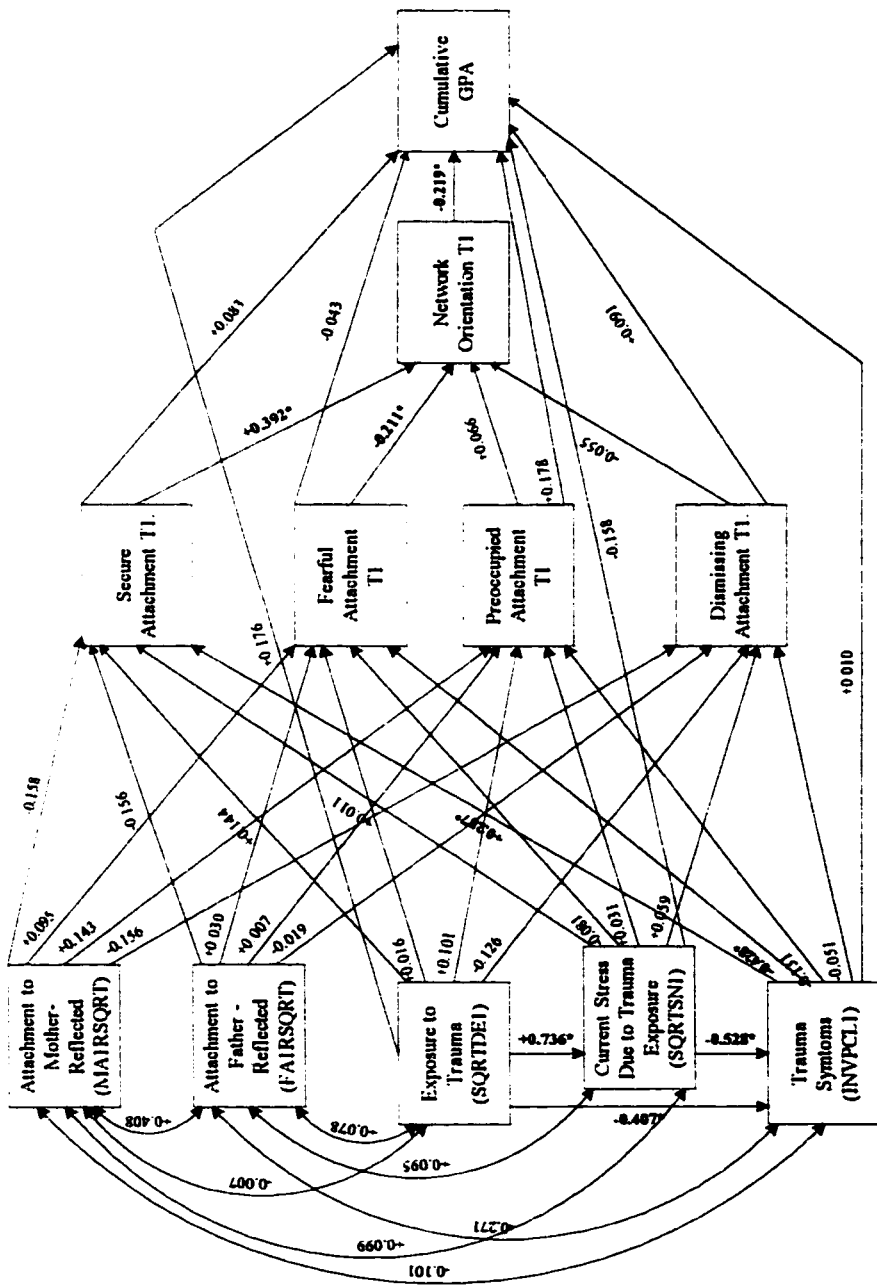


Figure J1. Full model of time 1 predictors, predicting Cumulative GPA. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

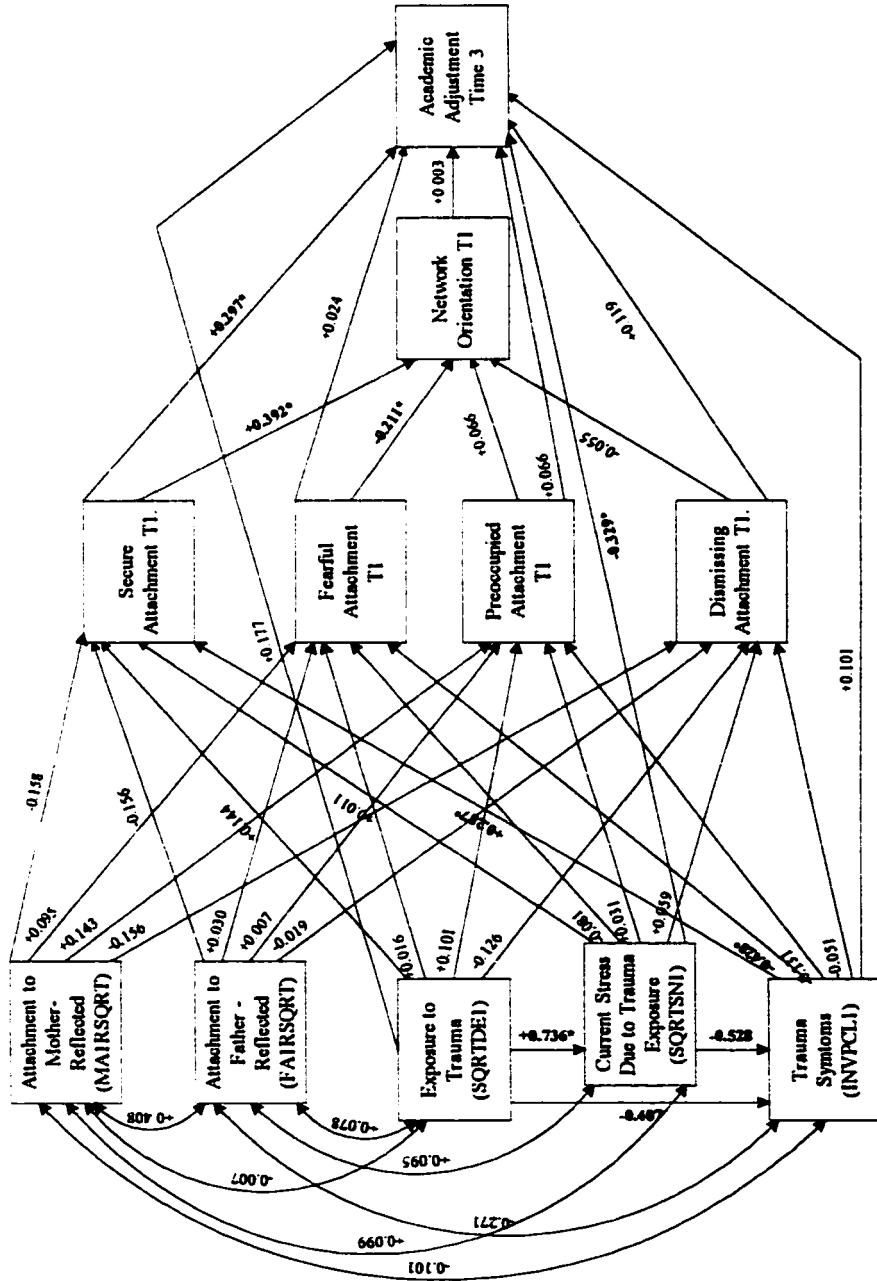


Figure J2. Full model of time 1 predictors, predicting Academic Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. * = Significant at p < .05 or better.

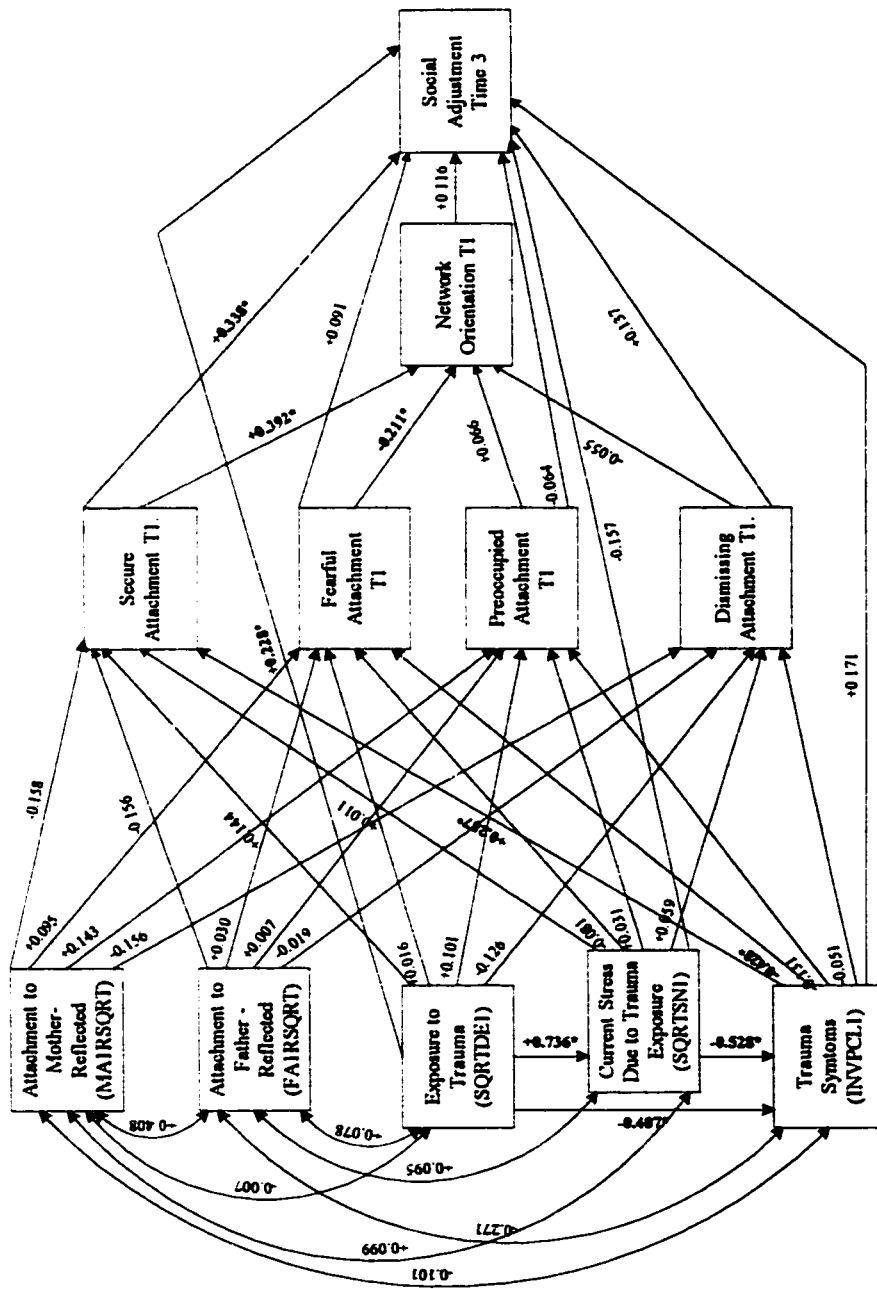


Figure J3. Full model of time 1 predictors, predicting Social Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

