Understanding the Relation among Stressful Life Events, Attachment and Adjustment in Adolescence

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ABSTRACT

Understanding the Relation among Stressful Life Events, Attachment and Adjustment in Adolescence

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Previous research has established that stressful life events are strongly linked with negative adjustment indices in adolescence (e.g., Compas & Phares, 1991; Kim, Conger, Elder, & Lorenz, 2003; Waaktaar, Borge, Fundingsrud, Christie, & Torgersen, 2004). Less is known about how different types of life stressors (i.e., dependent versus independent) impact adjustment over time for normative populations of adolescents. An important area for exploration is that of protective/vulnerability factors in adolescents who have endured stressful life events. A promising area of exploration is the moderating role of the adolescent-mother attachment relationship as a protective factor against stressful life events. Relatively little attention has been paid to distinguishing between negative and positive adjustment outcomes in exploring these associations. The purpose of this short-term longitudinal study was to investigate the role of attachment quality in the associations between stressful life events (dependent and independent) and adjustment outcomes (positive and negative) with a normative population of adolescents. Multilevel modeling was used to examine these interrelationships and adjustment growth curves.

A total of 183 adolescents (n = 96 girls; *M* age (entire sample) at T1 = 13.0 years, *SD* = 0.72; *M* age at T3 = 14.8 years, *SD* = 0.66) completed an attachment questionnaire, a stressful life events scale, and negative adjustment (depressive symptoms, delinquency) and positive adjustment (responsive caregiving, positive affect) questionnaires. Results indicated that both types of life stressors were important predictors of positive and

negative adjustment outcomes. Consistent with previous findings, dependent life events were more strongly linked with depressive symptoms than independent life events. Independent life stress in interaction with attachment was significantly associated with changes in adjustment over time. Protective combinations of attachment with life stressors included lower attachment anxiety with higher independent life stress, which was associated with higher positive affect. More vulnerable combinations included higher attachment avoidance with higher attachment anxiety which was associated with the highest increase in delinquency over time. Results support the importance of specificity of life stressors and specificity of types of adjustment outcomes. Implications for adolescent intervention and prevention programs are discussed.

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Introduction

Adolescence is a crucial developmental period that encompasses numerous types of changes, including physical, intellectual, psychosocial, emotional and environmental (Compas & Wagner, 1991; Petersen, Kennedy, & Sullivan, 1991; Steinberg, 1996). This life stage often involves exposure to many new experiences and challenges, some of which have been shown to have distinct associations with adolescents' adjustment (e.g., Rudolph, Hammen, Burge, Lindberg, Herzberg, & Daley, 2000). A substantial body of research supports the conclusion that stressful life events and negative adjustment indices in adolescence are associated (e.g., Compas & Phares, 1991; Jackson & Warren, 2000; Kim, Conger, Elder, & Lorenz, 2003; Leadbeater, Kuperminc, Blatt, & Hertzog, 1999; Vaux & Ruggiero, 1983; Waaktaar, Borge, Fundingsrud, Christie, & Torgersen, 2004). There remain many important questions about the relationship between stressful life events and adolescent adjustment, such as the factors underlying vulnerability/protection in those who have endured stressful life events. A promising area of exploration is the potential moderating role of adolescent-mother attachment quality in the relationship between stressful life events and adjustment. Although research strongly supports the importance of attachment across an individual's development (e.g., Sroufe & Rutter, 1984), relatively little attention has been paid to the role of attachment in the relation of stress to *positive* as well as negative adjustment outcomes. There is also a need to begin identifying how adolescents change differently in adjustment over time. The purpose of the present study was to fill these research gaps by exploring the moderating role of adolescent-mother attachment quality in the relationship between stressful life events and a range of negative and positive adjustment measures collected over three time points,

across a two-year time period during adolescence. A normative adolescent population was assessed in the present study. Specifically, hierarchical linear modeling (HLM; Bryk & Raudenbush, 1987) was used to examine individual and group trajectories of change in adjustment outcomes.

Vulnerability, Protective Factors and Resilience

Rutter (1987) states that *vulnerability* factors (e.g., insecure attachment relationship to a parent) are those that intensify a reaction to a factor that in typical situations leads to a maladaptive outcome. Alternatively, *protective* factors (e.g., secure attachment relationship to a parent) are those which decrease the likelihood of negative outcomes. The critical defining feature of vulnerability and protective mechanisms is a modification of the individual's response to the stressful situation (Rutter, 1987). The core of the concept is that the vulnerability or protective effect is evident only in combination with the risk variable (Rutter, 1987). Both vulnerability and protective factors can affect the level of risk an individual experiences or can regulate the relationship between the risk (e.g., life stressor) and the outcome (Jessor, 1993). In this manner, vulnerability and protection are the negative and positive poles of the same concept (Stouthamer-Loeber, Loeber, Farrington, Zhang, van Kamman, & Maguin, 1993).

An issue related to vulnerability and protective factors is the notion of *resilience.* There is little consensus on the definition of resilience (Luthar, Cicchetti & Becker, 2000); it has been conceptualized in many differing ways (e.g., Garmezy, Masten, & Tellegen, 1984; Masten, 2001; Rutter, 1999). At the heart of these conceptualizations is a recognition that for all types of stressful life events there is great variation in how people

respond (Rutter, 2003). Resilience has been defined as "the process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances" (Masten, Best, & Garmezy, 1990, p. 426). Unlike typical resilience studies, the present study did not focus on an at-risk sample. Thus, the present study was not a study of resilience per se but the resiliency framework is helpful in interpreting the study's findings.

It has been argued that a significant contribution of the resilience framework is the attention it brings to positive outcomes, resulting in a more comprehensive approach to assessment and intervention (Masten & Powell, 2003). The field of positive psychology (Seligman & Csikszentmihalyi, 2000) represents the scientific pursuit of optimal well-being as it explores the factors which promote positive outcomes and personal strengths. The premise of Positive Psychology is that if individuals engage in positive thinking and feeling and minimize their preoccupation with the stressful side of life, they will enhance their well-being (Lazarus, 2003). Researchers must be able to understand what promotes positive outcomes in addition to focusing solely upon what produces negative adjustment outcomes. Lazarus (2003) believes that the role of stress and adversity are regularly undervalued in the development of personal strengths. Research has shown that individuals who are satisfied with life tended to be more resistant to stress (Frisch, 2000).

Rutter (1987) states that protective factors are "highly robust predictors of resilience" and "likely to play a key role in the processes involved in people's response to risk circumstances..." (pp. 316-317). He states that we need to emphasize protective mechanisms in trying to understand how some individuals continue to experience

positive adjustment while others experience negative adjustment when facing the same stressors. Relatively little is known about protective mechanisms that shield adolescents from the effects of stress (Herman-Stahl & Petersen, 1996). However, the resilience literature strongly suggests a focus upon some basic protective systems for human development, such as the attachment system (Masten & Powell, 2003). Attachment is relevant given that it has been argued that the foundation of a developmental history of positive adaptation is a sensitive and emotionally responsive early caregiving relationship. Secure attachment relationships promote the development of adolescents' positive expectations of self and others as agents of change within the world.

Decades of research have clearly illustrated that resilient adaptation rests on good relationships (Luthar & Zelazo, 2003). Secure parent-child attachment relationships, for instance, are associated with the growth of effective coping skills, which can help children in coping with various life stressors later in life (Luthar & Zelazo, 2003). This point was evidenced by Sroufe and colleagues (1990) who identified two groups of high-risk pre-school children, both of whom consistently exhibited poor adaptation with respect to the key issues of the preschool period (i.e., flexible problem solving, self-management, curiosity). These two groups of children, however, differed with respect to the quality of their prior functioning. That is, the children with early histories of secure attachment in infancy and supportive care in the first two years of life displayed a heightened ability to recover from a period of poor adaptation in comparison to the children who had not evidenced early positive adaptation (Sroufe, Egeland, & Kreutzer, 1990). The authors partly interpreted the study's results within Bowlby's (1973, 1980) attachment framework wherein adaptation is understood to be a consequence of both

developmental history and current life events. Attachment effects in normative samples are typically relatively small (e.g., Karavasilis, Doyle, & Markiewicz, 2003); thus it was expected that attachment would serve as a moderator in the present study. More specifically, stronger associations were expected between higher levels of secure attachment quality to mother with lower negative adjustment when faced with higher levels of stressful life events.

Researchers have acknowledged the reciprocal effects between stress and adjustment in a transactional model (Caspi, Elder, & Bem, 1987; Compas & Phares, 1991; Hammen, 1991; Rudolph, Hammen, Burge, Lindberg, Herzberg, & Daley, 2000). The transactional model appreciates that the course of adolescent development depends on mutual effects of stress and adjustment across different time points. In other words, an adolescent's behaviour at any point in time is a product of the transactions between the phenotype (i.e., the adolescent), the environtype (i.e., source of external experience) and the genotype (i.e., source of biological organization) (Sameroff, 2000). Doyle and Markiewicz's (2004) study, with a normative sample of young adolescents, found stronger support for the influence of experiences (specifically parenting) on adjustment over the reverse direction. Their study examined the reciprocal relations over two years of three dimensions of parenting, marital conflict and attachment style with adjustment. Their findings revealed that parenting and attachment had a greater impact upon adolescent adjustment (including depressive symptoms and delinquency) than the adjustment variables had on parenting (Doyle & Markiewicz, 2004). The present study solely assessed the association of stressful life events with adjustment outcomes over time.

Stressful Life Events

The social environment has long been believed to play a role in the development of behavioural and emotional problems. Stressful life events represent a promising link between social environment and adolescent adjustment (e.g., Monroe & Hadjiyannakis, 2002). Rudolph and colleagues' (2000) work provided support for the specific role of certain predictors (i.e., types of stress) with specific outcomes (i.e., types of psychopathology). However, since their study assessed a sample of clinic-referred youngsters (ages 8-18 years), their findings might not be representative of children in the community with similar disorders (Goodman et al., 1997).

Adolescence is fraught with stressful life events (Rudolph et al., 2000) which can be categorized into *dependent* and *independent* life events. Hammen (1991) made a distinction between independent and dependent stressors. Independent life events refer to events beyond one's control (e.g., parent getting sick or dying, parent losing a job). Dependent life events refer to events that are self-generated and thus reflect events related to a person's own behaviour (e.g., getting into drugs, fighting with parents). The importance of categorizing life stressors into independent and dependent life events is strongly suggested given that dependent life events, but not independent ones, have been shown to be associated with depression (e.g., Daley et al., 1997; Rudolph et al., 2000). Thus, it appears that different types of life stressors exhibit differential effects upon adjustment outcomes.

In addition to categorizing the type of stressful life event, researchers have also focused on the importance of assessing cumulative risk factors in a person's life; typically a sequence of stressful experiences rather than a single event constitute a risk

factor (Garmezy & Masten, 1994; Sameroff & Seifer, 1983). Within both categories of life stressors (independent and dependent) in the present study there is a continuum of life event experiences from low to high severity.

Research on life stress flourished in the late 1960s and 1970s due to the methodological advances in the measurement of life events. The pioneering researchers were Holmes and Rahe (1967) who devised the Social Readjustment Rating Scale (SRRS). The SRRS introduced the idea of measuring individual differences in exposure to life stressors in an objective way. The SRRS consists of 43 life events (commonly reported as stressful life events) that are administered in a self-report checklist. Each item has a weight assigned to it that reflects the amount of adjustment required by each life change item, represented by the life change units (LCU). The LCUs were derived by asking a standardization sample to gauge how much life disruption would ensue from a particular event. Holmes and Rahe's (1967) original view of stress focused on the occurrence of change and ignored the positive or negative valence of the events. Change was viewed as the source of stress, regardless of a specific change's desirability. The initial idea behind the use of a checklist approach to study stressful life events and the system of weighting each life event hypothesized that one's level of experienced stress was represented in the cumulative amount of change or readjustment created by the life events (Holmes & Rahe, 1967). Use of un-weighted life events is unhelpful as it inherently puts the life events literature in the position of suggesting that there are no differences in impact potential across events (Zimmerman, 1983).

Thirteen years after the introduction of the SRRS, Yeaworth, York, Hussey, Ingle, and Goodwin (1980) developed the Adolescent Life Change Event Scale (ALCES) to

assess 31 personal, social and family changes believed to be stressful to adolescents (Yeaworth et al., 1980). Their checklist format scale was normed on adolescents ranging in age from 11-18 years. Both Holmes and Rahe's (1967) and Yeaworth and colleagues' (1980) stressful life event scales used LCUs that were based upon a standardization sample. The measure of life stressors used in the present study allows us to apply normative weightings to the items (similar to the Holmes and Rahe (1967) and Yeaworth and colleagues' (1980) measures) as well as to differentiate between independent and dependent life events.

Understanding the role of stressful life events in adolescents' adjustment is critical considering that early life experiences are formative for future positive or negative adjustment (e.g., Harrington, Rutter, & Fombonne, 1996). There appears to be a lack of an association between independent stress and psychopathology (e.g., Rudolph et al., 2000). For instance, as previously noted, depression is associated with dependent but not independent life events (e.g., Hammen, 1991; Rudolph et al., 2000). Further, in a study using a life-event checklist, differences were found in the occurrence of dependent (but not independent) life events in depressed adolescents but not in non-depressed, healthy adolescents (Williamson, Birmaher, Anderson, Al-Shabbout, & Ryan, 1995). Thus, the present study examined whether these findings derived primarily from clinical samples would hold true in a normative adolescent population. In regards to the quantity of life event experiences, many researchers have found that cumulative life stress increases the risk for adjustment problems in adolescents (Jackson & Warren, 2000; Garmezy, 1993; Kessler, Gillis-Light, Magee, Kendler, & Eaves, 1997; Rutter, 2000). Many of these researchers neglected, however, to place these stressors into different

categories of stress. Further, there is a paucity of research exploring the role of specific life stressors in adjustment in normative adolescent samples.

Attachment Theory

The rationale for using the attachment theory framework to guide the present research was three-fold. First, attachment theory (Bowlby, 1969/82, 1973, 1980) has been regarded as the most well-known, significant, and empirically grounded conceptual framework for understanding social and emotional development over the past two decades (Thompson, 2000). Specifically, of all the particular features of development, the study of emerging attachment styles was perhaps the most important in shifting thinking in a developmental psychopathology direction (Rutter & Sroufe, 2000). Individuals differ in the degree of security provided in attachment relationships and these individual differences influence later development (Rutter & Sroufe, 2000). Second, the influence of attachment relationships is especially salient during stressful life events (Lopez & Brennan, 2000). Buist and colleagues (2004) theorize that since the presence of many stressful life events occur during adolescence, attachment relationships are particularly pertinent during this period (Buist, Dekovic, Meeus, & van Aken, 2004). Third, attachment theory has been viewed as an emotion regulation theory (Kobak & Sceery, 1988; Sroufe & Waters, 1977). Thus, attachment security can be understood in terms of rules that guide individuals' reactions to life stressors. In other words, attachment theory elucidates individual differences in responses to life stressors (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969/82).

Attachment theory (Bowlby, 1969/82, 1973, 1980) states that humans have an innate need for maintaining connections with others for the purpose of protection and

survival. Bowlby (1969/82, 1973, 1980) described the attachment system as an inborn system aimed at maintaining proximity to supportive others (i.e., "attachment figures") during threatening times. The attachment system develops within the first year of life and is used to regulate contact with attachment figures (Bretherton, 1985). Attachment researchers believe that the child-caregiver relationship is important in shaping early attachment and that attachment has implications for adjustment later in life (Kobak & Sceery, 1988). In fact, research has supported one of the basic assumptions of attachment theory (Bowlby, 1969, 1973, 1980) which states that the attachment system is particularly susceptible to being activated during stressful times (e.g., Feeney, 1998; Rholes, Simpson, & Stevens, 1998). Physical or psychological threats are believed to automatically activate the attachment system, motivating the individual to maintain or restore proximity to attachment figures. For instance, children may cry to indicate to the attachment figure that they want to restore their sense of security and support (e.g., Bretherton, 1985).

Children's perceptions of the primary caregiver are believed to become internalized representational models of the social world. The attachment literature describes these kinds of prototypical schemata as internal working models or IWMs (Ainsworth, 1985; Bowlby, 1988). IWMs represent a person's views of self and others. Children's mental representations arise from dyadic experience and thus their models of self and others are intimately linked (Bowlby, 1973; Bretherton, 1985; Collins & Read, 1994). These views are presumed to wield strong influence on the development of individuals' adjustment. The history of interactions between caregivers and their infants is expected to colour children's interpretations of, and reactions to, stressful life events

(Bowlby, 1973). Because not all caregivers respond to their infant's needs in a similar manner, individuals differ in attachment organization and IWMs. A child's attachment style forms as a result of the nature of the relationship between a child and their early attachment figure (Bowlby, 1969/82).

A person's attachment style represents their views of self, others, and their relationship. It is expected that these views will affect the way one reacts to life stressors. Attachment theory proposes that emotional well-being partly depends on having an accessible attachment figure who can reliably act as a safe haven in times of stress, and studies have provided supportive evidence that secure attachment to one's primary caregiver serves as a protective factor against negative consequences. Thus, it was hypothesized that securely attached adolescents who were faced with stressful life events would be less likely to develop negative adjustment outcomes and score higher on positive adjustment outcomes, compared to insecurely attached adolescents.

Brennan, Clark, and Shaver (1998) have found that insecure attachment styles manifest along two dimensions – one reflecting how much an individual excessively demands attention and care (i.e., anxiously attached) and the other reflecting how much an individual withdraws from others (i.e., avoidantly attached). The anxiety dimension refers to a tendency to worry about being abandoned and involves negative *self*-representations. Thus, a higher level on the anxiety dimension is closely related to having a negative model of self. Anxiously attached individuals tend to have a strong need for closeness, fear being rejected and worry about relationships. Whereas, the avoidant dimension reflects a tendency to avoid becoming close to others and involves negative representations of *others*. Thus, a higher level on the avoidance dimension is closely

related to having a negative model of others. Avoidantly attached individuals tend to be compulsively self-reliant, prefer to be emotionally distanced from others and typically suppress their feelings (Bowlby, 1980).

A secure attachment style consists of positive models of self and/or others. For individuals with lower attachment anxiety, their model of self includes beliefs around being worthy of love and capable of eliciting care. For individuals with lower attachment avoidance, their model of others includes seeing people as reliable, warm and available (Bowlby, 1973). Secure individuals express their emotions clearly when their attachment systems are activated during stressful times and with the support of a responsive caregiver they learn to regulate their emotions and to function well in interpersonal relationships (Cassidy, 1994; Sroufe & Waters, 1977).