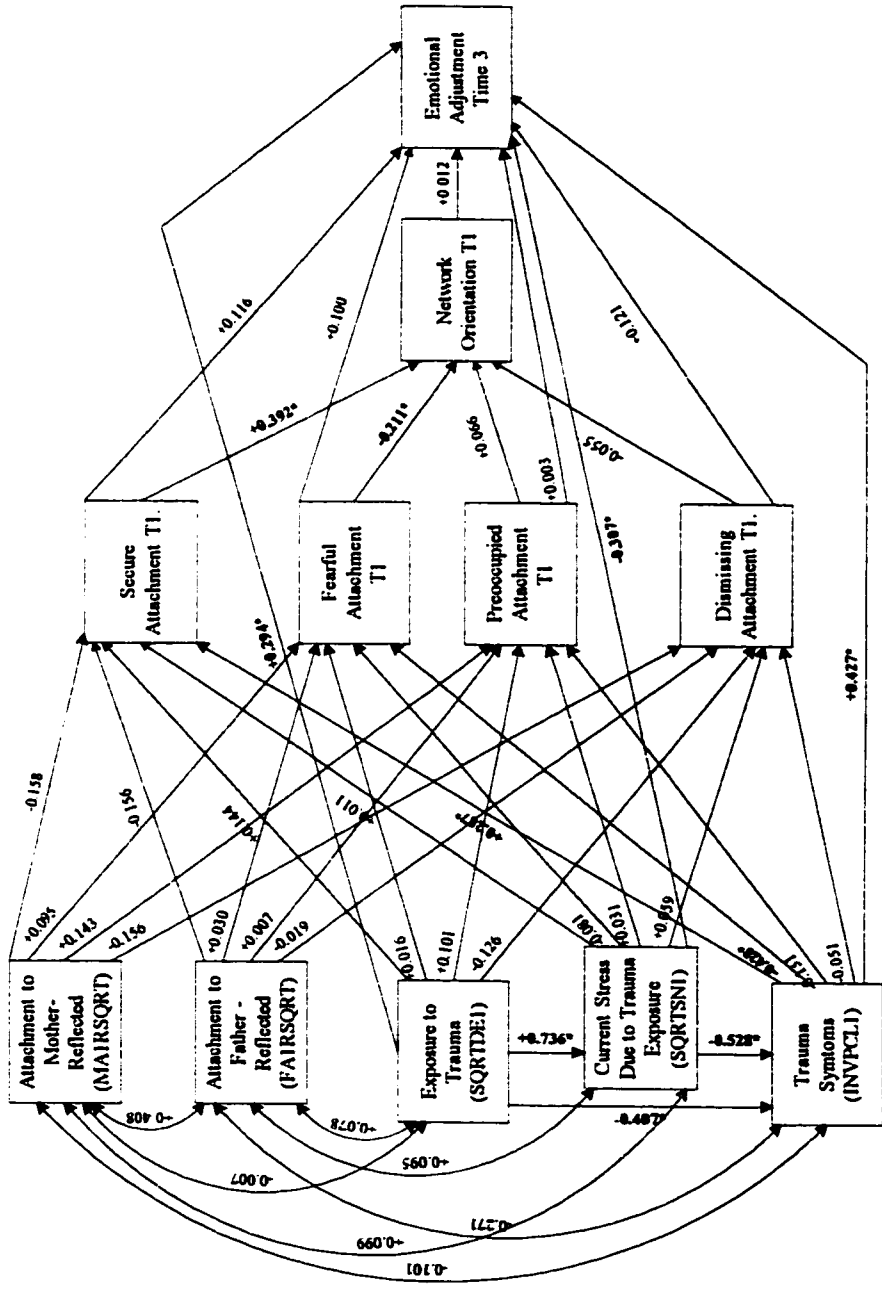


Figure J4. Full model of time 1 predictors, predicting Emotional Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. * = Significant at $p < .05$ or better.

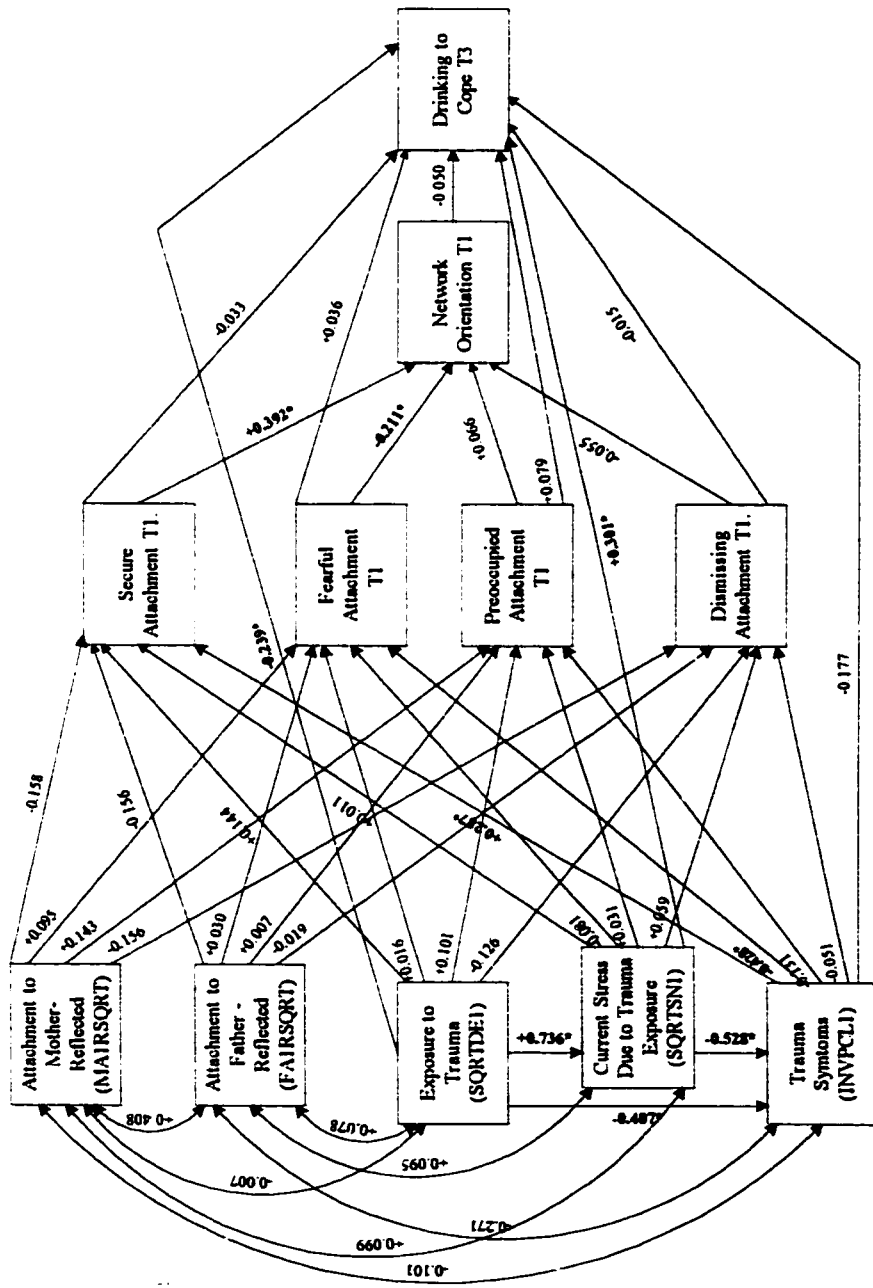


Figure J5. Full model of time 1 predictors, predicting Drinking to Cope at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

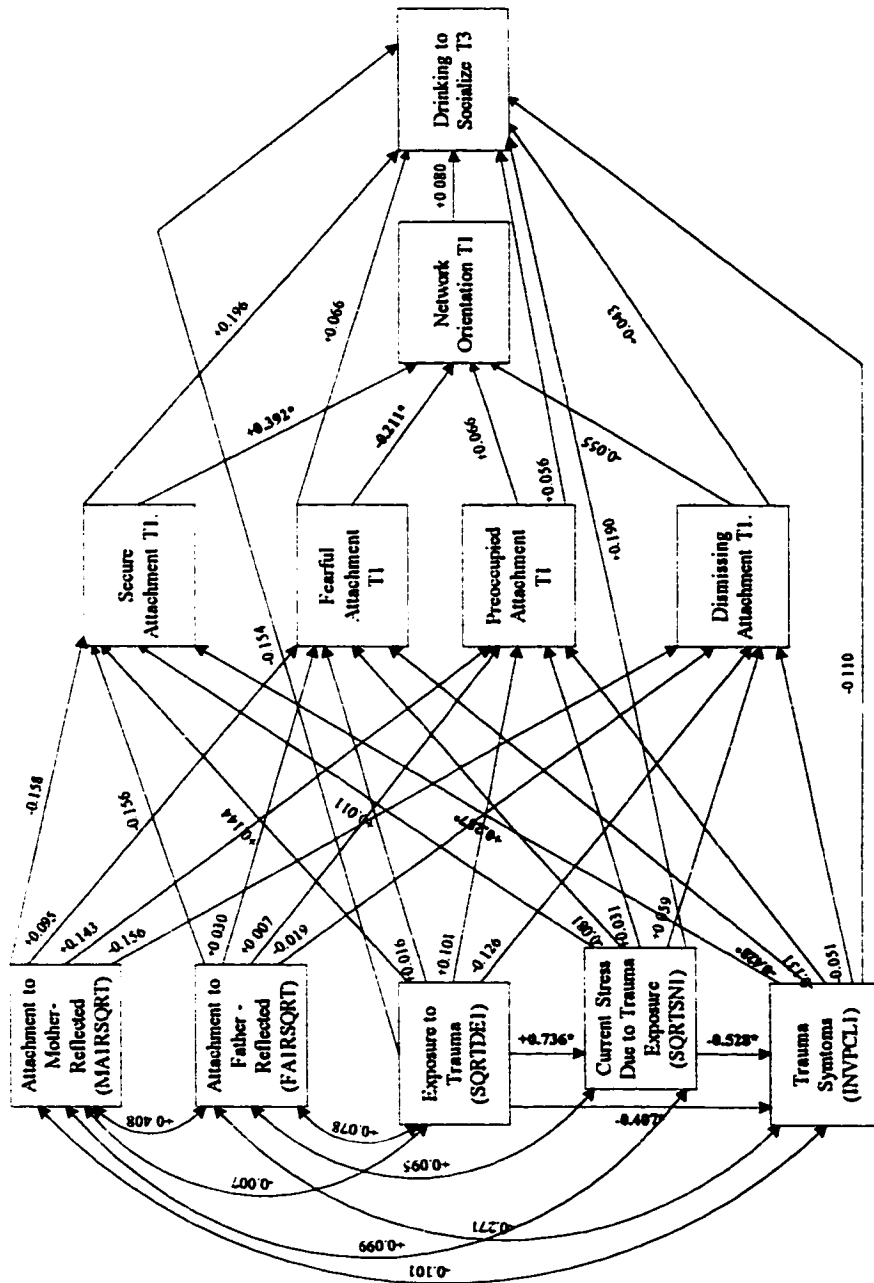


Figure J6. Full model of time 1 predictors, predicting Drinking to Socialize at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

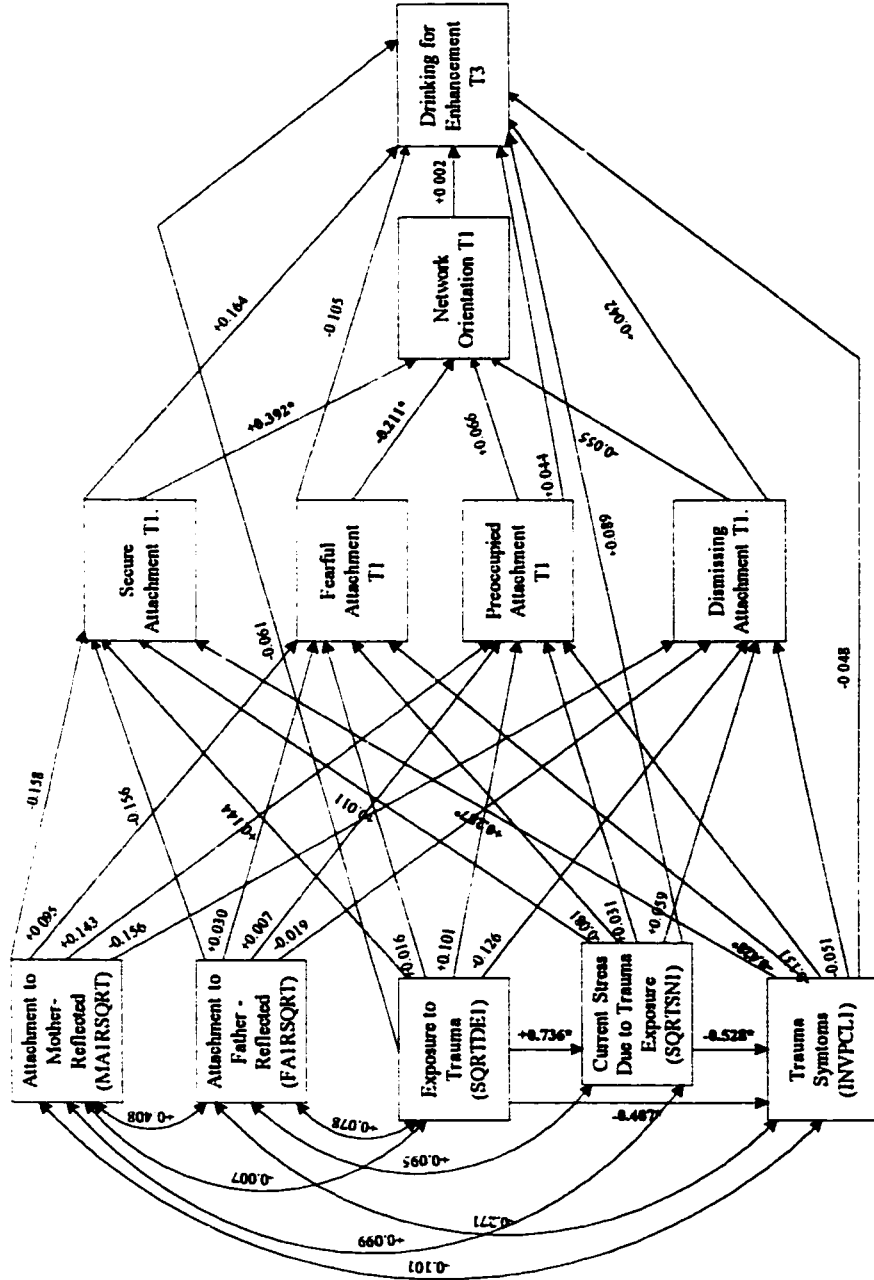


Figure 17. Full model of time 1 predictors, predicting Drinking for Enhancement at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

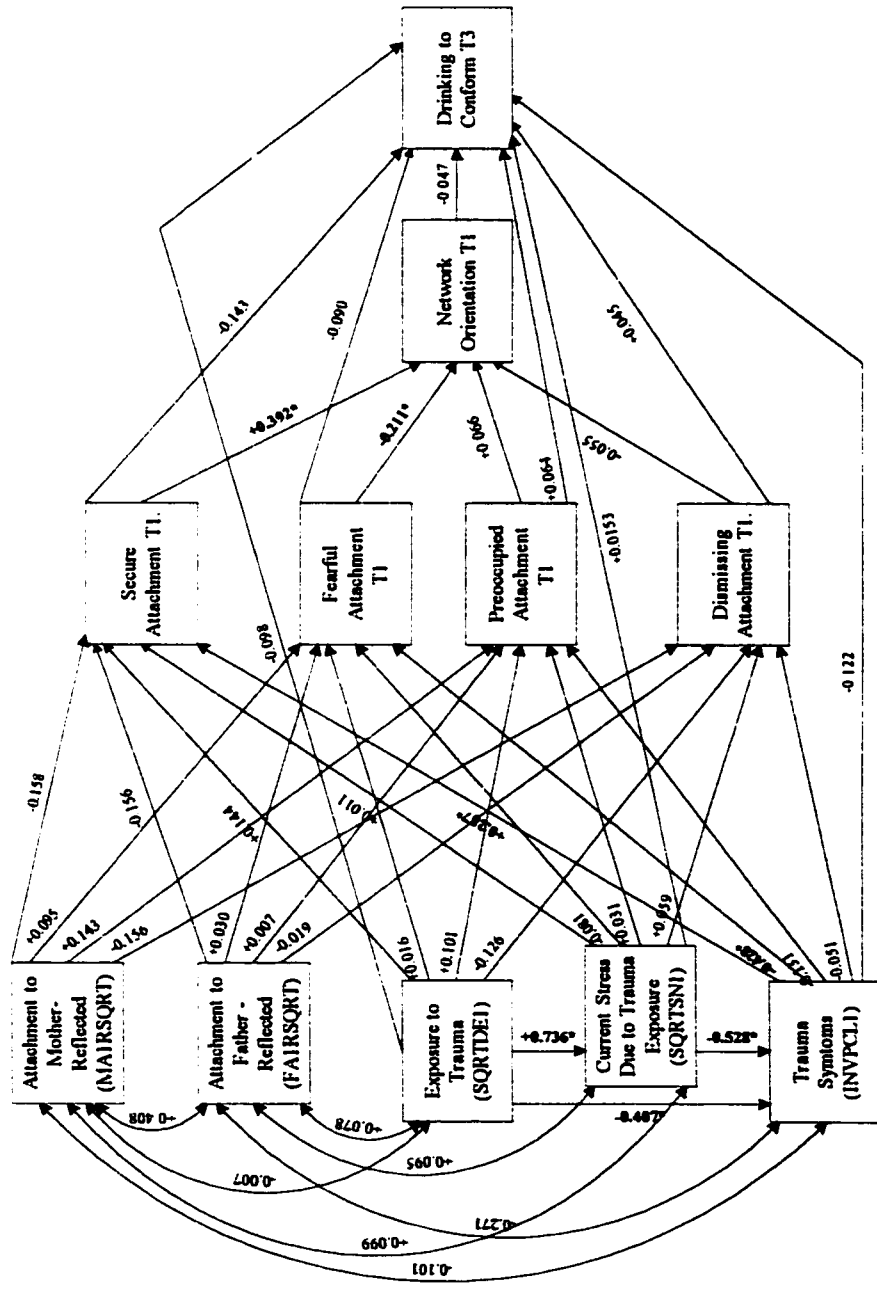


Figure J8. Full model of time 1 predictors, predicting Drinking to Conform at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < 0.05$ or better.

Appendix K.

Full Path Models of Time 2 Predictors, Predicting Time 3 Outcomes

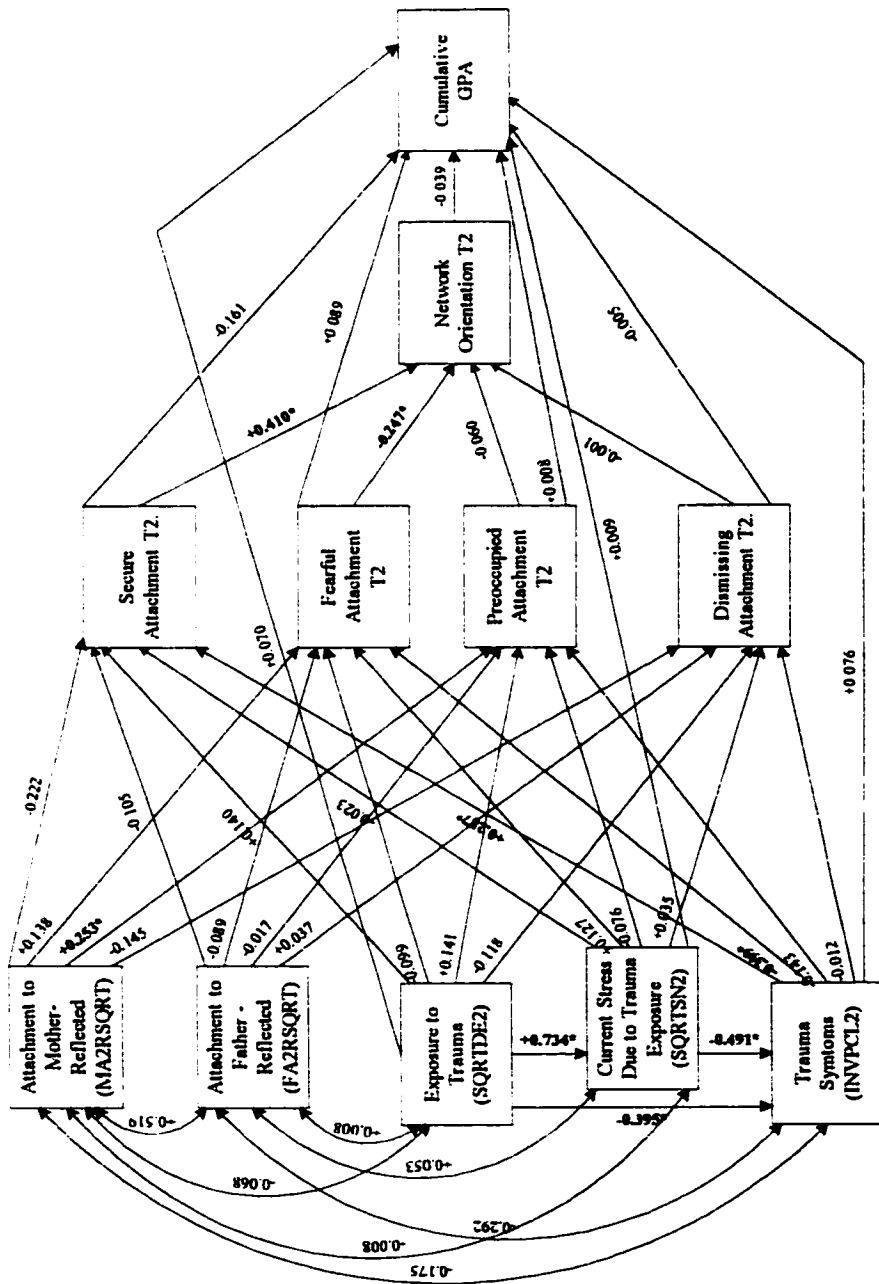


Figure K1. Full model of time 2 predictors, predicting Cumulative GPA. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