Considering that attachment theory suggests that a primary attachment figure, typically the mother, plays the most influential role of any other person in a child's development (e.g., Bowlby, 1969/82), the present study explored the role of the adolescent-mother attachment relationship. Research has found that mothers continue to play a significant role in adolescents' lives. For instance, Patterson, DeBaryshe, and Ramsey (1989) investigated influences in the development of childhood aggression. The Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) was administered to assess adolescent attachment. The AAI is used to make inferences about adolescents' and adults' current state of mind regarding earlier attachment experiences with their parents, by primarily assessing cognitive processes reflected in adolescents' dialogue about affectively charged attachment experiences. The researchers found that maternal control served as a buffer against externalizing problem behaviours (e.g., delinquency) when

adolescents were securely attached to their mothers (Patterson et al., 1989). A recent study by Markiewicz, Lawford, Doyle and Haggart (2006) assessed whether 682 individuals (12-28 years of age) used mother as a secure base throughout the 16-year age range. Participants were asked to report their use of parents and peers to fulfill attachment functions (proximity-seeking, safe haven, and secure base) on the WHOTO questionnaire (Hazan, Hutt, Sturgeon, & Bricker, 1991). Mothers were shown to be an important source of security across this age range in that they were the attachment figure most often chosen as a secure base and there was no significant change on this choice over the age range. Thus, their findings provided further support for exploring the adolescent-mother attachment relationship throughout adolescence in the present study.

Measurement of attachment security

As alluded to above, there has been a shift in recent years among attachment researchers towards assessing attachment security along continuous dimensions (i.e., higher or lower attachment anxiety and avoidance) rather than assigning individuals to a particular attachment category (Fraley & Spieker, 2003). Individuals with secure attachment styles tend to have lower scores on the dimensions of attachment anxiety and avoidance (Brennan et al., 1998). Individuals with higher levels of attachment anxiety and/or avoidance are insecurely attached (Brennan, Clark, & Shaver, 1998). Anxious and avoidant attachment styles are conceptualized as reflecting dimensions in a two-dimensional space. Knowledge about securely attached adolescents' experience will contribute to the understanding of how secure attachment relationships operate to promote a healthy course of development (Sroufe, 1989).

Stability of adolescent attachment over time

A key principle of Bowlby's attachment theory is that IWMs of attachment stay relatively stable over the lifespan (Bowlby, 1973, 1980, 1982). According to attachment theory (Bowlby, 1980), children's IWMs of attachment crystallize over time such that their IWMs from childhood typically become more stable as time passes, particularly by late adolescence. IWMs of attachment are self-perpetuating as they function to shape and explain future experiences. Stressful life events, for instance, are interpreted through the filter of one's IWMs of attachment. Thus, attachment style remains relatively stable through an active process of construction; information is processed and views are elicited which will validate their IWMs of self, others, and the world (e.g., Bowlby, 1973; Kirkpatrick & Hazan, 1994). This theory of attachment staying quite stable over time has been empirically supported in research by Waters, Merrick, Treboux, Crowell, and Albersheim (2000) who found a 72% stability rate from infancy to young adulthood in their White, middle-class sample (Waters et al., 2000). In other words, 72% of the infants, who had been assessed in the Strange Situation (Ainsworth et al., 1978) twenty years prior, received the same secure versus insecure AAI attachment classification in early adulthood. This figure refers to those who were living in relatively stable environments.

The first quantitative investigation of the existing longitudinal data on attachment stability was conducted by Fraley (2002). He tested mathematical models of two theoretical perspectives regarding attachment stability. The revisionist perspective assumes that early attachment representations are subject to being updated based on new experiences and thus may not match patterns of attachment later in life. The prototype

perspective posits that representations of early experiences are kept throughout development and continually affect attachment behaviours throughout the lifespan. Fraley (2002) found support for the prototype hypothesis; there was a moderate degree of stability in attachment from infancy to adulthood and the pattern of stability detected was better explained by a prototype-like process than a revisionist one. Specifically, Fraley (2002) conducted a meta-analysis of attachment stability data from 27 studies and found roughly a 0.39 correlation between attachment security at age 1 and later attachment across the first 19 years of life. He explained that given that representations created during the first year of life are pre-verbal, they do not require conscious mediation, making them more difficult to modify later in childhood when conscious thought becomes more linguistic.

Attachment and adjustment

In recent years, attachment concepts have become an increasing focus of developmental research. A major finding of this research is that early insecure attachment relationships are associated with a higher risk of later psychopathology (Cassidy & Shaver, 1999; Sroufe, Egeland, & Carlson, 1999). However, it is primarily the disorganized category of early attachment that strongly predicts the development of various socioemotional difficulties and related mental health problems (e.g., Lyons-Ruth, 1996). The disorganized attachment style is characterized by the absence or breakdown of a consistent, organized strategy to deal with stress (Main & Solomon, 1990). In higher-risk samples the organized styles are also associated with adjustment. For instance, Allen and colleagues (1998) examined connections between attachment organization and adolescent psychosocial functioning in a sample of ethnically and socio-economically

diverse, "moderately at-risk," adolescents who ranged in age from 14 to 18 years (Mean age = 16 years; Allen, Moore, Kuperminc, & Bell, 1998). They assessed attachment organization with the AAI scored with the AAI Q-set (Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993) which codes adolescent secure, dismissing, and preoccupied attachment styles based on the AAI coding system. Findings indicated that more secure attachment was related to lower levels of internalizing behaviours and lower levels of deviant behaviour. Alternatively, more preoccupied adolescent attachment (i.e., preoccupation with attachment experiences) was strongly associated with higher levels of both internalizing and deviant behaviours (Allen, Moore, Kuperminc, & Bell, 1998). Other researchers have also found that attachment security is associated with fewer adjustment problems. For instance, Kobak and Sceery (1988) used the AAI to investigate the coherence of attachment organization during late adolescence. The findings displayed that more securely attached adolescents have fewer adjustment problems, as evidenced by scoring lower on aggressiveness, conduct problems, anxiety and loneliness than more insecurely attached adolescents.

In another study, Nada-Raja and colleagues (1992) assessed adolescents' attachment style to parents and their psychological well-being (Nada-Raja, McGee, & Stanton, 1992), using the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987). The IPPA is a self-report measure designed to assess the affective-cognitive dimension of attachment. It consists of three subscales which measure the quality of *communication*, the adolescents' *trust* in the availability and sensitivity of an attachment figure and the extent of *alienation* resulting from an unresponsive or inconsistently responsive attachment figure. Nada-Raja and colleagues' (1992) findings

revealed that adolescents with more insecure attachment to their parents reported higher levels of depression and more frequent experience of negative life events. Further, more secure attachment to parents was associated with fewer mental health problems, such as anxiety, depression, inattention and conduct problems. The life events measure used in the latter study did not distinguish between independent and dependent life events, and positive adjustment outcomes were not assessed.

Negative Adjustment

Stressful life events have been found to be related to a wide range of adjustment problems, including the following symptoms: (1) internalizing symptoms (e.g., depression, particularly among adolescent girls; Aseltine, Gore, & Colten, 1994; Compas & Phares, 1991; Leadbeater, Blatt, & Quinlan, 1995; Leadbeater et al., 1999); and (2) externalizing symptoms (e.g., delinquency; Aseltine, Gore, & Gordon, 2000; Hoffmann & Su, 1997; Jackson & Warren, 2000; Vaux & Ruggiero, 1983). Unfortunately, the abovementioned studies did not categorize life stressors into dependent and independent life events. It has been shown that experiencing multiple stressful life events accounts for a significant rise in rates of depressive symptoms for adolescents (Brooks-Gunn & Warren, 1989; Compas, Howell, Phares, Williams, & Giunta, 1989; Petersen, Kennedy, & Sullivan, 1991). It is important to note that not all adolescents who encounter stressful life events will experience negative adjustment outcomes. Further, the absence of negative adjustment outcomes is not equivalent to having high levels of positive adjustment outcomes (e.g., Greenspoon & Saklofske, 2001). The question of what factors are associated with resiliency in adolescents remains unanswered. An additional distinction within the group of adolescents who do experience negative adjustment is

whether they develop: (1) internalizing problems; or (2) externalizing problems. In order to be able to capture the full range of differential responses to stressful life events and moderating factors, the present study assessed both internalizing and externalizing negative adjustment indices as well as positive adjustment indices. The adolescents' attachment relationship with mother was explored as a factor which might moderate the relationship between stressful life events and adjustment.

Internalizing problems

Depressive symptoms. Researchers have found that it is normative for depressed mood to increase significantly between the ages 13 to 15 years, to peak around 17 or 18 years, and then to decrease to adult levels (e.g., Fleming & Offord, 1990; Petersen, Sarigiani, & Kennedy, 1991; Radloff, 1991). One of the notable features of depressive disorders is that their increase in frequency is stronger in females than males (Silberg et al., 1999). Females are more likely to internalize (i.e., experience in one's body and mind) their negative emotions than males (e.g., Epstein, Cullinan, & Lloyd, 1986; Nolen-Hoeksema, 1990). It is, therefore, not surprising that females tend to report higher levels of depressive symptoms than do males (Avison & McApline, 1992; Nolen-Hoeksema, 1987). Previous research has revealed that girls showed significantly more depressed affect than boys by 12th grade (17 years old) and this difference appeared to emerge around the 8th grade (13 years old) and then to increase over subsequent years (Petersen, Sarigiani, & Kennedy, 1991).

In her review of over 20 studies addressing the relationship between stress and depression, Mazure (1998) presented compelling evidence for an association between major adverse life stressors and subsequent major depression. More specifically, Mazure

(1998) found that in the community samples reviewed, 80% of depression onsets were preceded by major life events. An important limitation of this work, however, is that many of these samples were primarily composed of females. This work highlights the importance of future research gaining a greater understanding of life events, such as by exploring the role of different categories of life events.

One reason why insecure attachment style might be a risk factor for internalizing problems is that insecure attachment is often characterized by beliefs that one is unable or does not deserve to get attachment needs met by others. Such negative expectations are similar to the feelings of low self-worth and negative explanatory styles that have been strongly related to depression (Kobak, Sudler, & Gamble, 1991). Early insecure attachment relationships may lead children towards being more vulnerable to depression by causing them to have negative IWMs of self. When faced with stress, these children are likely to lack the resources to cope effectively and might be prone to developing even stronger feelings of insecurity and depressed mood. Further, the cognitions held by insecurely attached individuals about attachment relationships may play a role in the emergence of thought processes and affect that are related to depression (Cicchetti & Toth, 1995).

Externalizing problems

Delinquency. In addition to adolescence being a period full of stressful life events, it also tends to be a time in which the rates of externalizing problems increase. For instance, the frequency of delinquent offences peaks during adolescence (Elliott, 1994; Steffensmeier, Streifel, & Harer, 1987). As previously mentioned, there is a paucity of research wherein life events are categorized into independent and dependent stressors

when studying externalizing symptoms. Vaux & Ruggiero (1983), using a normative sample of adolescents age 14 to 19, examined life change in relation to self-reported involvement in various types of delinquency. Adolescents' experience with other life stressors was also explored. Vaux and Ruggiero (1983) found that adolescents who reported more stressful life events also reported more involvement in a variety of delinquent behaviours. Due to not differentiating between independent and dependent stressors, this study is restricted in permitting inferences about the role of different types of life stressors on delinquent behaviour. Further, their study was cross-sectional (the most commonly used research design) and one of the inherent limitations in this type of design includes not establishing the sequence of events. Thus, follow-up studies with longitudinal data are necessary to determine causal relationships.

Hoffmann and Su (1997) conducted a longitudinal study examining life stressors as a risk factor for delinquency, using two waves of data from a sample of 11- to 17-year-old high-risk adolescents. Stressful life events positively predicted increases in delinquent acts over a one-year period for males and females. These findings are consistent with other results indicating a positive association between stressful life events and increases in delinquency over time (e.g., Leadbeater et al., 1999; Paternoster & Mazerolle, 1994). In the second study, Kim and colleagues (2003) examined adolescent maladjustment (i.e., internalizing and externalizing symptoms) using data from a 6-year, prospective longitudinal study (Kim, Conger, Elder, & Lorenz, 2003). Their sample of White 7th and 12th grade adolescents was derived from a larger project designed to study the effect of financial hardship on American families living in the rural Midwest. Findings indicated that stressful life events exacerbated externalizing problems in adolescents' lives (Kim,

Conger, Elder, & Lorenz, 2003). Kim and colleagues' (2003) study is limited in contributing to the understanding of resiliency in that only negative adjustment was investigated. Further, the findings might not generalize to various groups, including urban families (Kim et al., 2003). These two longitudinal studies suggest, however, that stressful life events predict increasing risk for adolescents' delinquent behaviours over time. Unfortunately, moreover, these researchers did not differentiate between independent and dependent life stressors and they did not assess normative samples from urban centers; the present study did so. Rothbaum and Weisz's (1994) meta-analytic review found that externalizing behaviours were more strongly correlated with maternal than paternal relationships, and the correlations were stronger for boys than for girls. The present study was, therefore, further focused on the adolescent-mother attachment relationship.

Positive Adjustment

Researchers have often equated a lack of psychopathology with positive adjustment. Yet, Greenspoon and Saklofske's (2001) study of elementary school children found that there were children who were low on both pathology (e.g., depression) and happiness. In other words, an absence of depression has been shown not to be equivalent to positive adjustment. Adolescents' attachment security to their parents has also been found to be related to positive adjustment indices, for instance self-perceived competence (Papini & Roggman, 1992).

Responsive caregiving. Responsive caregiving has been described as a basic component of close relationships (Weiss, 1980). Specifically, it includes a wide range of behaviours including providing help, offering comfort and reassurance, providing a

secure base, and encouraging autonomy (Bowlby, 1982, 1988; Kunce & Shaver, 1994). Being a responsive caregiver represents a developmental hallmark as it reflects the adolescents' evolution from being a receiver of care to becoming a caregiver (Allen & Land, 1999). Even though attachment researchers have been inclined to highlight the attachment (*care-seeking*) system, the *caregiving* system is a key component of attachment bonds (Kunce & Shaver, 1994). While the attachment system is a normative safety-regulating system that decreases the risk of the self confronting harm, the caregiving system decreases the risk of a close other confronting harm (Collins & Feeney, 2000).

Research has shown that individual differences in responsive caregiving behaviours in intimate relationships are systematically related to attachment styles (Kunce & Shaver, 1994). Overall, individuals with a secure attachment style (i.e., lower attachment anxiety and/or avoidance) tend to be good, responsive caregivers and to provide less over-involved care (Kunce & Shaver, 1994). These individuals are warm, sensitive, and cooperative and they actively help their partners or friends solve problems (Feeney & Collins, 2001). Insecure individuals (i.e., higher attachment anxiety and/or avoidance) are generally poor caregivers, and display different forms of unresponsive caregiving depending on their specific type of insecurity (Feeney & Collins, 2001). For instance, because anxiously attached individuals are worried about being rejected by others and fear being abandoned, they might be intrusive and over-involved caregivers (Feeney & Collins, 2001). Given that avoidantly attached individuals generally direct their attention away from attachment needs and emphasize independence in their relationships, they might be unresponsive caregivers. Despite attachment theory

providing an ideal framework for investigating caregiving processes in adolescent friendships, the existing literature is limited in scope. The present author is not aware of any research on the regulating effect of adolescent attachment on the relationship of dependent and independent life events to responsive caregiving between close friends, over time. The present study addressed this gap in the literature by exploring how attachment and stressful life events as well as caregiving processes are related in the context of adolescent friendships.

Positive affect. Attachment theory is viewed as an important and relevant framework for understanding the process of affect regulation (see Mikulincer & Shaver, 2003, for a review). The majority of the studies in this area have highlighted the role of individual differences in adult attachment style in the process of coping with threatening events. In the present study, it was expected that adolescents who were securely attached to their mothers would be open to both positive and negative emotions. Positive affect has been shown to have wide ranging adaptive benefits. For instance, positive emotions are believed to increase the accessibility of positive cognitions (Bower, 1981). Experiments have displayed that induced positive affect expands a person's scope of attention (e.g., Fredrickson & Branigan, 2005), widens behavioural repertoires (Fredrickson & Branigan, 2005), and increases intuition (Bolte, Goschkey, & Kuhl, 2003). Positive affect has also been shown to be related to future health and well-being (Fredrickson, 2001). Secure individuals hold highly accessible positive cognitions about the self, others and the world and tend to cope constructively with stress (see Mikulincer & Shaver, 2003, for a review). Pereg and Mikulincer (2004) found that self-reported attachment style moderated the relationship between induced negative affect and memory

and judgment. These researchers conducted a series of three studies exploring the role that attachment style plays in moderating the effects of induced negative affect on memory and judgment. They assessed attachment style with Mikulincer, Florian and Tolmacz's (1990) 10-item adult attachment style scale which is based on Hazan and Shaver's (1987) prototypical descriptions of attachment style. Pereg and Mikulincer (2004) found that securely attached individuals reacted to induced negative mood by having better recall of positive information. Anxiously attached individuals reacted by having worse recall of positive information and those higher on attachment avoidance showed no significant cognitive effect of negative affect (Pereg & Mikulincer, 2004). Following innovative work that assesses mental health in positive terms rather than by the absence of mental illness (Keyes, 2002), the present study examined positive affect as a positive adjustment index.

In summary, the present study responds to the following call for research to "include a broader array of adjustment outcomes and attempt to link different domains of stress with different measures of well-being" (Herman-Stahl & Petersen, 1996, pp. 750). The present study responds to this call by examining the relationships among stress and both positive and negative adjustment, as potentially moderated by attachment quality.

Present Study

All of the changes occurring during adolescence make it a challenging developmental phase in which adolescents must master a number of important tasks, while simultaneously dealing with stressful life events. The present study, using a normative sample of adolescents, investigated adjustment growth curves over time. Specifically, the role of attachment quality to mother was examined as a potential

moderator of the relationship of dependent and independent life stressors to adjustment outcomes. Negative adjustment indices were: (1) depressive symptoms; and (2) delinquency. Positive adjustment indices were: 1) responsive caregiving to a close friend; and 2) positive affect.

The present study uniquely contributes to the literature in at least five ways. First, the roles of two different types of life stressors - dependent and independent life stressors were explored. Second, both negative and positive adjustment outcomes were examined. Doing so allows us to better understand resiliency in adolescence. Third, the role of attachment quality to mother was assessed as a potential protective/vulnerability factor in the association between stressful life events and adjustment. Fourth, in order to improve upon the limitations inherent in cross-sectional studies, the present study utilized a short-term longitudinal design wherein adjustment was assessed at three time points, spanning a two-year time period. This lent itself to the examination of factors associated with adjustment trajectories over time. Finally, the present study utilized an advanced statistical technique, HLM, to efficiently analyze developmental change. Specifically, HLM represents a useful analytic strategy for describing growth curves/individual trajectories of change in adjustment within and between individuals both initially and over time.