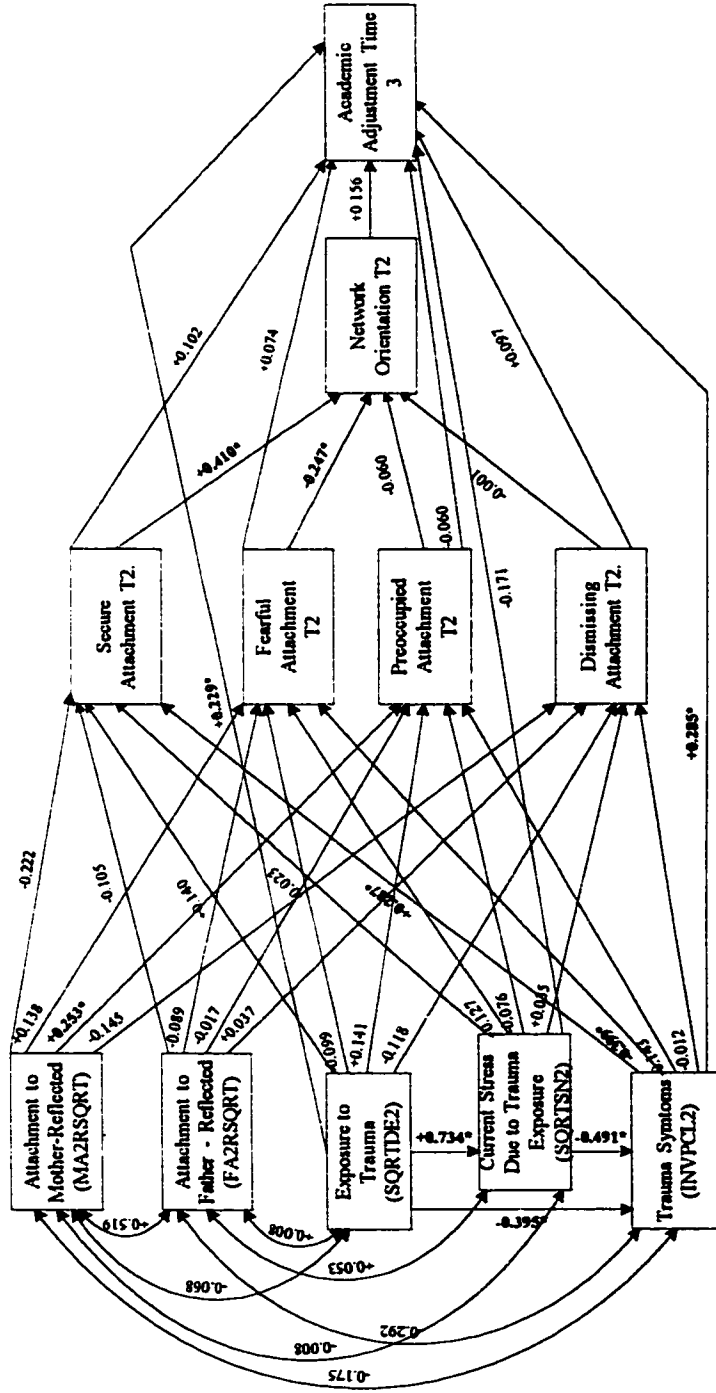


Figure K2. Full model of time 2 predictors, predicting Academic Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. * = Significant at $p < .05$ or better.

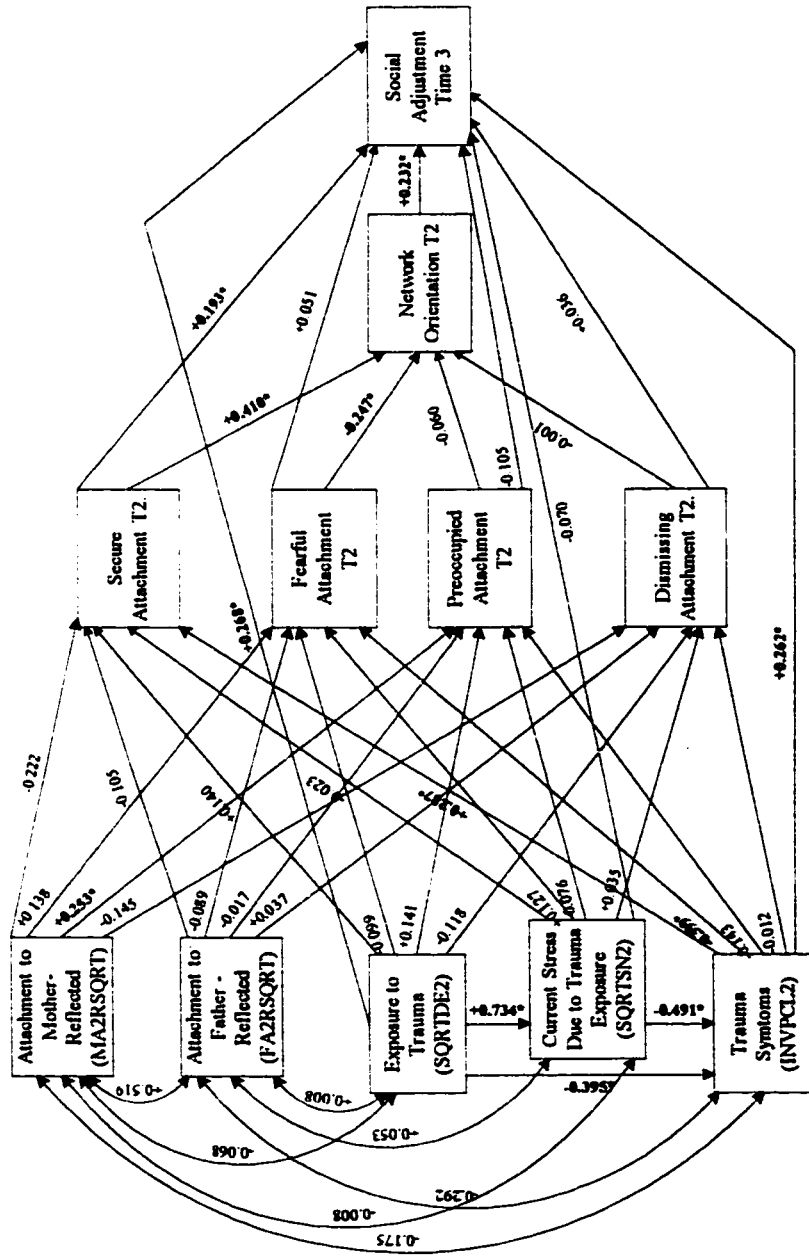


Figure K3. Full model of time 2 predictors, predicting Social Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

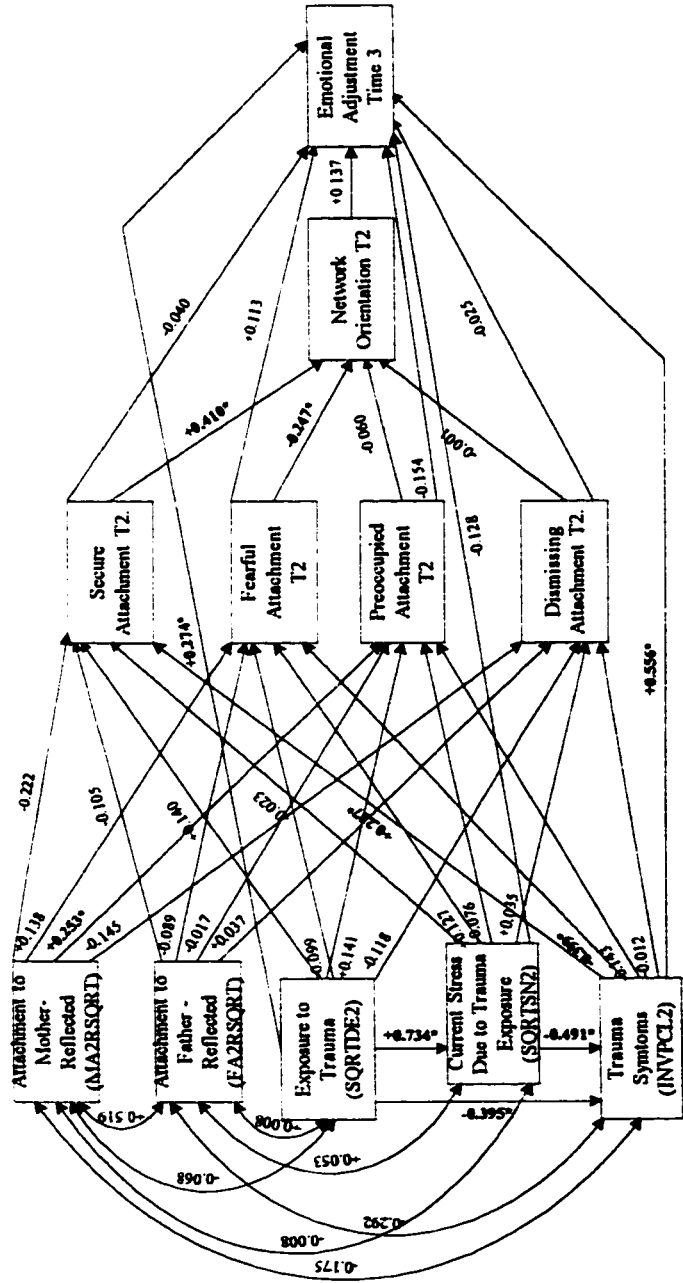


Figure K4. Full model of time 2 predictors, predicting Emotional Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at p < .05 or better.

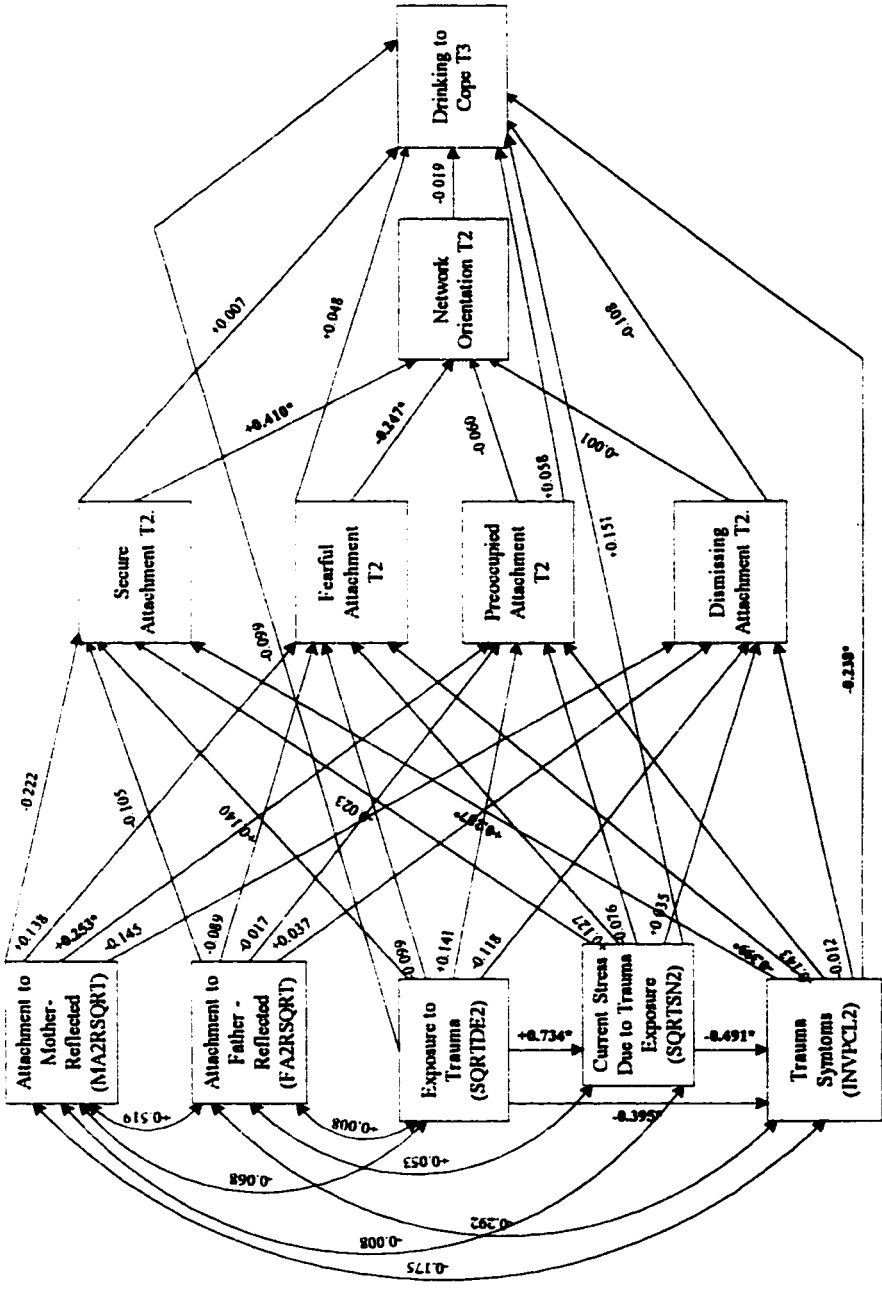


Figure K5. Full model of time 2 predictors, predicting Drinking to Cope at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

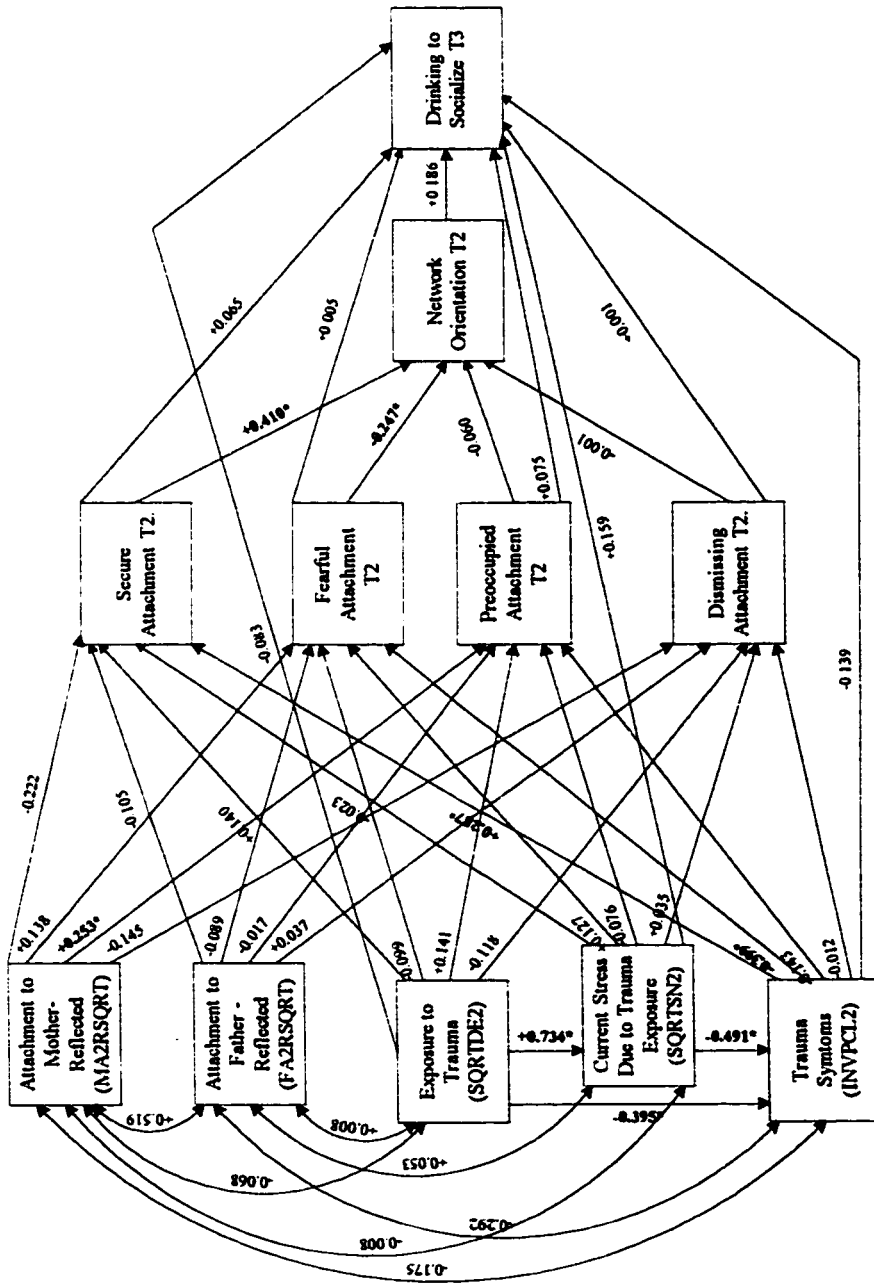


Figure K6. Full model of time 2 predictors, predicting Drinking to Socialize at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms. * = Significant at $p < .05$ or better.

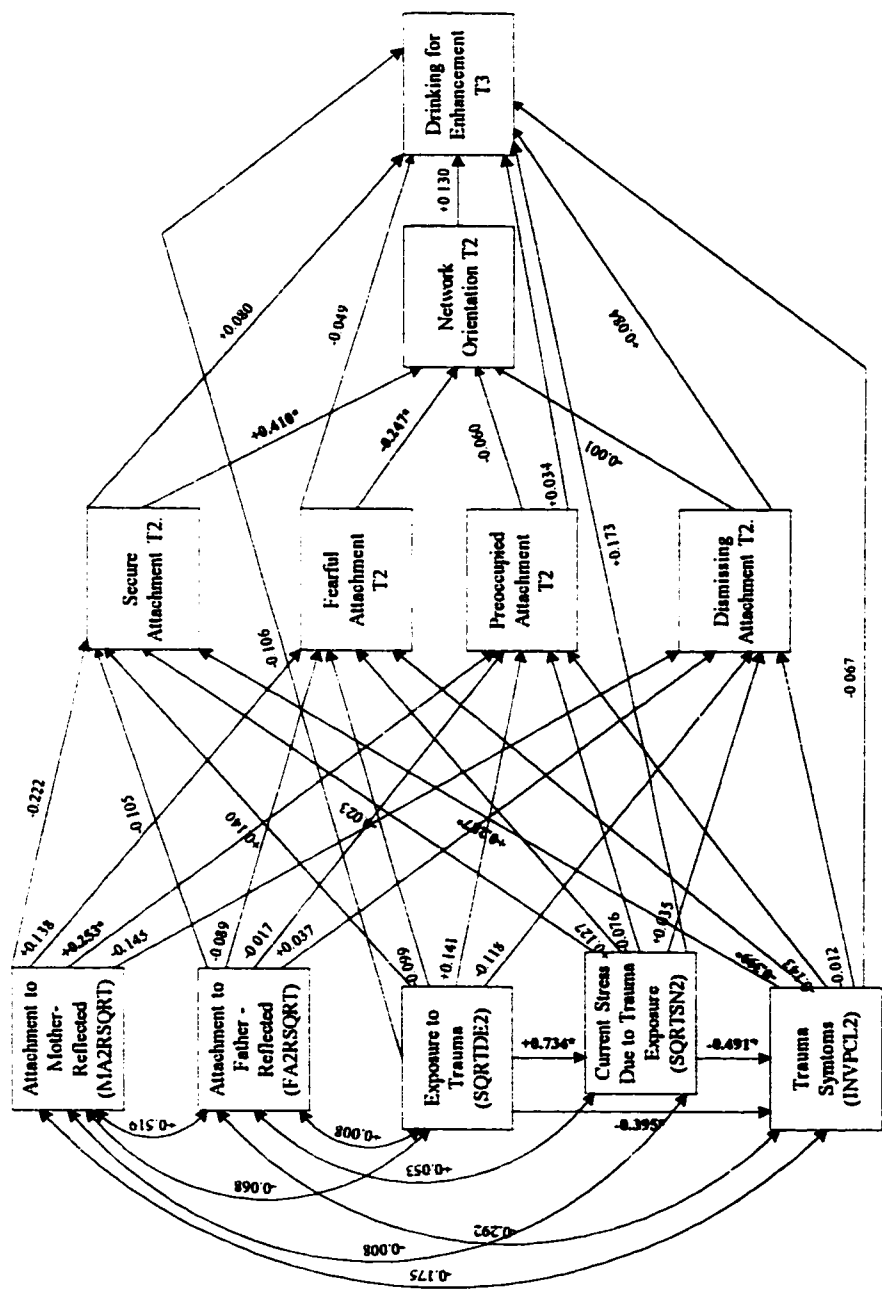


Figure K7. Full model of time 2 predictors, predicting Drinking for Enhancement at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.
 * = Significant at $p < .05$ or better.