Objectives and hypotheses of present study

The present study focused on the potential moderating role of adolescent attachment quality to mother in the relationship between stressful life events and adjustment outcomes over time, in a vulnerability/protective framework. In general, it was hypothesized to find that lower levels (i.e., more attachment security) of both

attachment dimensions (i.e., anxiety and avoidance) would protect against higher levels of both dependent and independent life stressors, predicting lower negative adjustment and higher positive adjustment both initially and over time. More secure attachment style suggests better emotion regulation skills resulting in the ability to cope more effectively with stressful life events. Attachment quality was assessed along continuous (i.e., higher or lower levels) dimensions of anxiety and avoidance.

Given that previous (non-clinical and clinical) research has displayed a greater role for dependent, rather than independent, life events (Daley et al., 1997; Rudolph et al., 2000) and because dependent life stressors are more closely tied to one's behaviour, dependent life events were expected to be a stronger correlate of negative and positive adjustment outcomes both initially and over time.

There were more specific hypotheses regarding the two attachment dimensions. The anxiety dimension of attachment has been shown to be a stronger correlate, compared to the avoidant dimension, of self-rated negative adjustment outcomes in adolescents (e.g., Kamkar, Doyle, & Markiewicz, under review). This is understandable given that higher attachment anxiety reflects having negative models of self which were hypothesized to undermine their confidence to cope effectively with stress. The latter was then expected to interfere with healthy emotion regulation. Thus, higher attachment anxiety was hypothesized to serve as a vulnerability factor in the face of higher levels of stress for negative and positive adjustment both initially and over time.

Individuals who score higher on the avoidant dimension of attachment react differently when their attachment systems are activated, compared to those who score higher on the anxiety dimension of attachment (e.g., Mikulincer, Gillath, & Shaver,

2002). Given that avoidantly attached individuals typically do not express their emotions directly, they might do so indirectly by acting out (i.e., delinquency) or by withholding their positive behaviours (e.g., engaging in less responsive caregiving, not displaying positive affect). Thus, higher attachment avoidance was expected to be a vulnerability factor in the face of higher levels of stressful life events for delinquency and positive adjustment (i.e., responsive caregiving, positive affect) both initially and over time.

Method

Participants

Participants were 183 adolescents (96 girls) drawn from an original sample of 203 adolescents (127 girls) who had participated in the first year of a two-year longitudinal study of adolescent well-being and adjustment. Sixteen participants only participated at the first time point and thus were not included in the present study's analyses. The present study was part of a larger research program considering family factors and adolescent well-being. Participants represented a normative sample of adolescents. They were 13.0 years old at Time 1 (T1, $SD = 0.72$), enrolled in grades 7 and 8 ($n = 82$ in grade 7 and $n = 105$ in grade 8) of a large, public, English-language high school in an older suburb of a large Canadian city. For T1, the consent rate was 46.7%, with 12.7% refusals and 40.6% no response. From information provided by the adolescents on a demographic questionnaire at T1, most (73.2%) adolescents were living in two-parent homes, of which 82.4% were intact and 17.6% were reconstituted. Of the adolescents who came from single parent homes (i.e., 26.8%) at T1, 88.5% lived with their mother and 11.5% lived with their father.

Family socioeconomic status (SES) was derived from adolescent reports of the work status, occupation and education of the parent(s) (Hollingstead, 1975). Mean SES, assessed at T1 only, was 34.12 (*SD* = 10.07), characteristic of skilled craftsmen, and clerical and sales workers. The majority of participants (77.1%) reported that their first language was English. Participants endorsing one ethnic background (66.8%) indicated predominantly "Other European" (41.5%), followed by "British/Irish" (31.4%), "French" (6.3%), "Asian" (5.7%), "South-West Asian" (5.7%), West Indian (4.4%), Aboriginal (1.3%), Middle Eastern (0.6%) and Latin American (0.6%). Participants endorsing two (18.5%), three (11.8%) or four (1.3%) ethnic backgrounds primarily indicated British/Irish or French and/or Other European. Participants who answered only one or a few questionnaires randomly or in a pattern (n = 20) had their scale score replaced with the mean for their gender for that measure.

To be retained in the present study, adolescents had to have participated in T1 and in at least one other time period. At Time 2 (T2), 164 participants continued in the study. The T2 consent rate was 80%, with 9.3% refusals, 7.8% left the school, 1.5% experimental error and 1.4% no response. There were 174 adolescents who participated at Time 3 (T3). At T3 participants ranged in age from 14 to 16 years old (*M* = 14.8, *SD* = 0.66) and were enrolled in grade 8 (*n* =3), grade 9 (*n* = 72) and grade 10 (*n* = 99). The T3 consent rate was 77%, with 13.5% refusals, 4% left the school and 5.5% no response. Adolescents who made up the final sample at T3 (*n* = 183; this number is based on participation in at least two time points) and those who dropped out after Time 1 (n = 23) did not differ significantly on Time 1 measures of depressive symptoms, delinquency, positive affect, responsive caregiving, attachment anxiety or avoidance, independent life

stress, social desirability, or demographic variables. However, drop-out participants reported having significantly lower average school grades (M = 1.82, SD = .52, versus M = 2.12, SD = .56 on a scale from 0-3), t (185) = -36.54, $p < .00$.

Procedure

Approval to conduct the larger study was first obtained from the principal of the school. A month prior to T1 data collection, the researchers gave a brief presentation explaining the study to students in their classrooms. The students were invited to participate and were given a letter describing the project (see Appendix A) and a consent form (see Appendix B), to be completed by both the student and their parent/guardian. Whether they chose to participate or not, the names of all students who returned completed consent forms were entered into a draw to win one of several gift certificates. All students who volunteered to participate in the study were also entered in a draw for a portable CD-player. Each of the three testing sessions (i.e., T1, T2, and T3) was completed in the fall of each academic year. The T2 and T3 testing sessions were slightly closer together in the calendar year than the T1 and T2 testing sessions were. Data from friends (for validation of measures) was collected during the same academic years, during the spring.

At T2, one year after T1 and at T3, T1 participants were re-contacted at school and asked to participate again. The participants at T3, one year after T2, who had previously left the school and/or dropped out were contacted by mail and given an opportunity to participate in the T3 data collection. Of these, 39 students were sent questionnaire packages by mail and nine (23.1%) participated. At all three time points, participants completed self-report questionnaires in groups of approximately 15 students.

At the end of each testing year, participants were invited to indicate on a form whether they wished to be contacted by the school psychologist, and/or to contact one of the members of our research team if they had any questions or concerns.

Measures

General Information Questionnaire. This questionnaire was used at all three time points to gather general background information about the participants. Questions focused on information about age, sex, grades in school, parents' marital status, socioeconomic and ethnic background (at T1 only), and current living situation.

Attachment to Mother. A 24-item version of the *Experiences in Close Relationships Questionnaire (*ECR; Brennan et al., 1998) was used at all three time points to assess the quality of attachment to mother (see Appendix C). The original 36-item ECR consists of two attachment dimensions: anxiety and avoidance. The anxiety scale assesses the level of anxiety about abandonment and fear of rejection, while the avoidance dimension assesses the level of discomfort with closeness (Brennan et al., 1998). The ECR was adapted in the present study to measure attachment to mother rather than to romantic partners, by replacing "partner" with "mother." The shortened version was created by choosing the items which had the highest item-total correlations in a previous sample, consisting of 12 items for anxiety and 12 items for avoidance. For example, an anxiety item was, "I need a lot of reassurance that I am loved by my mother." An example of an avoidance item was, "I don't feel comfortable opening up to my mother." Participants rated the degree to which each item described their feelings in their relationship with their mother on a 7-point Likert-type scale ranging from 1-7 (1 = *disagree strongly;* 7 = *agree strongly*). According to the ECR scoring guidelines, some

items were reverse-scored to yield total scores reflecting attachment anxiety and avoidance, respectively.

At each of the three time points, participants completed the ECR-Mom scale. In the present study, cross-time Pearson correlations for the ECR-M scale revealed that Mean Attachment Anxiety was correlated significantly at T1 and T2 ($r = 0.60, p < .01$), T1 and T3 ($r = 0.58, p < .01$) and T2 and T3 ($r = 0.59, p < .01$). Mean Attachment Avoidance was also correlated significantly at T1 and T2 ($r = 0.70, p < .01$), T1 and T3 ($r = 0.47, p < .01$) and T2 and T3 ($r = 0.68, p < .01$).

The concurrent validity of the original ECR has been found to be satisfactory with many other self-report measures of adult attachment (Brennan et al., 1998). Fraley, Waller, and Brennan (2000) conducted an item-response theory analysis of four commonly used self-report measures of adult attachment. They found that of these four measures, the ECR scales had the best psychometric properties. In the present study, both the anxiety scale ($\alpha = .80$ at T1; $\alpha = .88$ at T2; $\alpha = .84$ at T3) and the avoidance scale ($\alpha = .90$ at T1; $\alpha = .91$ at T2; $\alpha = .92$ at T3) showed good internal consistency. As a validation check, the ECR-M was correlated with the WHOTO questionnaire (Hazan, Hutt, Sturgeon, & Bricker, 1991), specifically with the secure base subscale. Secure base characterizes the use of the attachment figure as a base from which to explore the environment (Hazan et al., 1991). The latter subscale was chosen as research has shown that mothers are selected more often for fulfilling the secure base function of attachment than any other target figure (Markiewicz, Lawford, Doyle and Haggart, 2006). The convergent validity correlations between ECR-M (for T1-T3) and secure base subscale from the WHOTO (for T1-T3) were moderate for the avoidant attachment dimension of

the ECR-M (r = -0.21, p < .01 for T1; r = -0.22, p < .01 for T2; r = -0.32, p < .01 for T3) but did not significantly correlate with the anxiety dimension of attachment. The WHOTO secure base subscale asks the question of who adolescents turn to, to have their attachment needs met. The fact that attachment anxiety did not correlate significantly with secure base is not surprising since the feeling of having a secure base denotes that one is not anxious about abandonment but rather maintaining closeness with mother is the norm. Further, given that the WHOTO is a behavioural measure and that anxiously attached adolescents might behave in inconsistent ways (e.g., sometimes they cling, sometimes they get angry and resentful and do not reach out), a behavioural measure would not be consistent and thus not correlate well with a measure of generalized expectation (i.e., ECR – which would be more consistent).

Given that attachment quality to mother seemed relatively stable (as also found by others, e.g., Fraley, 2002) and that the present study explored the role of attachment quality as a potential moderator, the means of the attachment dimensions (i.e., anxiety and avoidance) across the three time points were computed, by averaging the scores for each variable across the three time points, and used at level 2 of the HLM analyses. A statistical advantage of doing so is decreased measurement error.

Social Desirability. To control for defensive responding (participants' tendency to project favourable images of themselves on self-report measures), a 15-item short version of the *Marlowe-Crowne Social Desirability Scale* (MC-SD; Strahan & Gerbasi, 1972) was administered at all three time points (see Appendix D). Respondents checked off a "True" or "False" box for each item to indicate whether they agree or disagree with the items such as, "I'm always willing to admit it when I make a mistake." The MC-SD

showed adequate internal consistency (α = .61 at T1; α = .71 at T2; α = .68 at T3). This shortened form has been found to correlate highly with the original scale (r=.90, Strahan & Gerbasi, 1972), which has been established as assessing the tendency to respond with social defensiveness (e.g., Lobel & Teiber, 1994).

Stressful Life Events. At all three time points, adolescents completed an adapted version of the *Life Events Scale* (Yeaworth, McNamee, & Pozehl, 1992; Newcomb, Huba, & Bentler (1981) to assess their experience with stressful life events over the past year (see Appendix E). The version used in the present study consisted of 34 items (i.e., first 28 items from Yeaworth et al., 1992, and last 6 items from Newcomb et al., 1981). The six Newcomb et al. (1981) items assessed behavioural problems, events relating to one's parents, and sexuality as these categories of life events are stressful to adolescents yet were not well represented in the Yeaworth et al. (1992) measure. Of the six additional items from Newcomb et al.'s (1981) Life Event Questionnaire (LEQ), three were classified as falling in the realm of family/parents (e.g., "Parent remarrying"), two were in the area of sexuality (e.g., "Getting pregnant or getting someone pregnant") and one was from the area of deviance (i.e., "Getting into trouble with the law). Participants endorsed, for each item, "Yes" or "No" reflecting whether or not the event happened to them in the past year (e.g., "Parent losing a job;" "Starting to date;" "Failing one or more subjects in school"). As discussed previously, researchers have created life change units (LCUs) from a standardization sample to gauge how much life disruption would result from the 29 Yeaworth and colleagues (1992) events (e.g., "A parent dying" is equal to 98 LCUs, while "Making new friends" is equal to 27 LCUs). For the 6 items from Newcomb et al. (1981), LCUs were created in the present study by estimating their weights by

finding similarly stressful items, as assessed by two independent judges, which already had weights from Yeaworth and colleagues (1992). For example, "Parent remarrying" was considered to be similar to the item "Having someone new move in with your family" which held the value of 35 LCUs and thus the former was accorded the value of 35 LCUs (see last column of Table 1). As mentioned, *independent* life events are those beyond one's control, while *dependent* life events are those that are self-generated. The items on the Life Events Scale were separated into independent and dependent life events using a panel of six raters (i.e., a psychology professor and five psychology graduate students), who achieved consensus for categorizing all but one item (i.e., item 10, "Losing a job"). Thus, item 10 was removed from the scale. The final scale contained 17 independent event items and 17 dependent event items. The psychometric validation of the Newcomb et al. (1981) life events scale was provided in a recent study by Booker, Gallaher, Unger, Ritt-Olson, and Johnson (2004) wherein they reported Cronbach alphas ranging from .74 to .98 for the various categories within the scale of positive and negative life events, respectively. Baron, Toubert, and Mercier (1991) validated a French version of the LEQ and reported good psychometric properties with a sample of French-speaking high school adolescents. The psychometric properties of Yeaworth and colleagues' (1992) ALCEQ include having a test-retest (one-week interval) Spearman rank-order correlation of $r_s = .85$ for 23 subjects (Carlson, 1981; Kaiser, 1980) and in their 19-day test-retest reliability analysis Basch and Kersch (1986) reported Spearman correlations from .95 to .98. Content validity was provided by researchers who asked subjects to generate items that create stress for them and they found that the subjects' responses were congruent with statements that are contained in the ALCEQ (Jackson,

Table 1

Stressful Life Events, Percentage of Participants Reporting Their Occurrence, and Life Change Units for Each Item

Item #	Description of item	% "yes"	Life change unit	Indep. or Dep.
28	Making new friends	82.5	27	D
16	Fighting with parents	65.5	64	D
22	Fighting with brother or sister	65.1	46	D
5	Failing 1 or more subjects in school	52.0	86	D
9	Parent or relative in family getting very sick	43.6	77	I
18	Having problems with body image (e.g., acne)	42.7	63	D
27	Starting to date	42.1	31	D
17	Trouble with teacher or principal	33.9	63	D
25	Starting a job	29.4	34	D
8	Getting into drugs or alcohol	25.1	77	D
11	Breaking up with a close girlfriend or boyfriend	24.6	74	D
6	Flunking a grade in school	23.5	84	D
21	Change in physical appearance (e.g., braces)	22.8	47	D
23	Starting menstrual periods (for girls)	20.3	45	I
30	Parents having money problems	18.6	76	I
7	Family member having trouble with alcohol	17.0	79	I
35	Getting into trouble with the law	14.0	77	D
15	Getting badly hurt or sick	12.3	64	D
31	Parents fighting a lot	12.3	83	I
20	Moving to a new home	11.1	51	I
4	Parents getting divorced or separated	10.0	86	I
24	Having someone new move in with your family	9.4	35	I
3	Close friend dying	7.0	92	I
13	Close girlfriend getting pregnant	4.7	69	I
14	Parent losing a job	4.7	69	I
32	Parent remarrying	4.7	35	I
19	Starting a new school	3.5	57	I
29	Brother or sister getting married	2.9	26	I
33	Getting pregnant or getting someone pregnant	1.8	64	D
1	A parent dying	1.2	98	I
2	Brother or sister dying	1.2	95	I
26	Mother getting pregnant	1.2	31	I
12	Quitting school	0	73	D
34	Getting or giving a sexually transmitted disease	0	64	D

1982).

The Life Events Scale was validated against another measure of stress and change, the Life Structure Questionnaire ($\alpha = .79$; Markiewicz & Dudeck, 2004; see Appendix F). The latter measure assessed the extent to which participants perceived themselves as experiencing life change and stress in their lives over the past year (i.e., a validation composed of a subjective account of the stressors they objectively endorsed on the Life Events Scale). The Life Structure Questionnaire was used, at T3 only, to assess participants' subjective perception of their: (1) life change over the past year; and (2) stress experienced over the past year. The first three sections of the questionnaire asked participants to rate their responses on a 5-point Likert-type scale ranging from 1-5 (1 = *no change at all*; 5 = *lots of change*). Participants were asked to separately rate each of the following areas in their lives: family relationships, romantic relationships, friendships, school and career goals, hobbies, living situation, and values.

Participants' objective account of the various stressful life events they experienced over the past year (Life Events Scale) correlated significantly with the life change they perceived in their lives over the past year ($r_{\text{dependent life events \& life change}} = .32, p < .01$; $r_{\text{independent life events \& life change}} = .28, p < .01$). Further, the participants' objective account of stressful life events correlated significantly with their perception of life stress over the past year ($r_{\text{dependent life events \& life stress}} = .34, p < .01$; $r_{\text{independent life events \& life stress}} = .27, p < .01$). See Table 2 for a visual display of when each measure was administered throughout the present study.

Negative adjustment measures

Depressive symptoms. At all three time points, adolescents' depressive symptoms

Table 2

Administration of Measures by Time Point

	T1	T2	T3
General Information Questionnaire	✓	-	-
Social Desirability Scale	✓	✓	✓
Experiences in Close Relationships Questionnaire	✓	✓	✓
Life Events Scale	✓	✓	✓
Life Structure Questionnaire	-	-	✓
Children's Depression Inventory	✓	✓	✓
Self-Report Delinquency Scale	✓	✓	✓
Caregiving Questionnaire	✓	✓	✓
Multiple Affect Adjective Checklist-Revised	✓	✓	✓

were assessed using an adapted version of the *Children's Depression Inventory* (CDI; Kovacs, 1985) which originally had 26 items (see Appendix G). The shortened 12-item version was created by choosing the items which had the highest item-total correlations in a previous sample. The CDI is a self-report depression inventory designed for children and adolescents. Each item consists of three alternate statements reflecting different degrees of a symptom (e.g., 0 = "I am sad once in a while," 1= "I am sad many times," 2= "I am sad all the time"). These sentences are scored from 0 to 2 with higher scores indicating increasing severity of symptoms. Item scores are summed to yield a total score. As is generally the custom in non-clinical studies, due to the ethical concerns of the school board the suicide item was omitted. Thus, depressive symptoms were assessed rather than depression per se. The internal consistency of the CDI was satisfactory (α = .80 at T1; α = .79 at T2; α = .72 at T3). The depressive symptoms measures were externally validated against friend reports of the adolescent's depressive symptoms. More specifically, each year a friend was asked to rate the subject on each of the CDI items and the average of the three friend reports was correlated with the average of the T1, T2, and T3 adolescent self-reports of depressive symptoms (r = .35, p < .00). The CDI has been successful in distinguishing between clinical and non-clinical groups. Hodges (1990) also found evidence for its convergent and discriminant validity. In the present study, cross-time Pearson correlations revealed that depressive symptoms were significantly correlated at T1 and T2 (r= .40, p < .00), T1 and T3 (r = .46, p < .00) and T2 and T3 (r = .53, p < .00).

Delinquency. At all three time points, an adaptation of the *Self-Report Delinquency Scale* (SRDS; Elliott, Huizinga, & Ageton, 1985) was used as a measure of

the past year frequency of a variety of delinquent behaviours, assessing involvement in major and minor delinquent activities (see Appendix H), including status and property offences, and violent offences against persons. Items ranged in severity from theft under $5 to assault. Participants responded "yes" or "no" to items such as "Have you ever purposely damaged or destroyed property (includes vandalism/graffiti) belonging to your school or employer?," and "Have you ever hit or threatened to hit anyone (e.g., friends, strangers)?" The mean of the delinquent acts committed was computed as the total number of delinquent acts over the past year divided by the number (i.e., 12) of delinquent acts queried (M = .18, SD = .18 at T1; M = .28, SD = .24 at T2; M = .28, SD = .25 at T3). The latter was computed as the index of frequency of delinquent acts. The coefficient alpha for the occurrence of these items displayed moderate internal consistency (α = .75 at T1; α = .83 at T2; α = .71 at T3). The results from the national youth survey display that the original SRD is internally consistent and correlates well with official delinquency rates and with teacher and parent reports of delinquent behaviour (Elliott & Ageton, 1980; Elliott et al., 1985). The delinquency measure was externally validated against friend reports of adolescent delinquency. More specifically, the average of three friend reports of the adolescent's delinquent acts, one from each time point, was correlated with the average of the three self-reports of delinquent acts (r = .42, $p < .01$). In the present study, cross-time Pearson correlations revealed that frequency of delinquent acts at T1, T2 and T3 correlated significantly with each other (T1 and T2: r = .63, $p < .01$, T1 and T3: r = .61, $p < .01$, and T2 and T3: r = .70, $p < .01$).

Measures of positive adjustment

Responsive Caregiving. Responsive caregiving was assessed at all three time points using a 15-item adapted version of the Caregiving Questionnaire (adapted from Feeney & Collins, 2001; see Appendix I). The adapted Caregiving Questionnaire is composed of the following 3-item subscales: sensitivity, instrumental, and emotional. This short-form questionnaire was an abbreviated version of Feeney's 48-item caregiving patterns measure, with wording adapted for young adolescents. Feeney's proximity, sensitivity, and controlling items were taken from Kunce and Shaver (1994) while the instrumental and emotional items were Feeney's. The Responsive Caregiving Scale was created by averaging together the sensitivity (e.g., "I'm good at recognizing my friend's needs and feelings"), instrumental ("When my friend needs help with something, I spend a lot of time helping him/her"), and emotional ("When my friend is feeling stressed about something, I encourage him/her to tell me how he/she is feeling") caregiving items. The reliability of the Responsive Caregiving Scale was very good ($\alpha = .76$ at T1; $\alpha = .87$ at T2; $\alpha = .88$ at T3). Participants were asked to think about the way they usually act when a close friend is upset or is experiencing a problem. Items were rated on a 6-point Likert type scale ranging from 1 to 6 (1 = *Never*; 6 = *Always*). The responsive caregiving measure was externally validated against friend reports of adolescent responsive caregiving. More specifically, the average of three friend reports of the adolescent's responsive caregiving, one from each time point, was correlated with average of the three adolescent self-reports of responsive caregiving ($r = .54$, $p < .01$). In the present study, cross-time Pearson correlations revealed that responsive caregiving at T1, T2, and T3

correlated significantly with each other (T1 and T2: $r = .58, p < .01$, T1 and T3: $r = .58, p < .01$, and T2 and T3: $r = .67, p < .01$).

Positive affect. At all three time points, a 53-item version of the 70-item *Multiple Affect Adjective Checklist-Revised* (MAACL; Zuckerman & Lubin, 1985) was used to assess positive affect (see Appendix J). The measure of positive affect in this revised mood checklist consisted of 21 items. Participants were asked to check off the adjectives that describe how they generally feel. The positive affect scale was created by summing the items from the positive affect scale (e.g., friendly, glad, good, affectionate). In the present study, the positive affect scale displayed very good internal consistency ($\alpha = .85$ at T1; $\alpha = .86$ at T2; $\alpha = .88$ at T3). Friends were not asked to report on other adolescents' positive mood and thus there was no friend external validation of this measure. In the present study, cross-time Pearson correlations revealed that positive affect at T1, T2 and T3 correlated significantly with each other (T1 and T2: $r = .51, p < .01$, T1 and T3: $r = .36, p < .01$, and T2 and T3: $r = .52, p < .01$).

Results and analytic strategy

Data Preparation

Unless otherwise indicated below, no outliers or significant skews were found in the data. Outliers were few and were brought to three standard deviations from the mean.

Delinquency. With regards to engaging in delinquency, one outlier was present at T1, at the high end ($z = 2.58$) of the distribution. The distribution was positively skewed at T1 (skew = 5.57).

Depressive symptoms. With regards to depressive symptoms, there was one outlier at T1 ($z = 3.51$) and two outliers at T2 ($z = 3.61$ and $z = 3.34$), all at the high end

of the distribution. Further, the distributions were positively skewed at T1 and T2 (T1 skew = 5.59, T2 skew = 5.86).

Independent life stress. With regards to independent life stress, there was one outlier at T1 ($z = 3.33$), at the high end of the distribution. The distribution was positively skewed at T3 (skew = 5.15).

Attachment anxiety. With regards to attachment anxiety to mother, one outlier was present at T1 ($z = 3.51$), at the high end of the distribution.

Preliminary Analyses

Two within-subjects analysis of variance (ANOVA) designs were conducted, one with dependent life stress as the dependent variable and one with independent life stress as the dependent variable. These ANOVAs examined age differences in life stress over time. Results for the first ANOVA, with dependent life stress as the dependent variable, revealed that there was a significant main effect of time, $F(1, 171) = 977.06, p < .00$. Follow-up paired sample t-tests were used to compare time points. The t-tests examining differences between T1 and T3 as well as between T2 and T3 were significant for dependent life stress, $t(171) = -3.37, p < .01$ and $t(171) = -2.82, p < .01$, respectively. Specifically, dependent life events increased with time. As shown in Table 3, the pattern for life events replicates previous work in this area wherein participants' rates of dependent life events increased as they grew older (Gest, Reed, & Masten, 1999; Masten & Powell, 2003). Results for the second ANOVA, with independent life stress as the dependent variable, revealed there was a significant main effect of time, $F(1, 171) = 420.18, p < .00$. Follow-up paired sample t-tests were used to compare time points. Results revealed significant differences in independent life stress for those at T1 and T3

Table 3

Means and Standard Deviations for Dependent and Independent Life Events Over Time

Time Period	Dependent Life Events	Independent Life Events
T1	$M = 251.34^{a}$ $SD = 155.16$	$M = 164.37^{a}$ $SD = 138.74$
T2	$M = 268.26^{a}$ $SD = 136.06$	$M = 127.08^{b}$ $SD = 102.10$
T3	$M = 295.63_{b}$ $SD = 139.14$	$M = 122.60^{b}$ $SD = 111.03$

Note. Means with different superscripts differed significantly at $p < .01$

and for those at T1 and T2, $t(171) = 3.43, p < .01$ and $t(171) = 3.29, p < .01$, respectively. Specifically, independent life events decreased with time. In the present study, participants' rates of independent life events decreased as they grew older.

Hierarchical Linear Modeling

Data analyses were conducted using HLM. The repeated measures design (i.e., three time points of data for the same participants) contains information about each participant's trajectory of change (i.e., growth curve). Intercorrelations of outcome and predictor variables are presented in Appendix K. Table 4 presents means and standard deviations (SDs) for the outcome and predictor variables.

There were three main steps involved in testing a model using HLM in the present study. First, the researcher partitioned the variance in the outcome variable into two parts – the proportion of variance that lies within participants in the study and the proportion of variance in the outcome variable that lies between participants. Determining the proportion of the total variance that lies between participants, called the intraclass correlation (ICC), constituted the first step of the HLM analysis. This analysis was conducted with a fully unconditional model, meaning that none of the predictor variables were considered. In other words, the outcome variable was entered alone in the equation without any level 1 or level 2 predictors (Lee, 2000). The most critical pieces of information acquired from this model were the: (1) chi-square value of the variance component of the coefficient, as it indicated whether there was significant between-subject variation to continue; (2) TAU (measure of variability between people); and (3) sigma squared values (measure of variability within people). The intraclass correlation (i.e., TAU divided by the sum of TAU and sigma squared) indicated how much of the

Table 4

Means and Standard Deviations for All Variables

	Boys M (SD)	Girls M(SD)
Delinquency		
T1	0.20 (0.19)	0.16 (0.16)
T2	0.30 (0.25)	0.26 (0.24)
T3	0.31 (0.26)	0.24 (0.23)
Depression		
T1	0.37 (0.33)	0.43 (0.33)
T2	0.37 (0.34)	0.37 (0.26)
T3	0.25 (0.24)	0.32 (0.27)
Responsive Caregiving		
T1	4.17 (0.78)	4.97 (0.63)
T2	4.02 (0.92)	4.98 (0.76)
T3	4.15 (0.78)	5.06 (0.63)
Positive Affect		
T1	7.23 (4.45)	9.11 (4.35)
T2	9.70 (5.48)	9.67 (4.55)
T3	9.35 (5.17)	9.91 (5.51)
Social Desirability		
T1	0.46 (0.18)	0.46 (0.20)
T2	0.56 (0.19)	0.50 (0.23)
T3	0.47 (0.20)	0.48 (0.22)
Attachment Anxiety		
T1	2.92 (1.20)	2.80 (0.94)
T2	2.59 (1.25)	2.75 (1.15)
T3	2.44 (1.13)	2.69 (0.97)
Attachment Avoidance		
T1	3.18 (1.10)	2.67 (1.36)
T2	3.27 (1.16)	2.96 (1.46)
T3	3.26 (1.23)	2.96 (1.46)
Dependent Life Stress		
T1	234.86 (154.46)	266.99 (145.43)
T2	253.23 (115.46)	281.88 (144.44)
T3	286.93 (135.50)	304.43 (142.50)
Independent Life Stress		
T1	137.01 (124.75)	190.11 (137.36)
T2	109.65 (91.61)	142.87 (103.14)
T3	85.16 (86.66)	156.53 (119.88)

n = 96 girls; n = 87 boys. *$p < .05$. **$p < .01$

variance in the outcome variable could be ascribed to differences between participants.

The second step involved the estimation of a within-participant or level 1 model; the level 1 units are the repeated observations over time (e.g., dependent life stress). In this step, an investigation of the characteristics within individual participants (i.e., level 1 variables) that are associated with the outcome took place. Within a level 1 HLM analysis, the researcher is able to examine whether the regression slopes for each participant vary significantly across participants. The slope values represent the rate of change. The within-person intercept value represents the average within-person score of the level 1 variables, for each adolescent in the sample. Both stress variables (i.e., dependent life stress and independent life stress) were grand-centered (i.e., scores were centered around the mean across all of the adolescents in the entire sample) in order to make the intercept value easier to interpret. That is, the intercept represents the expected value of the outcome variable when all level 1 predictors equal zero; it represents where the adolescents started off (i.e., the mean of the entire sample, centered around the grand mean, when time = 0 which refers to T1) on the outcome variable. Social desirability responding, our statistical control for defensive response patterns served as a covariate/control variable. Thus, social desirability responding was also grand-centered.

Given that there were three time points in the present study, the maximum number of "random" effects at level 1 (i.e., variability that is random and that can be predicted from level 2 variables) was two. The decision to pick the intercept and the time slope as the two random effects at level 1 was made both based on theoretical and statistical grounds. From a theoretical perspective, the intent was to predict where adolescents started off as well as their growth curves over time on the outcome measures. There was

no reason to set the social desirability variable as random since it was the control variable; we were not interested in predicting variability in social desirability from level 2. It was not logical to set either the dependent life stress variable or the independent life stress variable as random as one was no more important than the other. Additionally, we entered these stress variables at level 2 to predict variability within the intercept and the time slope. From a statistical perspective, when the level 1 variables of interest (i.e., dependent life stress, independent life stress, and time) were tested to determine which one was the most random, time emerged as the most random. Thus, the intercept and time slope were set as random effects and the other variables at level 1 (i.e., social desirability, dependent life stress, and independent life stress) were set as "fixed" effects. Level 1 describes each person's pattern of cumulative change across time, which can be modeled as a function of the participant's initial level at T1 (intercept) and his/her rate of change (i.e., time slope). If the variance component for the random effects of the intercept and time slope (i.e., these values are found on the bottom of each table of findings for level 1 models) are significant, it means that there is enough variance between participants to predict the intercept and time slope from level 2 variables. If there was not enough variability between participants or if the variable is fixed (i.e., social desirability), those slope values were not predicted by level 2 variables.

In the third step (i.e., level 2 HLM model), predictors of between-person variation were entered into the model to predict the intercept and time slope (i.e., growth curve) of each outcome variable. All attachment variables (i.e., attachment anxiety, attachment avoidance, and any interaction that included attachment in it) were grand-centered. Each block of level 2 predictors was added step-by-step. Following the addition of each block

of predictors, the non-significant predictors were removed from the model before adding in the next block of predictors. This step-by-step process followed the procedure outlined by Jaccard, Turissi & Wan (1990). That is, the first block of level 2 predictors were sex, attachment anxiety and attachment avoidance. The second block of level 2 predictors were mean dependent life stress T1 and mean independent life stress T1. The third block of level 2 predictors was the following interactions: attachment anxiety by attachment avoidance, attachment anxiety by sex, and attachment avoidance by sex. Then in a separate analysis, in place of the latter block of interactions a block of the following attachment by stress interactions were entered: mean dependent life stress by mean attachment anxiety, mean dependent life stress by mean attachment avoidance, mean independent life stress by mean attachment anxiety, and mean independent life stress by mean attachment avoidance. The significant predictors from the two sets of analyses (for each outcome variable) were entered into the final level 2 model. The level 2 output allowed the calculation of the percent of between-person variance explained by the level 2 model for the intercept and the time slope. Refer to Appendix L for the HLM formulae (i.e., which are akin to syntax) used to generate the analyses.

Depressive Symptoms Findings

Unconditional model. To test the hypotheses about depressive symptoms, linear HLM analyses were performed with depressive symptoms as the outcome variable. In the unconditional model (without predictors), the chi-square value of the variance component of the coefficient indicated significant between-subject variation, $\chi^2(182) = 682.15, p < .00$. The intra-class correlation indicated that approximately 49% of the variance in depressive symptoms was between-person.

Level 1 model. In the final level 1 model, social desirability and time were entered into the equation. Dependent life stress and independent life stress were not entered into the level 1 model because they were found to not significantly reduce the variance in depressive symptoms when entered alone (i.e., when each predictor was entered in on its own without other level 1 variables in the equation and was assessed with regards to whether it was able to significantly reduce the variance in depressive symptoms) at level 1 ($\chi^2(2) = 2.37, p > .10$; $\chi^2(2) = 4.17, p > .10$, respectively). Therefore neither variable added anything additional to the level 1 model. That is, within-individual stress variation was not associated with changes in depressive symptoms. The slope effect of time was significant, indicating that depressive symptoms decreased significantly over time, $t(182) = -4.57$ $p < .00$. The slope effect of social desirability ratings was significant, $t(516) = -3.01, p < .01$, indicating that depressive symptoms changed significantly with social desirability ratings such that as participants gave more socially desirable responses, their reporting of depressive symptoms decreased. The level 1 model explained 10.4% of the within-person variance (see Table 5).

Level 2 model. The final model contained the following level 2 predictors for the depressive symptoms intercept: Mean Attachment Avoidance, Dependent Life Stress T1, and the Mean Attachment Avoidance x Mean Attachment Anxiety interaction, and for the time slope: Mean Attachment Avoidance was the only significant level 2 predictor (see Table 6). When the level 2 model was re-run with the separate components of the significant interaction (i.e., attachment anxiety and attachment avoidance), the coefficients remained the same and attachment anxiety remained as a non-significant predictor. Thus, it was further justified to leave attachment anxiety out as a level 2

Table 5

Results for Final Level 1 Model with Depressive Symptoms as Outcome Variable and Strength of the Effects

Variable	*Coefficient*	*Standard Error*	*t Ratio*	*df*	*p value from final level 1 model*	*Additional variance explained by each predictor*
Intercept	0.40	0.02	18.20	182	0.00	N/A
Time slope	-0.05	0.01	-4.57	182	0.00	14.91%
Social Desirability slope	-0.21	0.07	-3.01	516	0.00	8.74%

Random Effects	*Variance Component*	*Standard Deviation*	χ^2	*df*	*p Value*
Intercept	0.06	0.24	470.85	182	0.00
Time slope	0.04	0.20	192.83	182	0.28

Table 6

Final Level 2 Results for the Prediction of the Intercept and Time Slope for Depressive Symptoms

Variables	*Coeffi-cient*	*Standard Error*	*t Ratio*	*df*	*p value for final level 2 model*	*Additional variance explained by each predictor*
Intercept						
Intercept	0.40	0.02	19.49	179	0.00	N/A
Avoidance	0.08	0.03	2.89	179	0.01	6.94%
Dependent Stress T1	0.06	0.02	3.19	179	0.00	8.34%
Anxiety x Avoidance	-0.05	0.02	-2.43	179	0.02	3.06%
Time slope						
Intercept	-0.05	0.01	-4.65	181	0.00	N/A
Avoidance	-0.03	0.01	-2.59	181	0.01	0.11%
Social Desirability intercept	-0.16	0.07	-2.29	512	0.02	N/A

predictor of the intercept. In the prediction of the intercept, Mean Attachment Avoidance was positively associated with depressive symptoms, t (179) = 2.89, p = .01, such that, for example, adolescents with higher attachment avoidance, in general started off with more depressive symptoms as well. Dependent life stress at T1 was also positively associated with the depressive symptoms intercept (t (179) = 3.19, p < .00), such that, for example, adolescents with higher dependent life stress at T1, in general started off with more depressive symptoms as well. The interaction between Mean Attachment Anxiety by Mean Attachment Avoidance was also a significant predictor of the depressive symptoms intercept, t (179) = -2.43, p < .05. As displayed in Figure 1, those who had both lower attachment anxiety and lower attachment avoidance generally started off with the lowest levels of depressive symptoms. Whereas, those who had lower attachment avoidance and higher attachment anxiety and those who had higher attachment avoidance and lower attachment anxiety generally started off with the highest levels of depressive symptoms.