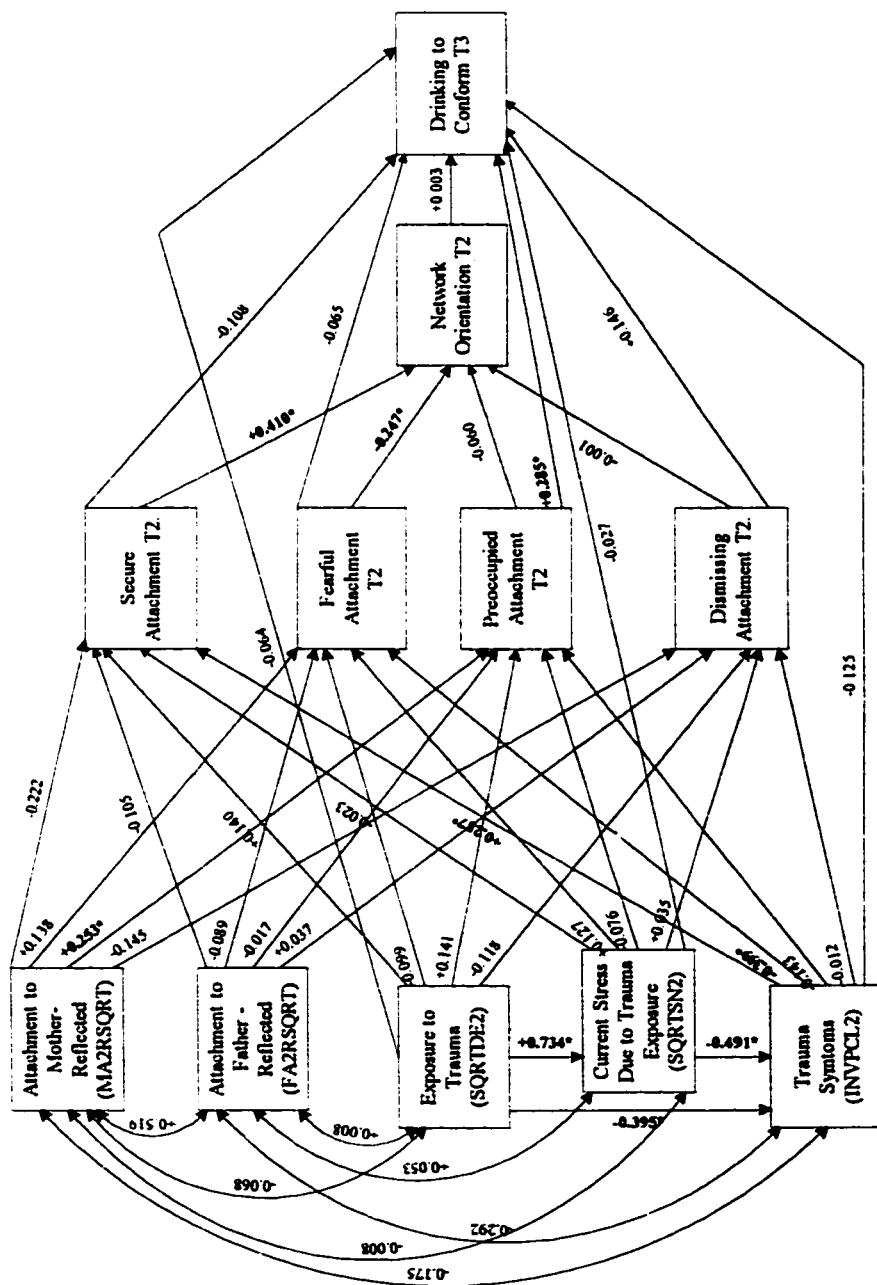


Figure K8. Full model of time 2 predictors, predicting Drinking to Conform at Time 3. Values shown are standardized Beta weights.

Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

Appendix L.

Full Path Models for Residuals Reflecting Changes in Scores between Time 1 and Time 2 on the predictor variables, Predicting Time 3 Outcomes

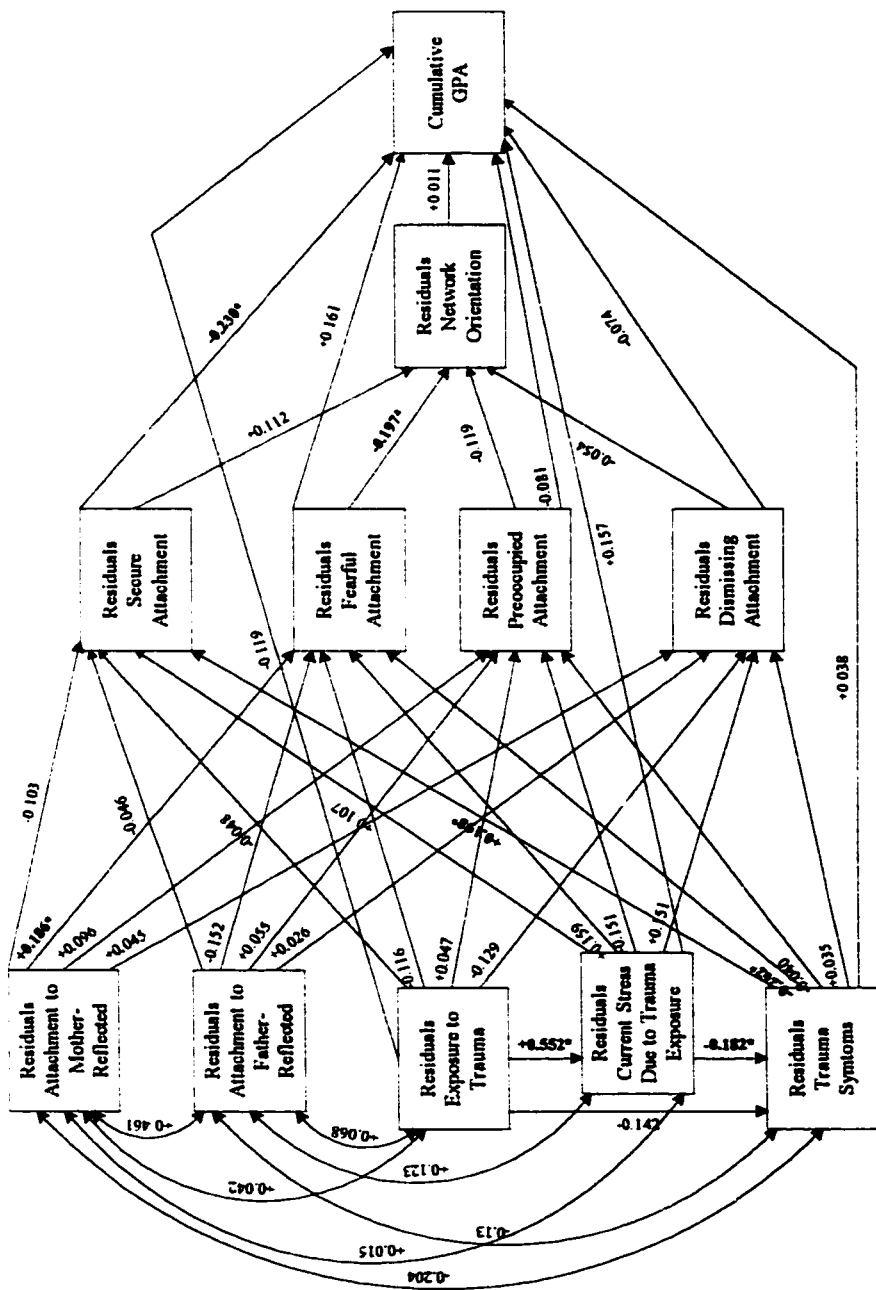


Figure L.1. Full model for residuals reflecting changes in scores on the predictor variables between time 1 and time 2, predicting Cumulative GPA. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.
 * = Significant at $p < .05$ or better.

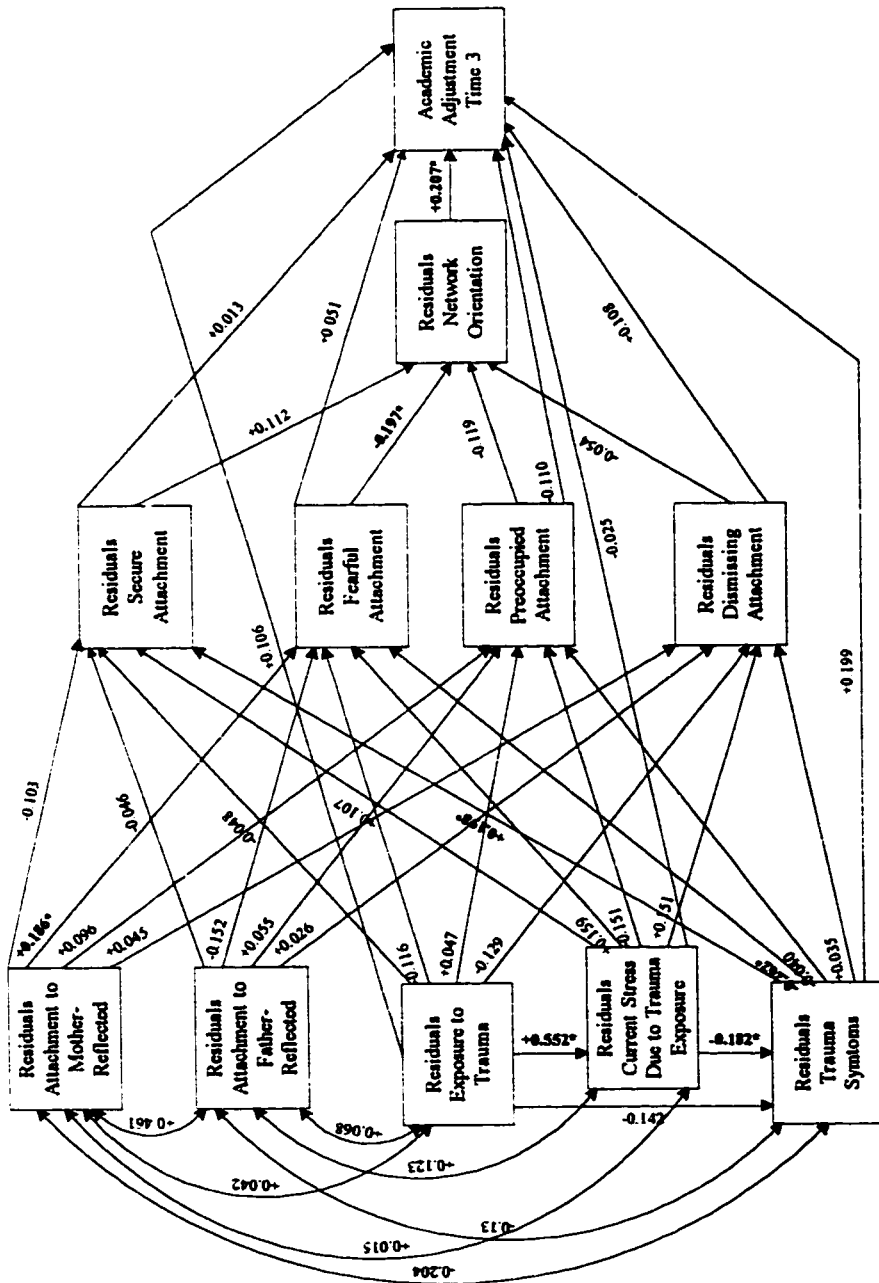


Figure 12. Full model for residuals reflecting changes in scores on the predictor variables between time 1 and time 2, predicting Academic Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.
 * = Significant at $p < .05$ or better.