Despite the random effects for the time slope not having been significant (see bottom of Table 5), the time slope was left in the level 2 model for exploratory purposes; however these findings should be interpreted with this point in mind. This non-significance suggests that the variability between subjects was minimal and any effects that are found would be expected to be very small. In the prediction of the time slope, Mean Attachment Avoidance was a significant predictor (t (181) = -2.59, p = .01). As displayed in Figure 2, adolescents' levels of attachment avoidance are related to their growth curves for depressive symptoms; attachment avoidance levels predict how much adolescents change in depressive symptoms over time. In particular, those with higher

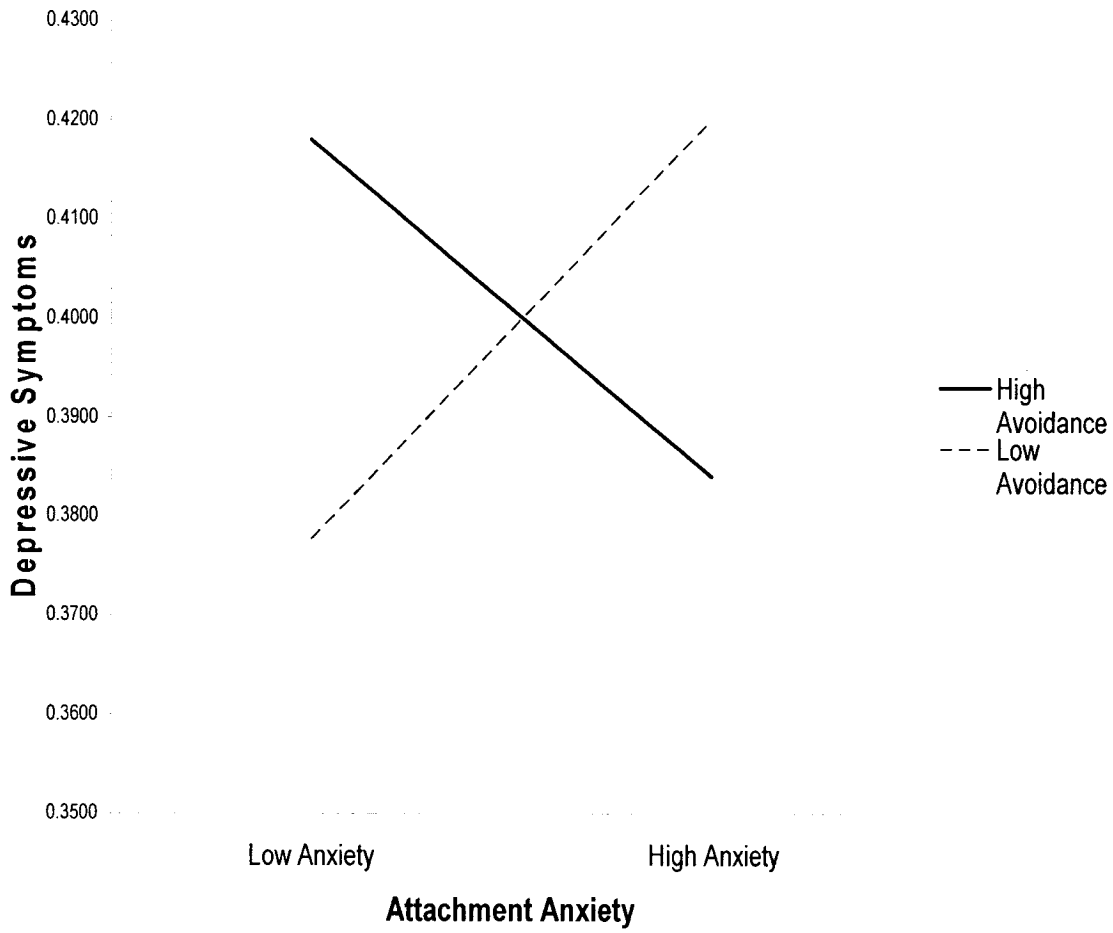

Figure 1. Mean attachment anxiety by mean attachment avoidance interaction for the depressive symptoms intercept. Low attachment avoidance and low attachment anxiety refer to the 25th percentile (i.e., represents lower levels of attachment avoidance and lower levels of attachment anxiety) and high avoidance and high anxiety refer to the 75th percentile (i.e., represents higher levels of attachment avoidance and higher levels of attachment anxiety).

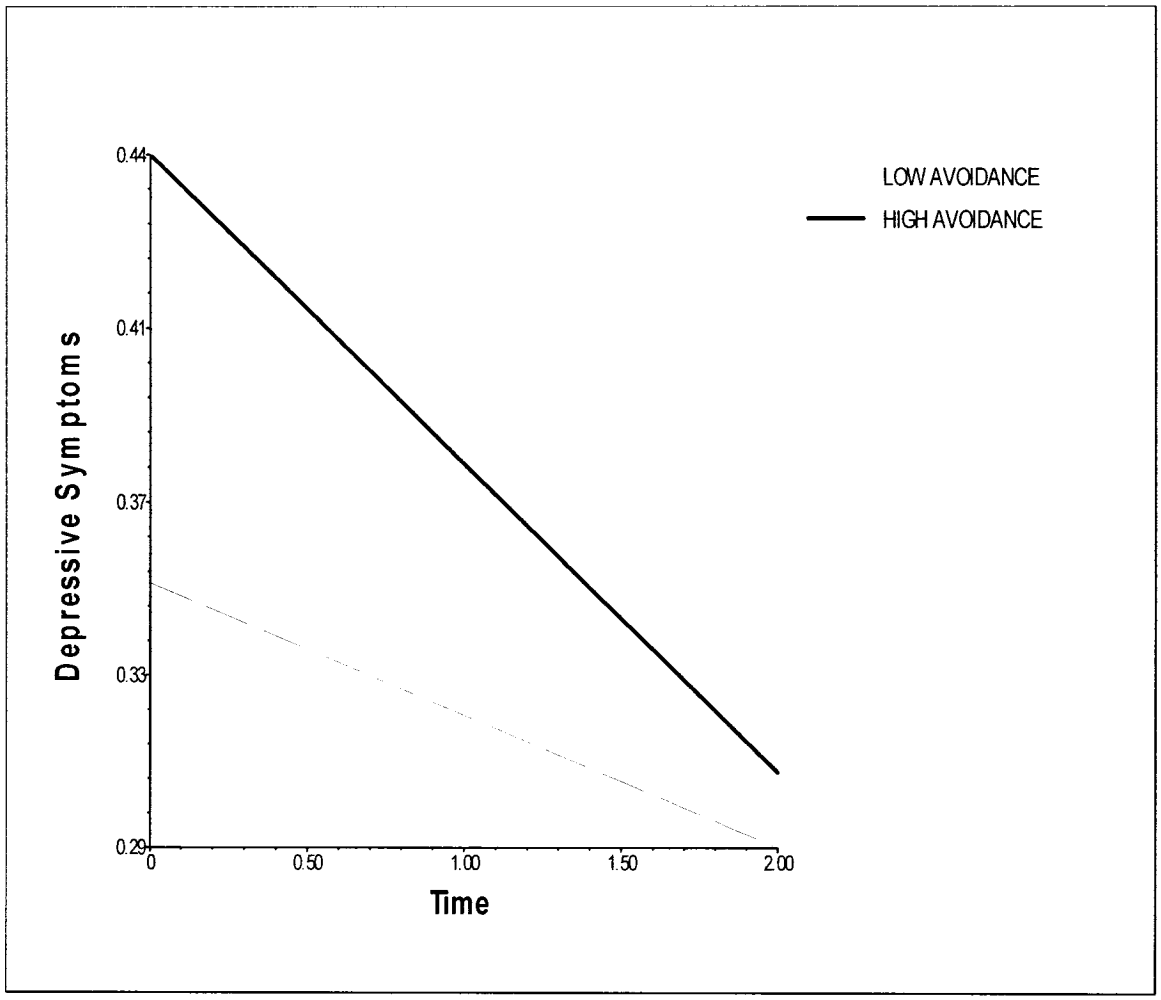

Figure 2. Mean attachment avoidance predicts the growth curve (i.e., time slope) for depressive symptoms. Low attachment avoidance refers to the 25th percentile (i.e., represents lower levels of attachment avoidance) and high avoidance refers to the 75th percentile (i.e., represents higher levels of attachment avoidance).

attachment avoidance started off with more depressive symptoms than those with lower attachment avoidance. However, as time went on (by time 3), adolescents with higher and lower attachment avoidance levels had almost converged in their (lower) levels of depressive symptoms. Nonetheless, those with higher attachment avoidance still had slightly more depressive symptoms. Those with higher attachment avoidance had a steeper negative slope than those with lower attachment avoidance, indicating that the former group decreased the most in depressive symptom levels over time.

Delinquency Findings

Unconditional model. To test the hypotheses about delinquency, linear HLM analyses were performed with delinquency as the outcome variable. In the unconditional model (without predictors), the chi-square value of the variance component of the coefficient indicated significant between-subject variation, $\chi^2(182) = 862.16, p = .00$. The intra-class correlation indicated that approximately 57% of the variance in delinquency was between-person.

Level 1 model. In the final level 1 model, time, social desirability, and dependent life stress were entered into the equation. Independent life stress was not entered into the level 1 model because it was found to not significantly reduce the variance in delinquency when entered alone at level 1 ($\chi^2(2) = 1.54, p > .10$). Therefore, independent life stress did not add anything additional to the level 1 model. The slope effect of time was significant, indicating that the delinquency frequency increased significantly over time, $t(182) = 6.33, p < .00$. The slope effect of social desirability was significant, indicating that delinquent acts increased significantly as social desirability ratings decreased, $t(515) = -4.31, p < .00$. The slope effect of dependent life stress was

significant, indicating that delinquent acts increased significantly as dependent life stressors increased, t (515) = 2.92, $p < .00$. The level 1 model explained approximately 27% of within-person variance (see Table 7).

Level 2 model. The final model contained the following level 2 predictors for the delinquency intercept: Mean Attachment Avoidance, Dependent Life Stress T1, and the Mean Independent Life Stress x Mean Attachment Anxiety interaction, and for the time slope: the Mean Attachment Anxiety x Mean Attachment Avoidance interaction and the Mean Independent Life Stress x Mean Attachment Anxiety interaction (see Table 8). When the level 2 model was re-run with the separate components of the significant interaction (i.e., independent life stress and attachment anxiety), the coefficients remained the same and independent life stress and attachment anxiety remained as non-significant predictors. Thus, it was further justified to leave them out of the level 2 model. In the prediction of the delinquency intercept, Mean Attachment Avoidance was significant, t (179) = 2.26, $p < .05$, such that those with higher attachment avoidance started off with higher frequencies of delinquent acts compared with those with lower attachment avoidance. Dependent life stress T1 was also positively associated with the delinquency intercept (t (179) = 1.95, $p < .05$), such that, adolescents with higher dependent life stress T1, in general started off with higher delinquency than those with lower dependent life stress T1. The interaction of mean independent life stress x mean attachment anxiety was also a significant predictor of the delinquency intercept, t (179) = - 3.52, $p < .00$. As displayed in Figure 3, those who had both lower attachment anxiety and lower independent life stress generally started off with the lowest levels of delinquency. Those who had both higher attachment anxiety and lower independent life stress started off with

Table 7

Results for Final Level 1 Model with Frequency of Delinquent Acts as Outcome Variable and Strength of the Effects

Variables	*Coefficient*	*Standard Error*	*t Ratio*	*df*	*p value from final level 1 model*	*Additional variance explained by each predictor*
Intercept	0.20	0.01	15.83	182	0.00	N/A
Time slope	0.05	0.01	6.33	182	0.00	24.26%
Social Desirability slope	-0.19	0.04	-4.31	515	0.00	1.03%
Dependent Life Stress slope	0.03	0.01	2.92	515	0.00	7.24%

Random Effects	*Variance Component*	*Standard Deviation*	χ^2	*df*	*p Value*
Intercept	0.02	0.13	366.71	182	0.00
Time slope	0.00	0.05	237.84	182	0.00

Table 8

Final Level 2 Results for the Prediction of the Intercept and Time slope for Frequency of Delinquent Acts

Variables	*Coeffi-cient*	*Stand-ard Error*	*t Ratio*	*df*	*p value for final level 2 model*	*Additional variance explained by each predictor*
Intercept						
Intercept	0.20	0.01	17.61	179	0.00	N/A
Avoidance	0.03	0.01	2.26	179	0.03	5.49%
Dependent Stress T1	0.03	0.02	1.95	179	0.04	14.30%
Independent Stress x Anxiety	-0.06	0.02	-3.52	179	0.00	3.13%
Time slope						
Intercept	0.05	0.01	6.14	180	0.00	N/A
Anxiety x Avoidance	-0.03	0.01	-2.80	180	0.01	0.64%
Independent Stress x Anxiety	0.03	0.01	2.11	180	0.04	N.S.
Social Desirability intercept	-0.14	0.04	-3.27	510	0.00	N/A
Dependent Life Stress intercept	0.04	0.01	4.10	510	0.00	N/A

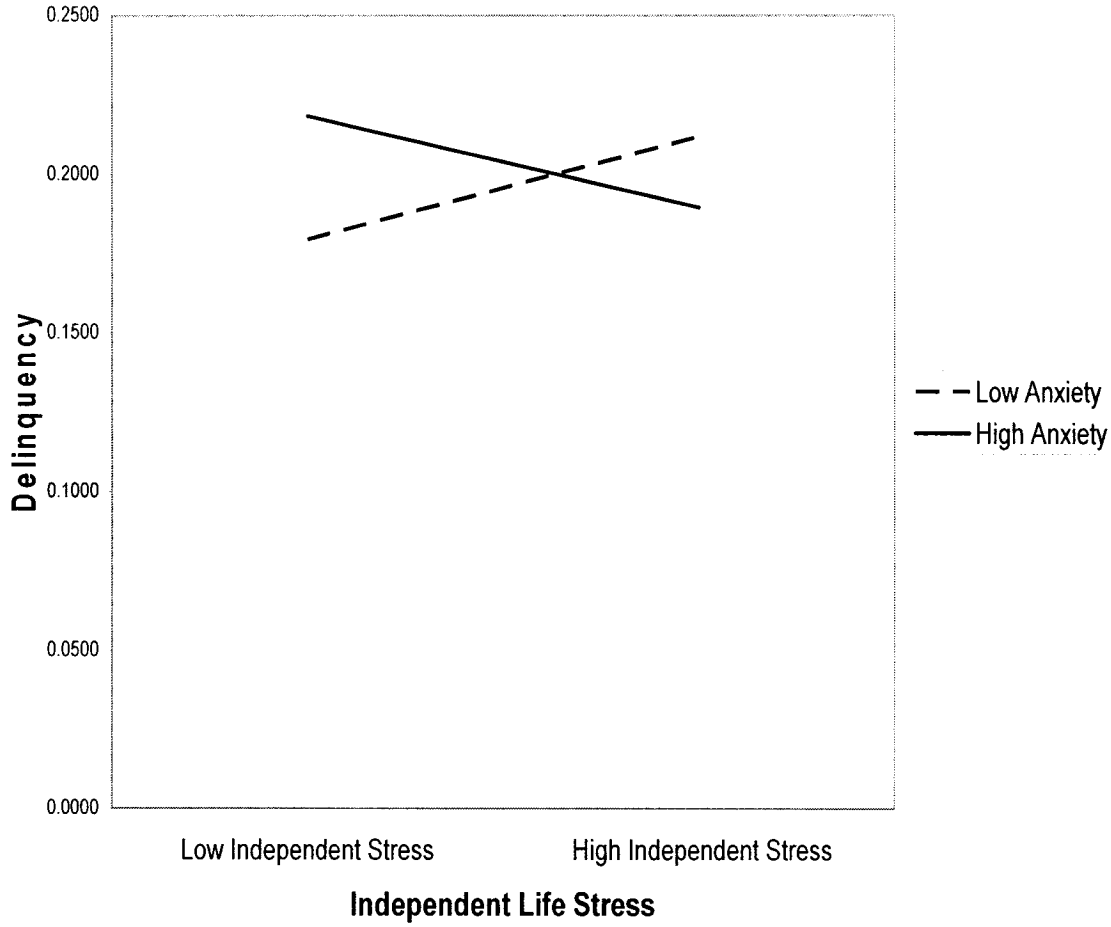

Figure 3. Independent life stress by mean attachment anxiety interaction for the frequency of delinquent acts intercept. Low attachment anxiety and low independent life stress refer to the 25th percentile (i.e., represents lower levels of attachment anxiety and lower levels of independent life stress) and high anxiety and high independent life stress refer to the 75th percentile (i.e., represents higher levels of attachment anxiety and higher independent life stress).

the highest delinquency.