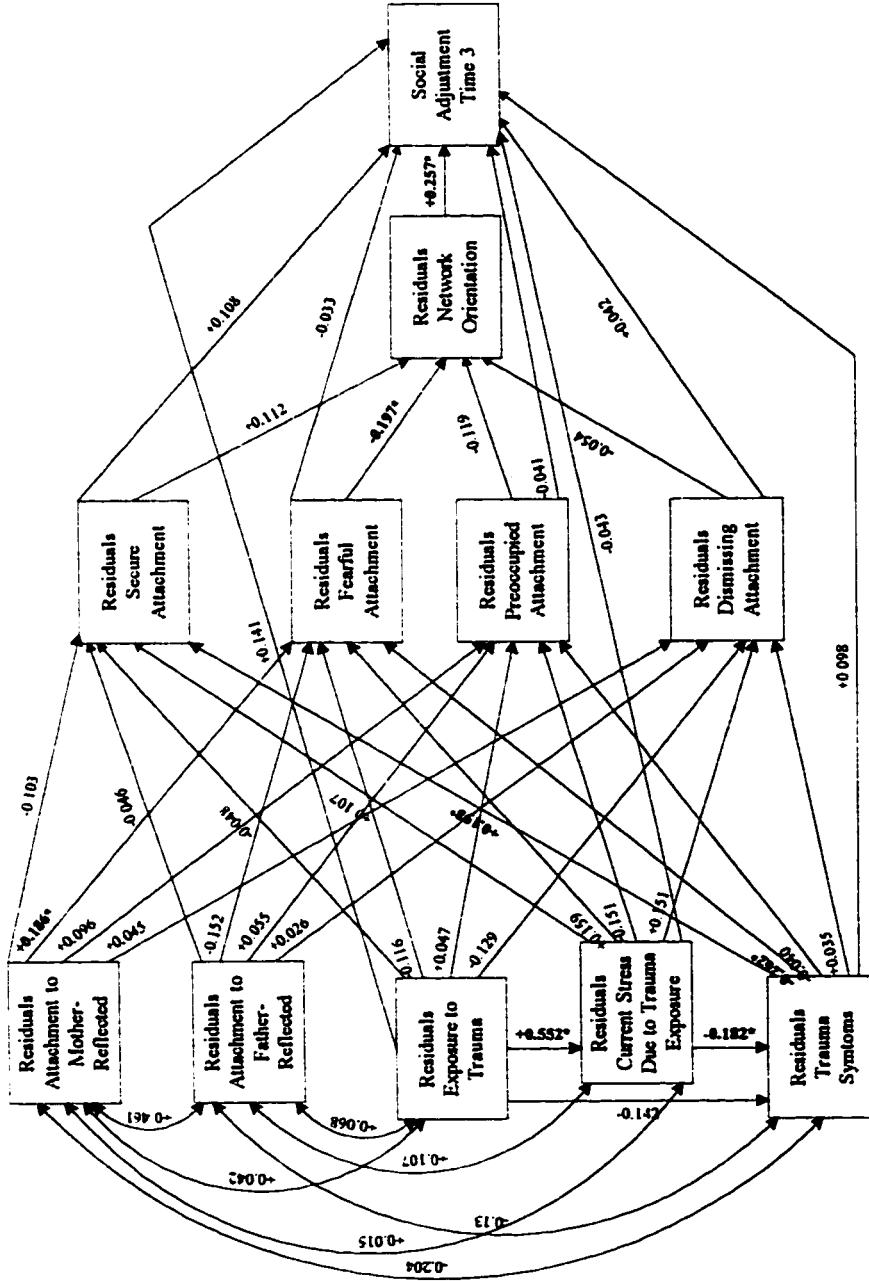


Figure 1.3. Full model for residuals reflecting changes in scores on the predictor variables between time 1 and time 2, predicting Social Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

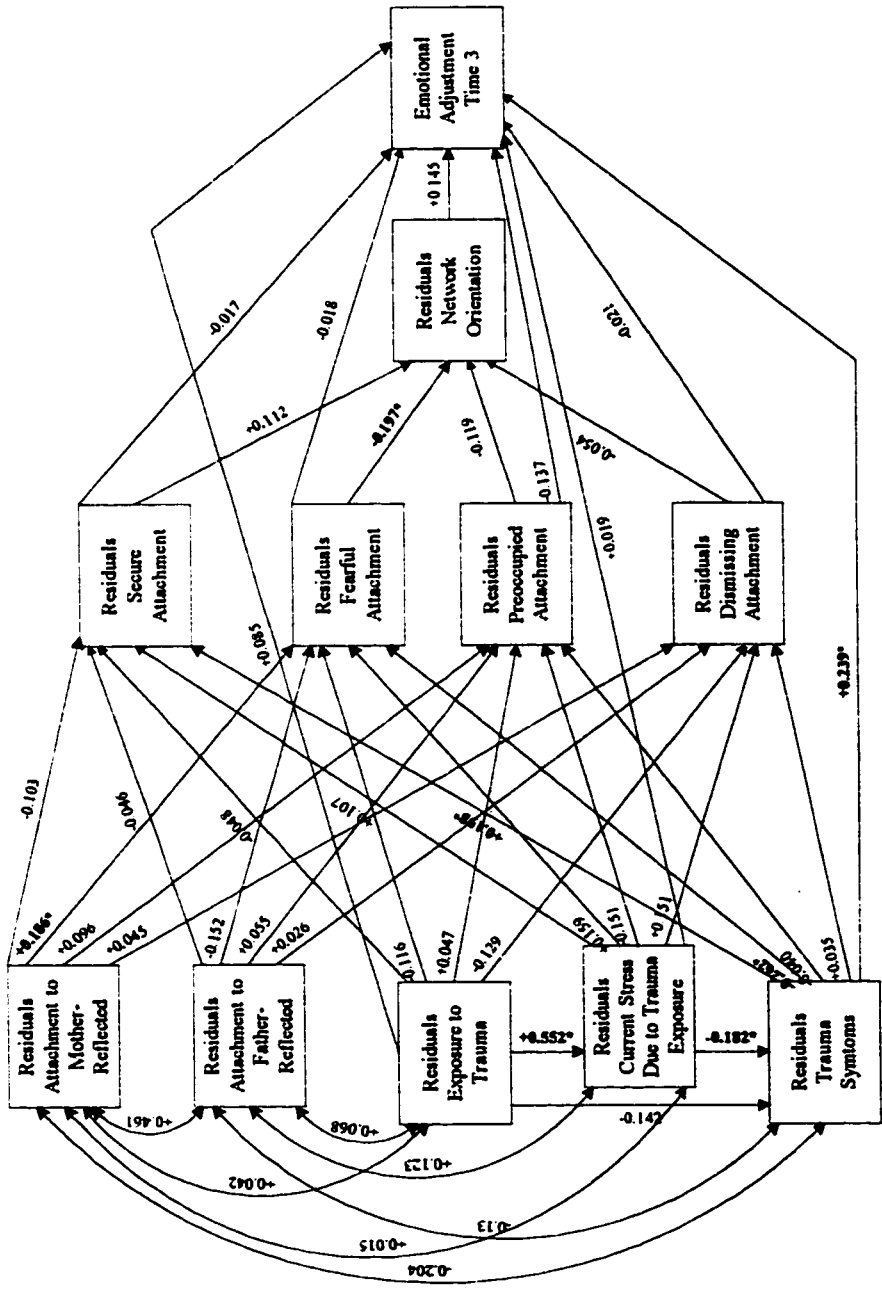


Figure 14. Full model for residuals reflecting changes in scores on the predictor variables between time 1 and time 2, predicting Emotional Adjustment at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < .05$ or better.

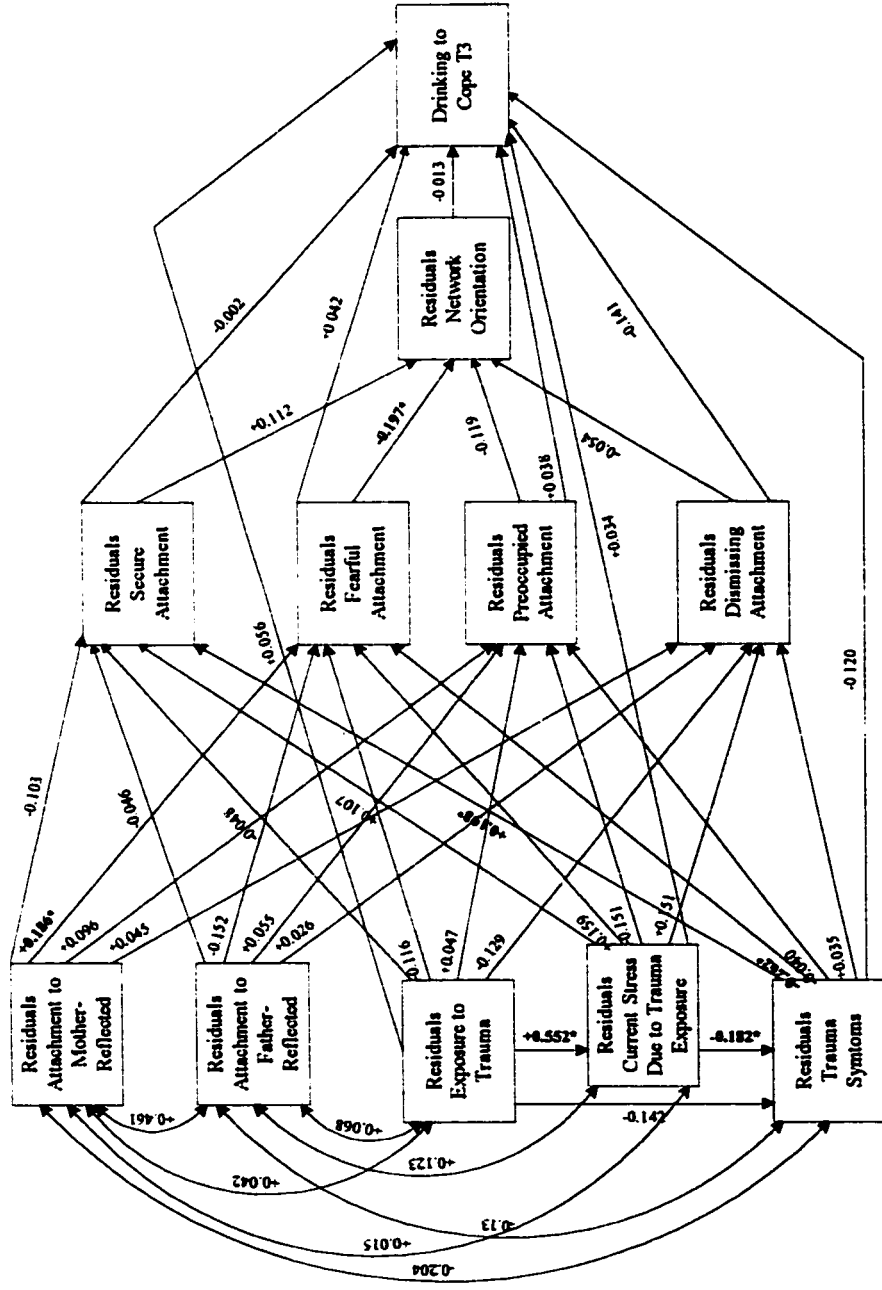


Figure L5. Full model for residuals reflecting changes in scores on the predictor variables between time 1 and time 2, predicting Drinking to Cope at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.
 * = Significant at $p < .05$ or better.

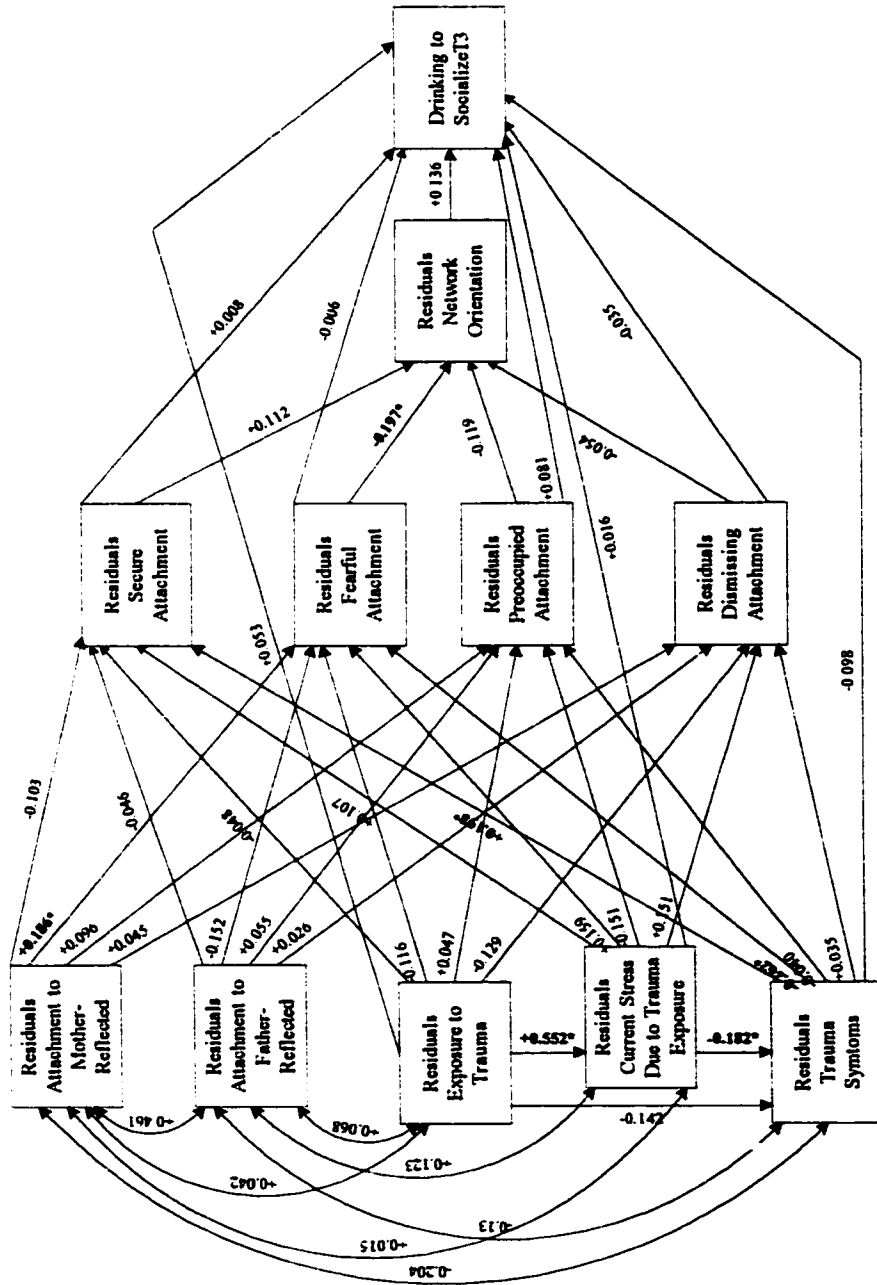


Figure L6. Full model for residuals reflecting changes in scores on the predictor variables between time 1 and time 2, predicting Drinking to Socialize at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.
 * = Significant at $p < .05$ or better.

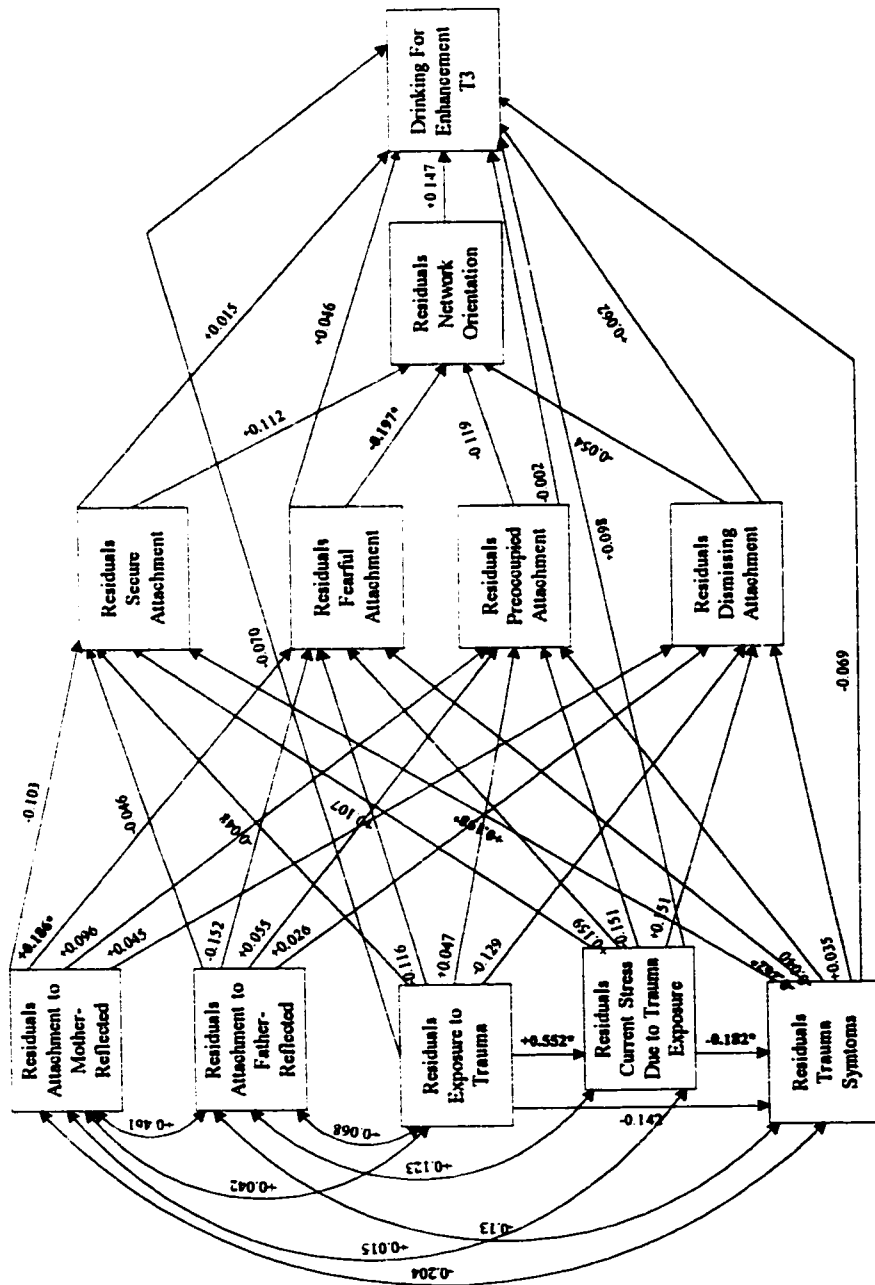


Figure L7. Full model for residuals reflecting changes in scores on the predictor variables between time 1 and time 2, predicting Drinking for Enhancement at Time 3. Values shown are standardized Beta weights. Due to reflection of scores in transformation, higher scores on Attachment to Mother and Father indicate less secure attachment. Due to inverse transformation, lower scores on Trauma Symptoms indicate higher reported levels of symptoms.

* = Significant at $p < 0.05$ or better.

Appendix M.

Correlations Between Predictor Variables at each Data Collection Period

Table M1.

Correlations Between Predictor Variables at Time 1

	MA-R SQRT	FA-R SQRT	DE SQRT	SN SQRT	INV PCL	SEC	FEAR	PRE	DISM
MA-R SQRT	1.000								
FA-R SQRT	0.408 **	1.000							
DE SQRT	-0.007	0.078	1.000						
SN SQRT	0.099	0.095	0.704 **	1.000					
INV PCL	-0.101	-0.271 **	-0.398 **	-0.499 **	1.000				
SEC	-0.256 **	-0.281 **	0.033	-0.067	0.281 **	1.000			
FEAR	0.155	0.156	0.08	0.152	-0.393 **	-0.576 **	1.000		
PRE	0.159	0.117	0.18 *	0.178 *	-0.204 **	-0.257 **	0.133	1.000	
DISM	-0.152	-0.074	-0.065	-0.021	-0.009	-0.01	0.186 *	-0.433 **	1.000
NOS	-0.283 **	-0.215 **	0.017	-0.015	0.230 **	0.497 **	-0.438 **	-0.039	-0.127

Note. $n = 149$. MA-R SQRT: Attachment to Mother (reflect and square root transformation); FA-R SQRT: Attachment to Father (reflect and square root transformation); DE SQRT: Exposure to Trauma (square root transformation); SN SQRT: Current Stress Due to Trauma Exposure (square root transformation); INV PCL: Trauma Symptoms (inverse transformation); SEC: Secure Attachment Style; FEAR: Fearful-Avoidant Attachment Style; PRE: Preoccupied Attachment Style; DISM: Dismissing-Avoidant Attachment Style; NOS: Network Orientation.
** $p < .01$, * $p < .05$

Table M2.

Correlations Between Predictor Variables at Time 2

	MA-R SQRT	FA-R SQRT	DE SQRT	SN SQRT	INV PCL	SEC	FEAR	PRE	DISM
MA-R SQRT	1.000								
FA-R SQRT	0.408 **	1.000							
DE SQRT	-0.068	0.008	1.000						
SN SQRT	0.008	0.053	0.709 **	1.000					
INV PCL	-0.175 *	-0.292 **	-0.382 **	-0.5 **	1.000				
SEC	-0.336 **	-0.304 **	0.028	-0.071	0.315 **	1.000			
FEAR	0.167 *	0.105	0.134	0.251 **	-0.423 **	-0.544 **	1.000		
PRE	0.260 **	0.153	0.125	0.093	-0.198 *	-0.265 **	0.197 *	1.000	
DISM	-0.116	-0.034	-0.079	-0.04	-0.03	0.006	0.215 **	-0.389 **	1.000
NOS	-0.393 **	-0.416 **	0.036	-0.089	0.202 *	0.561 **	-0.483 **	-0.218 **	-0.028

Note. $n = 149$. MA-R SQRT: Attachment to Mother (reflect and square root transformation); FA-R SQRT: Attachment to Father (reflect and square root transformation); DE SQRT: Exposure to Trauma (square root transformation); SN SQRT: Current Stress Due to Trauma Exposure (square root transformation); INV PCL: Trauma Symptoms (inverse transformation); SEC: Secure Attachment Style; FEAR: Fearful-Avoidant Attachment Style; PRE: Preoccupied Attachment Style; DISM: Dismissing-Avoidant Attachment Style; NOS: Network Orientation. ** $p < .01$, * $p < .05$

Table M3.

Correlations Between Residual Predictor Variables Reflecting Changes in Scores between Time 1 and Time 2

	MA-R SQRT	FA-R SQRT	DE SQRT	SN SQRT	INV PCL	SEC	FEAR	PRE	DISM
MA-R SQRT	1.000								
FA-R SQRT	0.461 **	1.000							
DE SQRT	0.042	0.068	1.000						
SN SQRT	0.015	0.123	0.556 **	1.000					
INV PCL	-0.204 *	-0.130	-0.108	-0.176 *	1.000				
SEC	-0.159	-0.108	-0.011	0.038	0.210 *	1.000			
FEAR	0.174 *	-0.02	-0.006	0.125	-0.295 **	-0.320 **	1.000		
PRE	0.136	0.094	-0.011	-0.109	-0.054	-0.176 *	0.126	1.000	
DISM	0.056	0.056	-0.045	0.077	0.002	-0.108	0.195 *	-0.120	1.000
NOS	-0.353 **	-0.276 **	0.088	0.000	0.103	0.202 *	-0.258 **	-0.157	-0.090

Note. $n = 149$. MA-R SQRT: Attachment to Mother (reflect and square root transform); FA-R SQRT: Attachment to Father (reflect and square root transformation); DE SQRT: Exposure to Trauma (square root transformation); SN SQRT: Current Stress Due to Trauma Exposure (square root transformation); INV PCL: Trauma Symptoms (inverse transformation); SEC: Secure Attachment Style; FEAR: Fearful-Avoidant Attachment Style; PRE: Preoccupied Attachment Style; DISM: Dismissing-Avoidant Attachment Style; NOS: Network Orientation.
** $p < .01$, * $p < .05$