In the prediction of the time slope, the interaction of Mean Attachment Anxiety by Mean Attachment Avoidance was a significant predictor (t (180) = -2.80, p = .01). When the level 2 model was re-run with the separate components of the significant interactions predicting the time slope, the coefficients remained the same and the separate component predictors (i.e., attachment anxiety, attachment avoidance, independent life stress) remained as non-significant predictors. Thus, it was further justified to leave them out of the level 2 model. As displayed in Figure 4, although those who had higher attachment avoidance had higher delinquency overall, those with lower attachment avoidance had a steeper positive slope over time indicating that they increased more rapidly in delinquency levels over time. The slopes were near identical for those lower in attachment avoidance (regardless of their attachment anxiety levels) and for those higher in avoidance (regardless of their anxiety levels). For the adolescents with lower levels of attachment avoidance moderated by higher levels of attachment anxiety, their rate of change was slightly faster (i.e., slightly steeper slope) compared to those who were moderated by lower levels of attachment anxiety. This was also the case for those with higher levels of attachment avoidance who were moderated by higher levels of attachment anxiety, as their rate of change was also slightly faster than those who were moderated by lower levels of attachment anxiety. It is of note that this interaction only explained an additional 1% of the variance in delinquency. The interaction between mean independent life stress and mean attachment anxiety also predicted the growth curves (i.e., time slope) for frequency of delinquent acts (t (180) = 2.11, $p < .05$). As displayed in Figure 5, adolescents with higher independent life stress (regardless of their attachment

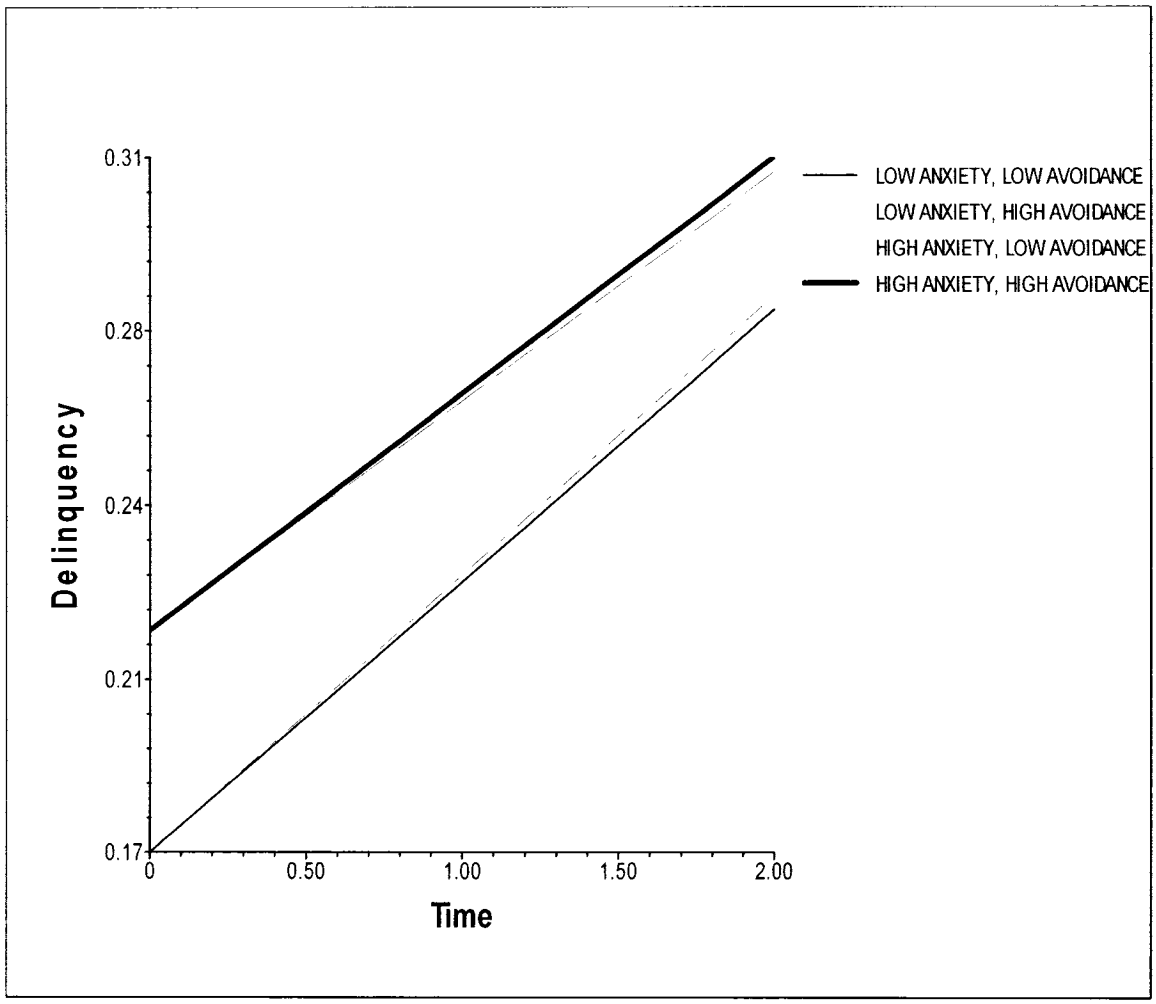

Figure 4. Mean attachment anxiety by mean attachment avoidance interaction predicts the growth curve (i.e., time slope) for the frequency of delinquent acts time slope. Low attachment avoidance and low attachment anxiety refer to the 25th percentile (i.e., represents lower levels of attachment avoidance and lower levels of attachment anxiety) and high attachment avoidance and high attachment anxiety refer to the 75th percentile (i.e., represents higher levels of attachment avoidance and higher levels of attachment anxiety).

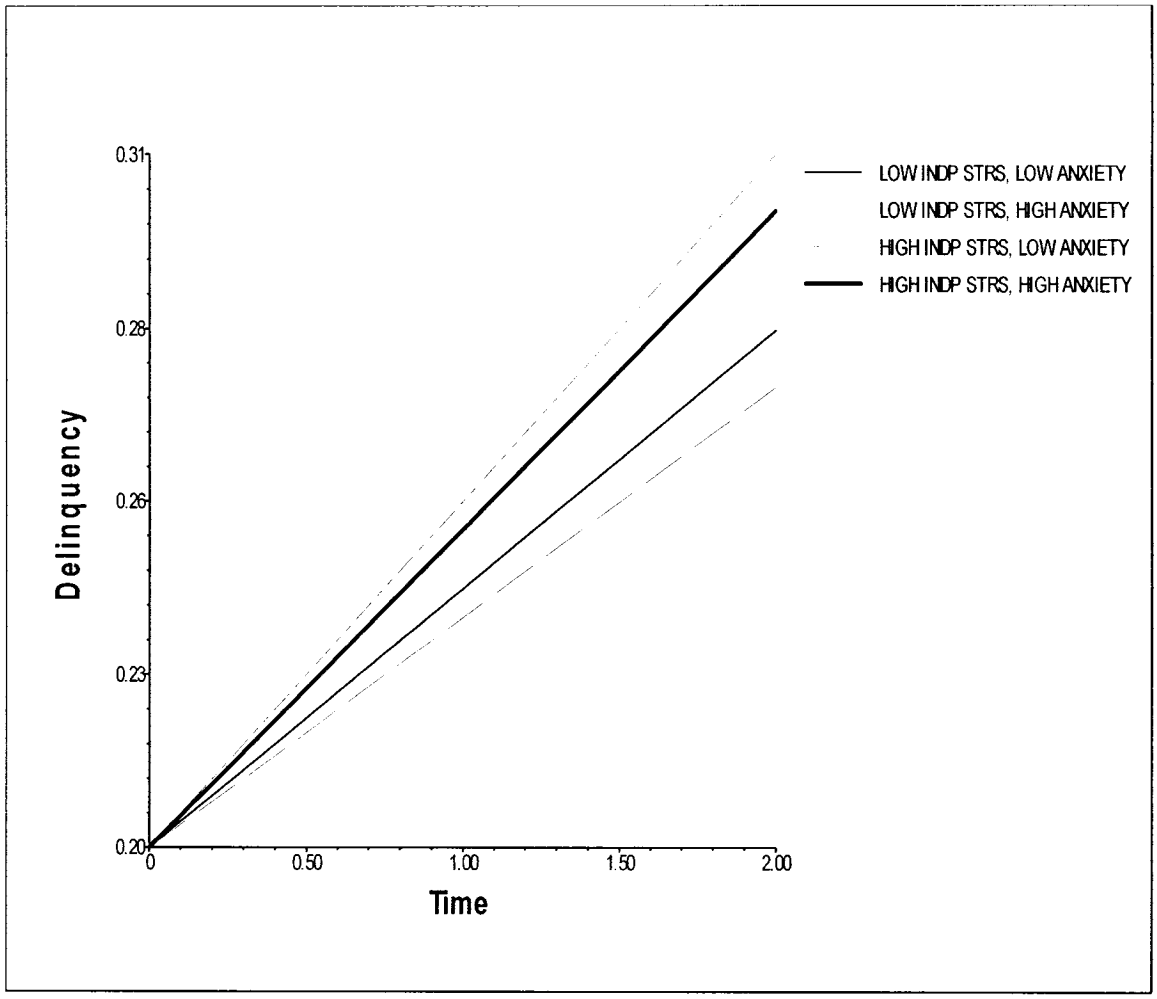

Figure 5. Mean independent life stress by mean attachment anxiety interaction predicts the growth curve (i.e., time slope) for the frequency of delinquent acts. Low independent life stress and low attachment anxiety refer to the 25th percentile (i.e., represents lower levels of independent life stress and lower levels of attachment anxiety) and high independent life stress and high attachment anxiety refer to the 75th percentile (i.e., represents higher levels of independent life stress and higher levels of attachment anxiety).

anxiety levels) had steeper slopes indicating that they increased more in their frequency of delinquent acts over time. However, having both higher independent life stress levels and lower attachment anxiety levels predicted the highest increase in frequency of delinquent acts over time. Those with both lower independent life stress levels and higher attachment anxiety levels had the lowest rate of increase in frequency of delinquent acts over time.

Responsive Caregiving Findings

Unconditional model. To test the hypotheses about responsive caregiving, linear HLM analyses were performed with responsive caregiving as the outcome variable. In the unconditional model (without predictors), the chi-square value of the variance component of the coefficient indicated significant between-subject variation, $\chi^2(182) = 561.76, p < .00$. The intra-class correlation indicated that 61% of the variance in responsive caregiving was between-person.

Level 1 model. In the final level 1 model, time and social desirability were entered into the equation. Dependent life stress and independent life stress were removed as they did not significantly reduce the variance in responsive caregiving when entered alone (i.e., on their own without any other level 1 predictors in the model) at level 1 ($\chi^2(2) = 2.73, p > .10$; $\chi^2(2) = 1.06, p > .10$, respectively), therefore they did not add anything additional to the level 1 model. The final level 1 model revealed that neither the time slope nor social desirability were significant predictors of responsive caregiving. The level 1 model explained approximately 11% of within-person variance in responsive caregiving (see Table 9).

Table 9

Results for Final Level 1 Model with Responsive Caregiving as Outcome Variable and Strength of the Effects

Variables	*Coefficient*	*Standard Error*	*t Ratio*	*df*	*p value from final level 1 model*	*Additional variance explained by each predictor*
Intercept	4.49	0.07	66.32	182	0.00	N/A
Time slope	0.00	0.03	0.08	182	0.93	11.8%
Social Desirability slope	0.35	0.21	1.66	516	0.10	N.S.

Random Effects	*Variance Component*	*Standard Deviation*	χ^2	*df*	*p Value*
Intercept	0.56	0.75	550.07	182	0.00
Time slope	0.04	0.20	224.88	182	0.02

Level 2 model. The final model contained the following level 2 predictors for the responsive caregiving intercept: sex, mean attachment anxiety, the mean attachment avoidance x sex interaction, and the mean independent life stress x mean attachment avoidance interaction, and for the time slope: mean attachment anxiety (see Table 10). In the prediction of the responsive caregiving intercept, sex was negatively associated with responsive caregiving, t (178) = -9.22, $p < .00$, indicating that females, in general started off with more responsive caregiving acts with their friends than males. Mean attachment anxiety was positively related to responsive caregiving such that, for example, those with higher attachment anxiety, in general started off with more responsive caregiving acts with their friends, t (178) = 3.41, $p < .00$. Mean attachment avoidance by sex interaction predicted the responsive caregiving intercept, t (178) = -3.57, $p < .00$. As displayed in Figure 6, females with lower attachment avoidance generally started off being more responsive caregivers than females with higher avoidance. Conversely, females with higher attachment avoidance generally started off with lower responsive caregiving than males. Mean independent life stress by mean attachment avoidance interaction predicted the responsive caregiving intercept, t (178) = 2.19, $p < .03$. As displayed in Figure 7, those who had the combination of lower attachment avoidance with lower independent life stress, in general started off with the highest responsive caregiving acts with friends, more so than those with higher attachment avoidance combined with lower independent life stress. Those with higher independent life stress generally started off with lower levels of responsive caregiving acts with friends, more so for those who also had higher attachment avoidance. The negative rate of change for responsive caregiving reflected a more rapid decrease for the adolescents who had lower levels of attachment avoidance

Table 10

Final Level 2 Results for the Prediction of the Intercept and Time slope for Responsive Caregiving

Variables	*Coeffi-cient*	*Stand-ard Error*	*t Ratio*	*df*	*p value for final level 2 model*	*Additional variance explained by each predictor*
Intercept						
Intercept	4.91	0.06	75.86	178	0.00	N/A
Sex	-0.87	0.09	-9.22	178	0.00	37.75%
Anxiety	0.19	0.06	3.41	178	0.00	4.44%
Avoidance x Sex	-0.39	0.11	-3.57	178	0.00	16.47%
Independent Stress x Avoidance	0.21	0.10	2.19	178	0.03	6.53%
Time slope						
Intercept	0.00	0.03	0.10	181	0.92	N/A
Anxiety	-0.09	0.04	-2.39	181	0.02	N.S.
Social Desirability intercept	0.41	0.20	2.08	511	0.04	N/A

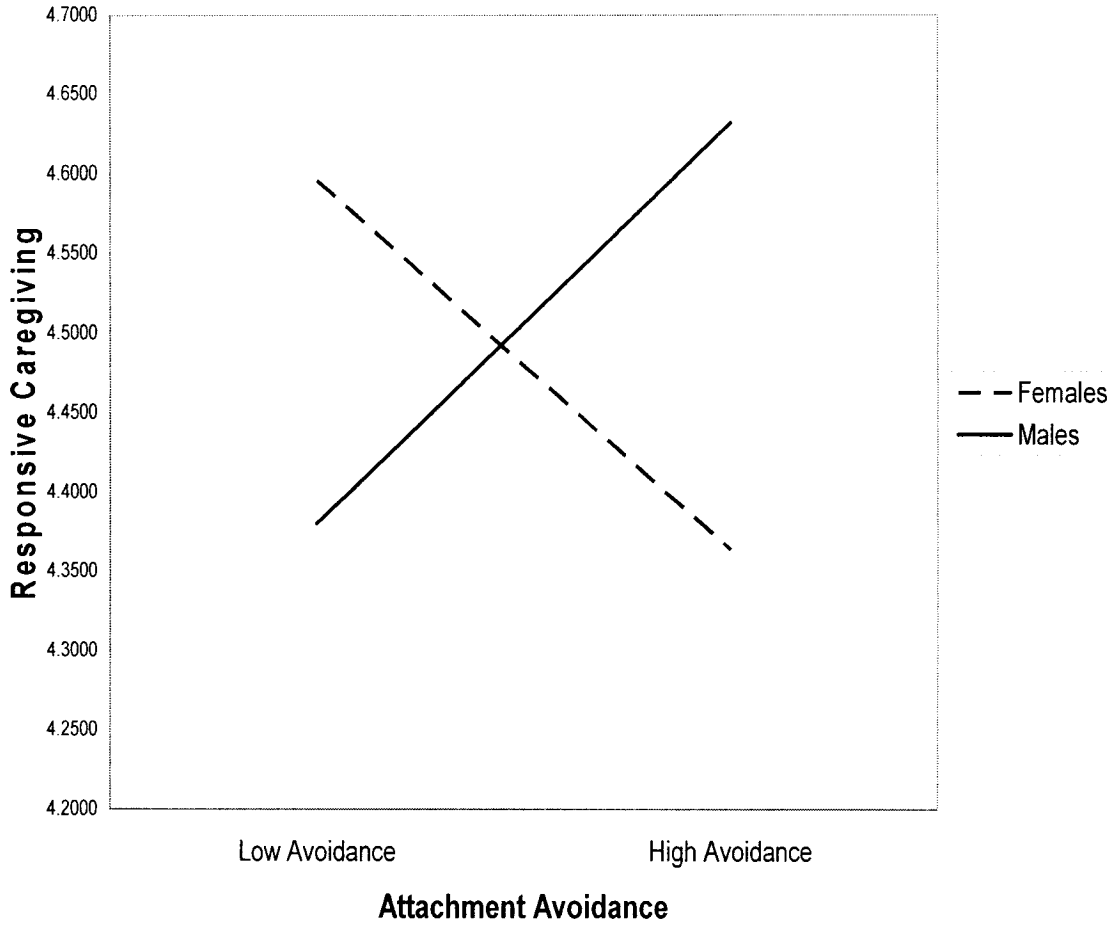

Figure 6. Mean attachment avoidance by sex interaction for the responsive caregiving intercept. Low avoidance refers to the 25th percentile (i.e., represents lower levels of attachment avoidance), high avoidance refers to the 75th percentile (i.e., represents higher levels of attachment avoidance), and females and males were grand-centered around the mean of the entire data set.

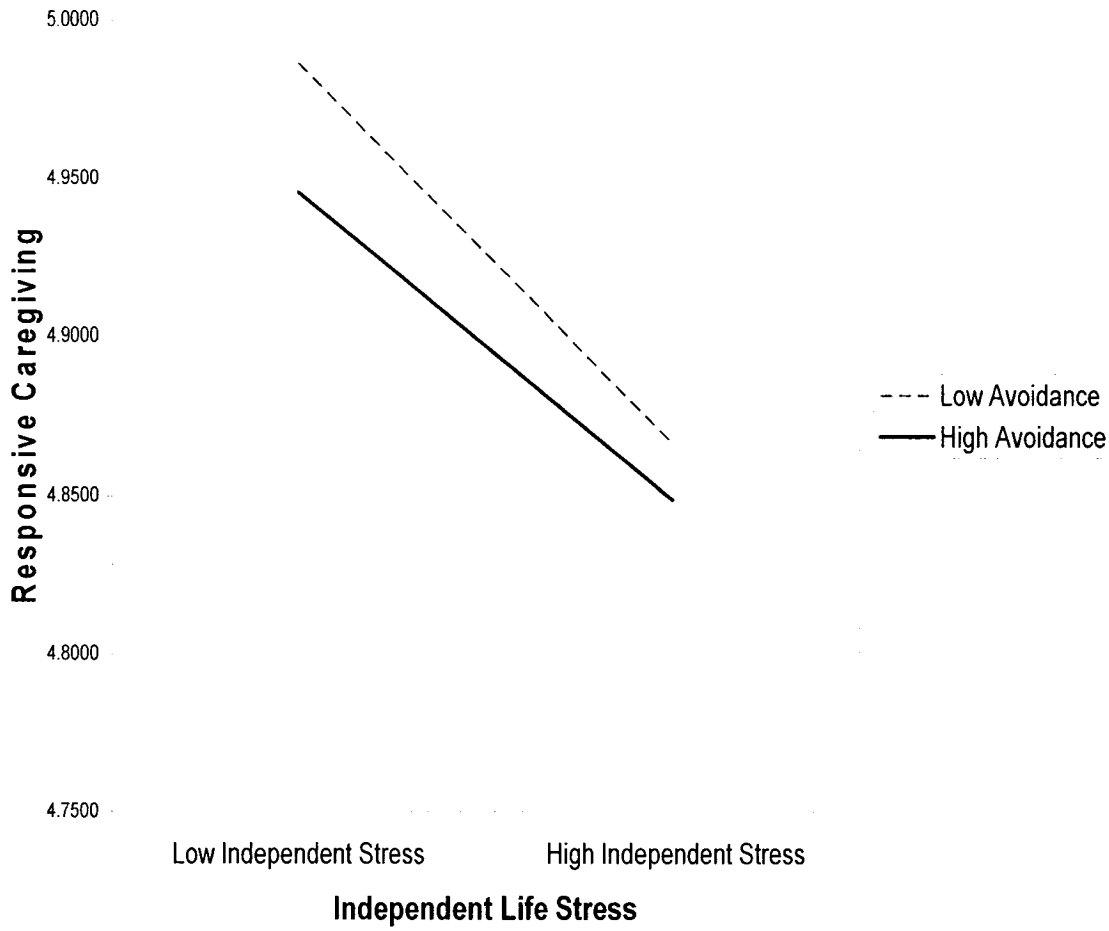

Figure 7. Independent life stress by mean attachment avoidance interaction for the responsive caregiving intercept. Low attachment avoidance and low independent life stress refer to the 25th percentile (i.e., represents lower levels of attachment avoidance and lower levels of independent life stress) and high avoidance and high independent life stress refer to the 75th percentile (i.e., represents higher levels of attachment avoidance and higher independent life stress).

compared to those with higher levels of attachment avoidance.

In the prediction of the responsive caregiving growth curves, mean attachment anxiety was a significant predictor, t (181) = -2.39, $p < .05$. As displayed in Figure 8, adolescents' attachment anxiety was related to their growth curve in responsive caregiving acts with friends; attachment anxiety predicted how much adolescents changed in responsive caregiving over time. Results revealed that by T3, regardless of one's level of attachment anxiety, adolescents did not differ in responsive caregiving acts with friends. Those with lower and higher attachment anxiety had similarly steep slopes over time, however the slope was positive for those with lower attachment anxiety and negative for those with higher attachment anxiety. Still, the amount of between subjects' variance accounted for by attachment anxiety was not significant.

Positive Affect Findings

Unconditional model. To test the hypotheses about positive affect, linear HLM analyses were performed with positive affect as the outcome variable. In the unconditional model (without predictors), the chi-square value from the variance component of the coefficient indicated significant between-subject variation, χ^2 (182) = 575.63, $p < .00$. The intra-class correlation indicated that approximately 43% of the variance in positive affect was between-person.

Level 1 model. In the final level 1 model, social desirability and time were entered into the equation. Dependent life stress and independent life stress were removed as they did not significantly reduce the variance in positive affect when entered alone at level 1 (χ^2 (2) = 2.99, $p > .10$; χ^2 (2) = 2.82, $p > .10$, respectively), therefore they did not add anything additional to the level 1 model. When the separate components of the significant

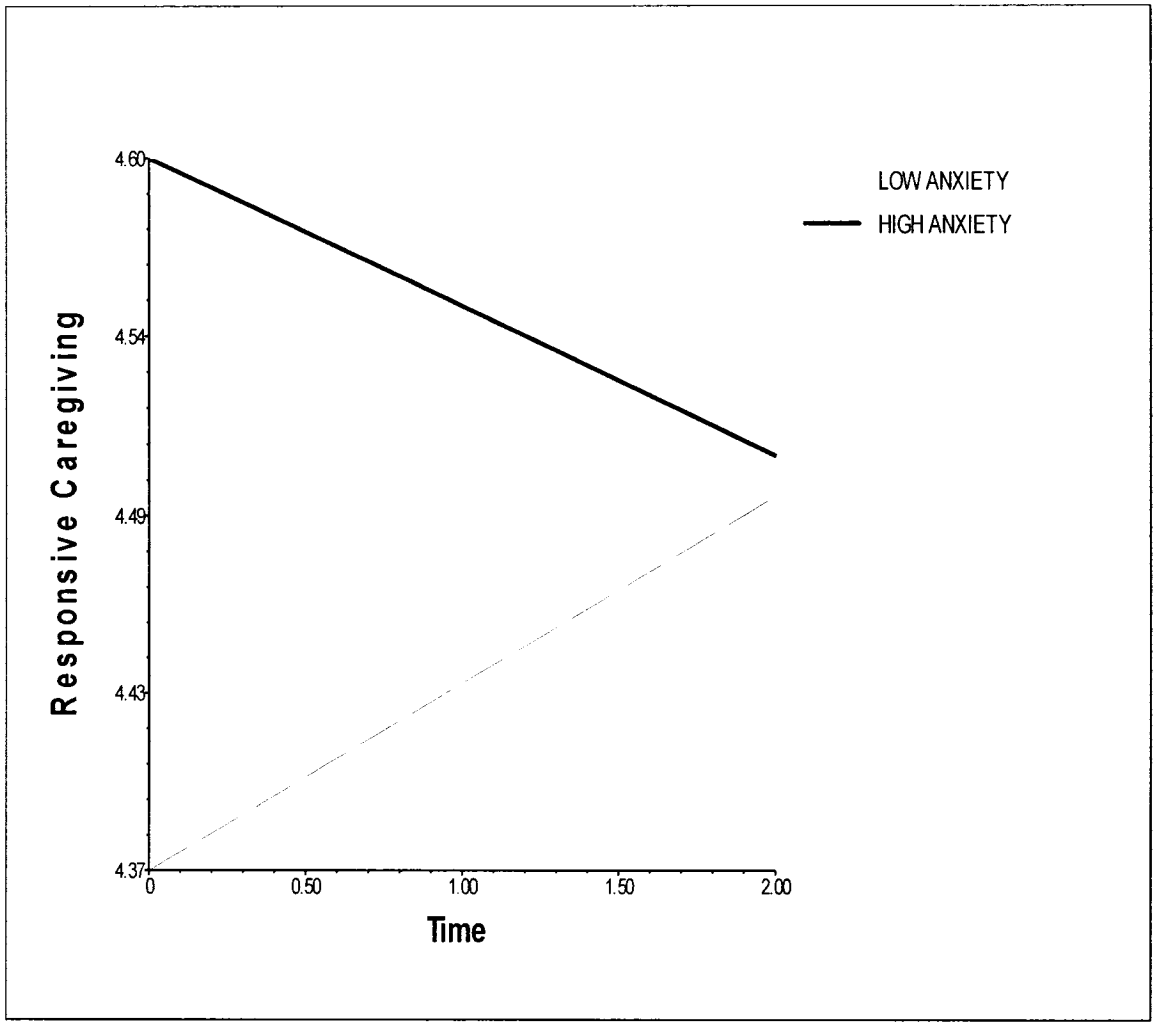

Figure 8. Mean attachment anxiety predicts the growth curve (i.e., time slope) for responsive caregiving acts with friends. Low attachment anxiety refers to the 25th percentile (i.e., represents lower levels of attachment anxiety) and high anxiety refers to the 75th percentile (i.e., represents higher levels of attachment anxiety).

interactions (i.e., attachment avoidance and independent life stress) were entered into the level 2 model, the coefficients did not change for the other predictors in the model and the separate components remained non-significant. Thus, it was further justified to leave out the separate components of the interactions. The final level 1 model revealed that the slope effect of time was significant, indicating that positive affect increased significantly over time, t (182) = 3.29, $p < .00$. The slope effect of social desirability was significant, indicating that positive affect increased significantly as social desirability ratings increased, t (516) = 2.93, $p < .00$. The level 1 model explained approximately 23% of within-person variance (see Table 11).

Level 2 model. The final model contained the following level 2 predictors for the positive affect intercept: sex, mean dependent life stress T1, the mean independent life stress x mean attachment anxiety interaction, and for the time slope: the mean attachment anxiety by mean attachment avoidance interaction (see Table 12). When the level 2 model was re-run with the separate components of the significant interaction (i.e., attachment anxiety and independent life stress), the coefficients remained the same for the other predictors in the model and the separate components remained as non-significant predictors. Thus, it was further justified to leave them out of the level 2 model. In the prediction of the positive affect intercept, sex was negatively associated with positive affect, t (179) = -2.19, $p < .05$, indicating that females, in general, started off with higher positive affect than males. Mean dependent life stress T1 was negatively related to positive affect such that, for example, those with higher dependent life stress T1, in general started off with lower positive affect, t (179) = -2.20, $p < .05$. Mean independent life stress by mean attachment anxiety interaction predicted the positive

Table 11

Results for Final Level 1 Model with Positive Affect as Outcome Variable and Strength of the Effects

Variables	*Coefficient*	*Standard Error*	*t Ratio*	*df*	*p value from final level 1 model*	*Additional variance explained by each predictor*
Intercept	8.39	0.32	25.92	182	0.00	N/A
Time slope	0.69	0.21	3.29	182	0.00	22.34%
Social Desirability slope	3.39	1.16	2.93	516	0.00	6.87%

Random Effects	*Variance Component*	*Standard Deviation*	χ^2	*df*	*p Value*
Intercept	10.07	3.17	377.35	182	0.00
Time slope	2.39	1.54	260.79	182	0.00

Table 12

Final Level 2 Results for the Prediction of the Intercept and Time slope for Positive Affect

Variables	*Coeffi -cient*	*Standard Error*	*t Ratio*	*df*	*p value for final level 2 model*	*Additional variance explained by each predictor*
Intercept						
Intercept	8.97	0.39	23.21	179	0.00	N/A
Sex	-1.23	0.56	-2.19	179	0.03	6.46%
Dependent Stress T1	-0.63	0.29	-2.20	179	0.03	2.09%
Independent Stress X Anxiety	1.03	0.40	2.59	179	0.01	4.03%
Time slope						
Intercept	0.68	0.21	3.28	181	0.00	N/A
Anxiety x Avoidance	0.46	0.24	1.92	181	0.04	0.80%
Social Desirability intercept	3.13	1.17	2.67	512	0.01	N/A

affect intercept, t (179) = 2.59, $p < .05$. As displayed in Figure 9, those with lower attachment anxiety combined with higher independent life stress started off with the highest levels of positive affect. Those with higher attachment anxiety combined with higher independent life stress generally started off with the lowest levels of positive affect.

In the prediction of the positive affect growth curves (i.e., time slopes), the mean attachment anxiety by mean attachment avoidance interaction was a significant predictor, t (181) = 1.92, $p < .05$. As displayed in Figure 10, having both higher attachment anxiety and lower attachment avoidance predicted the highest increases in positive affect over time, closely followed by those with both higher attachment anxiety and higher attachment avoidance. By T3, those with higher levels of attachment anxiety still had higher levels of positive affect than those with lower levels of attachment anxiety. Those with both lower attachment anxiety levels and higher attachment avoidance had the lowest increases in positive affect over time.

Discussion

The purpose of this short-term longitudinal study was to explore the role of adolescent-mother attachment quality in the relationship between stressful life events (dependent and independent) and adjustment (positive and negative) outcomes over time. These objectives were achieved by using HLM analyses to assess the latter inter-relationships over three time points spanning two years of adolescence. This examination included an assessment of individual growth trajectories in adjustment outcomes. Previous research has left much knowledge to be desired when it comes to teasing apart the influence of protective and/or vulnerability factors in the relationships between stress

Figure 9. Independent life stress by mean attachment anxiety interaction for the positive affect intercept. Low attachment anxiety and low independent life stress refer to the 25th percentile (i.e., represents lower levels of attachment anxiety and lower levels of independent life stress) and high anxiety and high independent life stress refer to the 75th percentile (i.e., represents higher levels of attachment anxiety and higher independent life stress).

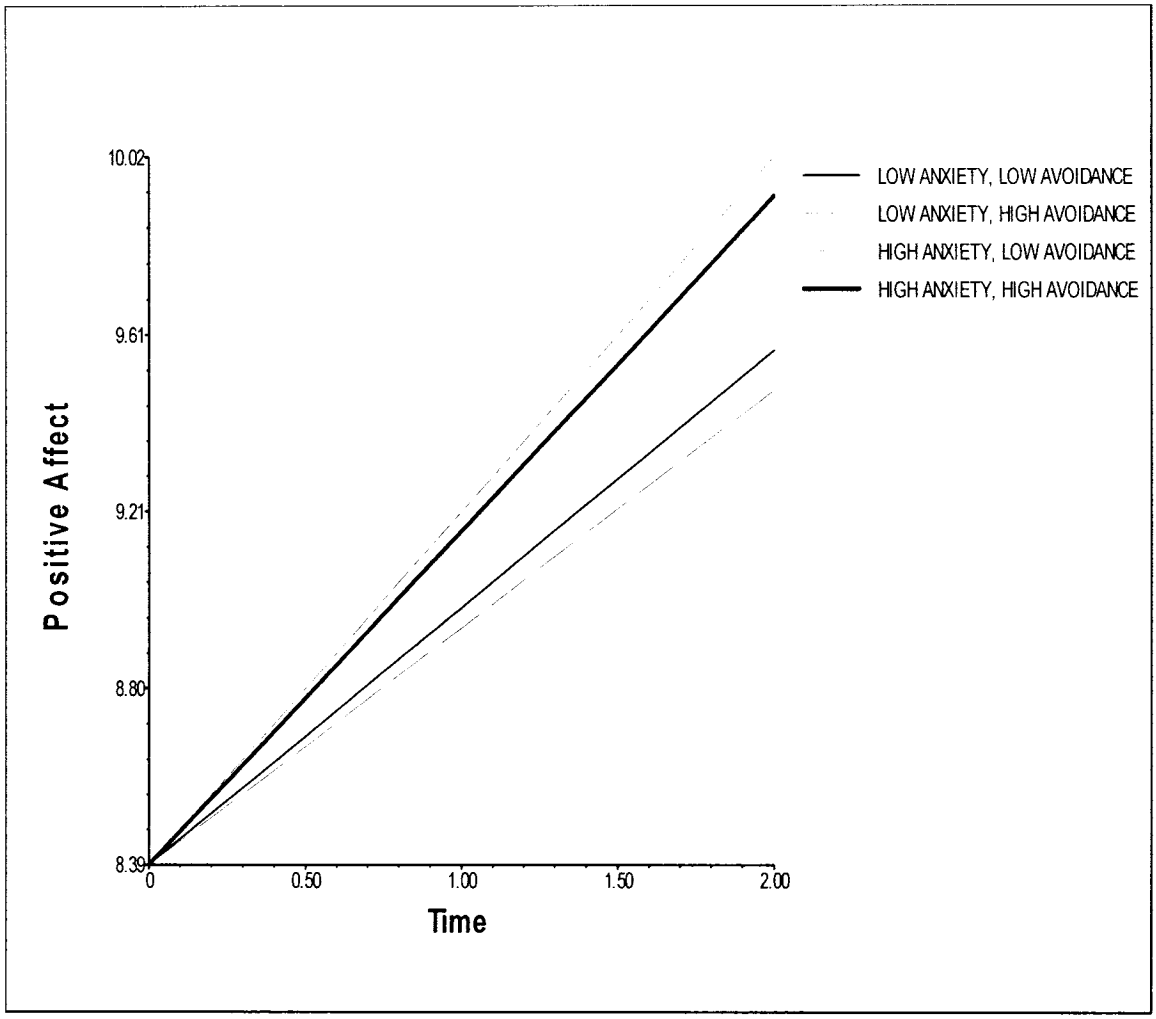

Figure 10. Mean attachment anxiety by mean attachment avoidance interaction predicts the growth curve (i.e., time slope) for positive affect. Low attachment anxiety and low attachment avoidance refer to the 25th percentile (i.e., represents lower levels of attachment anxiety and lower levels of attachment avoidance) and high anxiety and high avoidance refer to the 75th percentile (i.e., represents higher levels of attachment anxiety and higher levels of attachment avoidance).

and adjustment in normative samples of adolescents. Specifically, attachment anxiety and avoidance were assessed as potential factors underlying protection and vulnerability. A more detailed discussion of the findings from the present study is presented below.

Depressive Symptoms. Given that previous non-clinical (Daley et al., 1997) and clinical (Rudolph et al., 2000) research have found greater predictive power for dependent (rather than independent) life events, the former was expected to be a stronger predictor of depressive symptoms. This hypothesis was supported; dependent life stress was a significant predictor of depressive symptoms whereas independent life stress was not. Specifically, adolescents with higher levels of dependent life stress at T1 started off with higher levels of depressive symptoms. Given that dependent life stressors are more closely tied to one's behaviours than independent life stressors, it makes sense that the former were more strongly connected to adolescents' depressive symptoms. Thus, it appears that previous clinical research findings wherein self-generated life stressors are more strongly linked with adolescents' internalization of negative thoughts and feelings (e.g., depressive symptoms) generalize to a normative adolescent population.

It was hypothesized that attachment anxiety would be a stronger predictor of depressive symptoms than attachment avoidance. This hypothesis was not supported as primarily attachment avoidance predicted depressive symptoms, and attachment anxiety predicted only in the context of avoidance. Adolescents who had both lower attachment anxiety and lower attachment avoidance generally started off with the least depressive symptoms. Thus, the latter combination of attachment dimensions protected adolescents from experiencing higher levels of depressive symptoms. That is, those who have lower levels on both attachment dimensions appear to be less prone to internalizing their

negative thoughts and emotions. Those who had lower attachment avoidance and higher attachment anxiety and those who had higher attachment avoidance and lower attachment anxiety generally started off with the highest levels of depressive symptoms. Attachment quality to mother did not moderate the relationship between life stressors and depressive symptoms, however, failing to support the main hypotheses.

In the prediction of the adolescents' depressive symptoms growth curves over the two years of the study, attachment avoidance was again found to be a significant predictor. That is, attachment avoidance levels predicted how much adolescents changed in depressive symptoms over time. In particular, those who were more avoidant started off with more depressive symptoms than the less avoidant adolescents. However, as time went on (by T3), adolescents with higher and lower attachment avoidance levels had almost converged in depressive symptoms. Surprisingly, contrary to most previous research findings, these adolescents decreased in their depressive symptoms over time. However, Sallinen, Ronka, Kinnunen, and Kokko (2007) assessed non-clinical Finnish adolescents between the ages of 13 to 16 years of age and also found a group of adolescents who experienced decreasing depressive mood over time. Although it is positive that the adolescents in the present study decreased in their depressive symptoms over time, it is unclear why this may have occurred. It is possible that when adolescents entered grade 7 at T1 they were faced with a lot of new stressors which may have heightened their tendency to internalize negative thoughts and feelings. However, as time passed and they became more comfortable in their surroundings and habituated to the stressors in their lives, their depressive symptoms decreased as well. Those with higher attachment avoidance decreased the most in depressive symptom levels over time and

had the fastest rate of change. It is possible that as the years went on the highly avoidant adolescents became more defended against their negative thoughts and feelings and thus under-reported the latter. Surprisingly as well, sex differences did not emerge in the prediction of depressive symptoms. It is possible that as the stigma around being depressed weakens in society, male and female adolescents are beginning to report more equivalent levels of depressive symptoms.

Frequency of Delinquent Acts. The hypothesis that dependent life stress would be a stronger predictor than independent life stress of frequency of delinquent acts was supported. In terms of the amount of variance accounted for by the two types of life stressors, dependent life stress had more variance (14.30%) than independent life stress which was only significant in the form of an interaction with attachment anxiety (3.13%). Adolescents with higher levels of dependent life stress at T1 started off with higher frequency levels of delinquent acts. Given that dependent life stressors are more closely tied to one's behaviours than independent life stressors, the latter finding makes sense. Since the dependent life stress scale shares some potential overlap with the delinquency measure as the former contains one item asking about trouble with the law, this point was addressed to determine what role this potential, albeit small, overlap between the measures might have played. Analyses were conducted having removed the shared overlap between the measures, however, the removal of the overlap generally did not decrease the correlation between the delinquency and dependent life stress measures across the three time points. Thus, it did not appear as though there was any significant shared overlap between the delinquency measure with the dependent life stress measure. Independent life stressors predicted delinquency (both the initial level and increases over

time), however, only in combination with attachment anxiety. Having both higher attachment anxiety and lower independent life stress was associated with the highest initial levels of delinquency. This finding did not hold true for increases over time. Rather, having higher attachment anxiety and lower independent life stress was associated with the lowest rate of increase in delinquency over time whereas those with lower attachment anxiety and higher independent life stress had the highest rate of increase in delinquency over time. Perhaps less anxiously attached adolescents feel free to act out their stresses because they do not fear being abandoned by their mothers, even if they misbehave. Perhaps when adolescents who are not anxious about their mothers' availability experience independent life events (which may involve events that happened to their mothers) the stress is so great that some behave any way they can think of, such as acting out, in order to attempt to express their distress. Given Bowlby's theoretical construct that one of the features of having a secure attachment style is having a secure base from which to explore, some of the less anxiously attached adolescents may have been higher on delinquency due to feeling free to explore their feelings related to experiencing independent life events. However, given that those with both higher independent life stress and higher attachment anxiety were closely equivalent to those with higher independent stress and lower attachment anxiety in their rates of change, it is likely that the higher independent life stress levels, more than anything else, propelled them towards acting out. It is of note that this interaction between independent life stress and attachment anxiety for the delinquency growth curve did not account for a significant amount of variance.

Contrary to predictions, when anxiously attached adolescents faced higher levels of stress stemming from events they did not create, they generally started off engaging in fewer delinquent acts than those less anxiously attached. Possibly, the anxiously attached adolescents who were stressed by independent life events felt like they needed to help their families out (who may have been affected by the independent life events as well) and thus they decreased their acting out behaviours so as to avoid worsening an already difficult situation. Or, it may be the case that these anxiously attached adolescents were afraid of being abandoned altogether if they were too much trouble. That is, they may have realized that engaging in further delinquent acts during a stressful time would only aggravate the situation further and they chose to reign in their acting out behaviours to decrease the likelihood of that happening.

The hypothesis that higher attachment avoidance would serve as a vulnerability factor for increasing delinquency over time was not supported. Rather, in the context of an interaction with attachment anxiety, higher attachment avoidance was associated with a slightly lower rate of increase in delinquency over time. The latter may be due to highly avoidant individuals indirectly expressing their emotions through delinquent acting out, regardless of their attachment anxiety levels.

There was an association between independent life stress and attachment anxiety at both the initial level of frequency of delinquent acts and for increases in frequency of delinquent acts over time. Adolescents with higher independent life stress (regardless of their attachment anxiety levels) had the steepest slopes indicating that they increased the most in their delinquency frequency over time. It is possible that this prediction of frequency delinquency growth curves for adolescents with higher levels of independent

life stress (combined with lower and higher attachment anxiety) reflects feeling like they were losing control in life and this propelled them to engage in delinquent acts at a faster rate than the adolescents who had lower independent life stress (combined with lower and higher attachment anxiety) in their lives and who may have felt more in control. Finally, as expected, in the prediction of adolescents' frequency delinquency growth curves those with lower levels of independent life stress (regardless of their attachment anxiety levels) had the lowest increase in delinquency over time.

Responsive Caregiving. Inconsistent with predictions, independent life events (in interaction with attachment avoidance) was a stronger predictor of responsive caregiving than dependent life events. Adolescents who had the combination of lower attachment avoidance with lower independent life stress started off with the highest responsive caregiving acts with friends. Those with higher independent life stress started off with the lowest levels of responsive caregiving acts with friends, this was more so the case for those who also had higher attachment avoidance. The hypothesis that lower attachment avoidance would protect against independent life stress was not supported. That is, those with lower levels of attachment avoidance had a steeper negative slope compared to those with higher levels of attachment avoidance as independent life stressors increased in their lives. That is, the adolescents who were fearful of closeness with their mothers displayed a slower decrease in their rate of change in responsive caregiving as independent life stress increased in their lives compared to those who felt closer to their mothers. Perhaps because those with higher levels of attachment avoidance had lower overall responsive caregiving levels compared to those with lower attachment avoidance, the degree of stress seemed to have less impact for them.

As predicted, females with lower attachment avoidance generally started off being more responsive caregivers than females with higher avoidance. It is interesting that males who were close to their mothers did not start off as high on responsive caregiving as the females did. Possibly, the way in which males and females are socialized to behave with their friends may be at play here. Conversely, females with higher attachment avoidance generally started off with lower responsive caregiving than males. It is possible that males who are not comfortable being close with their mothers coped adaptively by being caring and empathic with their close friends.

In the prediction of responsive caregiving growth curves, attachment anxiety predicted how much adolescents changed in responsive caregiving over time. By T3 regardless of their attachment anxiety levels, adolescents had virtually the same responsive caregiving levels. It appears as though those who were anxiously attached to their mothers turned to their friends at an earlier age, including offering them more care, possibly replicating role reversal in their relationship with their mothers. However, as time passed, the experience of being a responsive caregiver to one's close friends equalized, regardless of one's level of attachment anxiety to one's mother. It is of note that the abovementioned effect was very small.

Positive Affect. Both types of life stressors were associated with positive affect levels, with independent life stress only coming through in an interaction with attachment anxiety. As expected, those with higher levels of dependent life stress at T1 in general started off with lower levels of positive affect. Further, as predicted, those who had both lower attachment anxiety and higher independent life stress in general started off with higher positive affect, compared to those with both higher attachment anxiety and higher

independent life stress. In other words, adolescents who were less anxiously attached who faced higher independent life events appear to be resilient to the effects of independent life stressors as their positive affect levels generally began at higher levels. That is, their mood state appeared to be less affected by the stress in their lives compared to those who were anxiously attached to their mothers. Possibly, less anxiously attached adolescents reported more positive affect when faced with higher levels of independent life stressors because they became more engaged in life, and used adaptive coping strategies, which in turn may have legitimately made them feel better. The latter suggests effective emotion regulation skills.

In the prediction of the positive affect growth curves, higher attachment anxiety predicted greater increases in the positive affect growth curves over time especially if adolescents were lower on attachment avoidance. It is possible that being lower on avoidance and lower on attachment anxiety (i.e., more secure) made it more likely that adolescents would be emotionally expressive and in touch with their positive emotions (compared to those with lower attachment anxiety and higher attachment avoidance). Those with lower attachment anxiety had less increases in positive affect over time especially if higher on attachment avoidance (i.e., more avoidant). These findings might indicate that those with higher attachment anxiety (i.e., preoccupied and fearful) reported feeling higher positive affect as a reaction to their anxiety about being abandoned by their mothers; they may wear a mask in public to portray themselves as happy in life in order to increase the chances of attracting friends to compensate for the poor relationships they have with their mothers.

Summary of findings

This short-term longitudinal study explored the role of adolescent-mother attachment quality in the relationship of dependent and independent life stressors to positive and negative adjustment outcomes over time. The use of HLM allowed us to better understand adolescents' individual growth trajectories in adjustment over time. The results revealed that differentiating between dependent and independent life stressors alongside the exploration of both negative and positive adjustment outcomes proved to be a useful means of investigating the role of stressful life events in adolescents' lives. Dependent life stress and independent life stress were both strong correlates of adjustment. It was rather interesting that we found somewhat different results for dependent life stress and independent life stress. The predictions for dependent life stress were consistent with what we expected and were inline with previous research findings (e.g., Daley et al., 1997; Rudolph et al., 2000). Adolescents displayed greater negative adjustment when dependent life event levels were higher in their lives. Further, dependent life events accounted for more variance in negative adjustment outcomes than independent life events. It is possible that dependent life stress is simply another measure of maladjustment. If that is the case, it is not surprising that dependent life stress correlated with negative adjustment outcomes. Interestingly, we found counterintuitive results with independent life stressors; these findings had not been predicted. That is, independent life stress only came through in combination with attachment (anxiety or avoidance) and these interactions accounted for more variance in the positive adjustment outcomes compared to dependent life stress. Thus, the pattern for dependent and independent stress associations appear to be different for negative versus positive

adjustment outcomes. Further we found evidence for resilience, in that having higher levels of independent life stress predicted higher levels of positive adjustment (when combined with lower levels of attachment anxiety and/or avoidance). Therefore, it is important to separate dependent and independent life stressors when assessing stressful life events. It is possible that some of the inconsistencies in previous research studies regarding the role of stressful life events are due to not having separated the two types of stressful life events; assessing stressful life events as one construct may have been akin to mixing apples and oranges.

The application of the vulnerability/protective factor framework will hopefully serve clinicians' well in devising intervention programs for adolescents. More specifically, less attachment anxiety was found to serve as a protective factor under situations of higher stressful life events. For example, adolescents with lower attachment anxiety began with higher levels of positive affect under higher conditions of independent life stress compared to those under the same stress conditions but who had higher attachment anxiety levels. Thus, these adolescents appeared to be resilient to the effects of independent life events if they were less anxiously attached to their mothers. Attachment insecurity served as a vulnerability factor under various conditions. For instance, those who had both higher attachment avoidance and attachment anxiety levels (i.e., fearful) increased more rapidly in delinquency over time.

Anxious attachment quality moderated the relationship between stress and some aspects of adjustment, sometimes in surprising ways. For instance, adolescents with lower attachment anxiety compared to higher attachment anxiety generally started off at T1 with more frequent delinquent acts as independent life stress increased. Attachment

avoidance moderated the relationship between independent life stress and adjustment, only in the case of the responsive caregiving outcome. That is, those with lower attachment avoidance and higher independent life stress started at T1 with higher responsive caregiving levels than those with higher attachment avoidance and higher independent life stress.

The present study's work also provided support for specificity of predictors (i.e., types of stressors) and specificity of outcome (i.e., both positive and negative adjustment outcomes). The results indicated various outcome-specific stress associations, such as the link between dependent life stress at T1 and negative adjustment outcomes. That is, adolescents with higher dependent life stress at T1 initially began with more depressive symptoms and higher frequencies of delinquent acts than those with lower dependent life stress at T1. For positive affect, there was a link with dependent life stress such that those with higher dependent life stress at T1 initially began with lower positive affect. Other outcome-specific stress associations include having interactions between independent life stress and attachment to predict positive adjustment. Specifically, being less avoidantly attached along with having lower independent life stress translated into initially beginning with the highest responsive caregiving acts with friends. Those who were less anxiously attached along with having higher independent life stress translated into beginning with the highest positive affect. An overall outcome-specific stress association finding is that when independent life events came through significantly, it was always in interaction with attachment. The latter was the case for delinquency, responsive caregiving, and positive affect outcomes.

Implications for intervention

The importance of the role of stressful life events in combination with attachment relationships may have implications for clinicians working with adolescent populations. The present study allowed us to better understand what promotes positive outcomes when faced with stressful life events. For instance, less avoidant adolescents who faced higher levels of independent life stressors were still able to score highly on responsive caregiving with friends – thereby displaying resilience. These findings suggest that when adolescents, who have lower avoidance of closeness with their mothers, experience independent life events, they appear to cope with this stress in an adaptive way – being empathic, sensitive, and helpful with their friends. These findings have implications for clinicians working with adolescents who might be at risk for maladjustment following exposure to independent stressful life events. Our findings suggest that clinicians could work with adolescents' abilities to be empathic towards their friends and the importance of maintaining healthy and supportive friendships. Learning to be kind towards one's friends even if one is experiencing independent life stressors, might prove to be an effective stress buffer.

A vital part of the present work was the exploration of how different categories of life stressors combined with particular dimensions of attachment quality in relation to psychological and behavioural adjustment outcomes over time. Further, the present study's findings may hold important clues for intervention work with adolescents at-risk for experiencing negative adjustment. For instance, the results revealed that across three years of adolescence when adolescents (especially if they had lower attachment anxiety

levels) experienced higher levels of independent life events, they experienced a greater increase in frequencies of delinquent acts as well.

The research findings in the present study holds clinical importance as it can help shed light on psychological and behavioural adjustment during adolescence. Attachment is a critical developmental goal which serves a positive adaptive function. For instance, the present study found that being less anxiously attached to one's mother protected adolescents against independent life events, as these adolescents displayed higher initial levels of positive affect, despite the stress in their lives. The direct implications of these findings include the utility of clinicians working with their adolescent patients to increase the degree to which they become behaviourally activated in life as this may improve their affect during more stressful times. Unlike many previous studies that only investigate negative adjustment outcomes, the present study is able to shed light on the topic of resiliency since it addressed both positive and negative adjustment over time. The findings, such as the one described above, will hopefully allow clinicians to detect protective combinations of attachment and life stressors which will increase the chances of adolescents displaying adaptive behaviours.

Another aim of the present study is to aid clinicians in detecting risky combinations of attachment and life stressors which can increase the chances of adolescents exhibiting adjustment problems. For instance, findings revealed that adolescents who are less anxious about being abandoned by their mothers who experience higher independent life stress display higher frequency of delinquent acts both initially and over time. Thus, one implication for clinicians working with this group of adolescents includes teaching them adaptive coping strategies for handling stress.

Identification of protective and risk factors such as those detailed above will likely help create prevention and intervention programs focused on enhancing secure and supportive family relationships and adjustment in adolescence.

Finally, the findings for the outcome-specific stress associations can inform clinical work as well. If clinicians base their work on the present study's findings, this would mean that clinicians could benefit from spending time probing into the types of stressors their adolescent patients are experiencing in order to inform their treatment planning. For instance, if their patients are experiencing independent life events the clinician would want to explore the adolescents' attachment quality with their mother as the two pieces of information together would likely serve as more useful information in targeting coping strategies than just one piece of information alone.

Strengths and limitations of the present study

There are a number of important strengths in the present study such as the use of a short-term longitudinal design assessing adolescents across three time-points. Further, the use of HLM as a data-analysis technique was advantageous given that it is viewed as the most effective method of exploring dynamic relationships between variables across time. Using HLM allowed us to better understand adolescents' growth trajectories in adjustment over three time points across adolescence. The present study assessed different types of life stressors in a normative sample; this is still relatively infrequent despite research displaying that this differentiation is critical (e.g., Rudolph et al., 2000). Also, the present study made an important contribution to the literature by exploring whether it was possible to generalize the findings from related studies using clinical samples to a normative adolescent population. Finally, unlike many studies in the area of

adolescent adjustment and stressful life events, the present study distinguished between both negative and positive adjustment outcomes.

There were several limitations in the present study. First, the study relied on self-report measures. However, one way that the validity of the self-report responses was improved upon was by applying a form of external validation of the adjustment measures. This validation was achieved by comparing friend reports with self-reports as well as using social desirability ratings as a control variable. Future work would benefit from using alternative methods such as interviews and intensive daily dairy methods. Since the present study used a normative sample of adolescents, the findings for depressive symptoms might not generalize to clinical depression. However, research has shown that depressive symptoms are a risk factor for future depressive disorder (e.g., Ge, Conger, & Edler, 2001; Wilcox & Anthony, 2004). Thus, an important way for professionals to screen for future depression is to assess predictive symptoms (Wilcox & Anthony, 2004). The present study assessed various relationships between stressful life events and adjustment outcomes over time. The examination of these different relationships did not allow us to assess the directionality of effects. However, future research would benefit from applying a transactional model which could explore the reciprocal relationships between stressful life events and adjustment outcomes. Using the transactional model approach would lend itself to assessing the directionality of the significant relationships found in the present study (i.e., from stress → adjustment, and vice versa). Finally, another limitation was the manner in which stressful life events was measured – self-report checklist format. The life events measure used in the present study was based on reporting the presence or absence of particular life events but there was a lack of an

opportunity to report on subjective appraisals of these events. However, the life events measure was validated against the Life Structure Questionnaire for this reason (i.e., the latter assessed participants' subjective ratings of stress and life change over the past year). Another issue related to self-report checklist measures of life events is that of intracategory variability of events on the checklist. For example, an item such as "Getting badly hurt or sick" could be endorsed by participants who have experienced everything from a cold to cancer. Many researchers use interview style measures (e.g., Life Events and Difficulties Schedule (LEDS; Brown & Harris, 1978) to assess stressful life events and this has its advantages. For instance, an interview format would allow the researcher to specify the characteristics of the life stressors in the respondents' lives. However, it is important to note that interviews have serious practical limitations, including being time consuming, expensive, and requiring extensive training of interviewers and raters.

Concluding Comments

A main objective of the present study was to investigate the role of adolescent-mother attachment quality in the relationships between stressful life events (dependent and independent) and adjustment (positive and negative) outcomes over time. The present study improved upon previous research through the use of a wider range of adjustment variables, the categorization of life stressors, the use of a normative population of adolescents, and a statistical technique that implemented a multilevel modeling analysis. Overall, the results from the present study support the notion that life-stress research should be expanded within normative adolescent samples. The present study's work also provided support for specificity of predictors (i.e., types of stressors) and specificity of outcome (i.e., both positive and negative adjustment outcomes). A large difference

between adolescents who encounter life stressors, aside from the severity of the stressors and adjustment problems, is that independent life events in interaction with attachment played a much larger role than had been reported with either clinical or non-clinical samples in the past. Given that independent life events (in combination with attachment) was found to play a role in adolescents' lives, this interesting finding suggests the possibility that since non-clinical adolescents typically get involved in less troublesome problems (i.e., have lower dependent life stressors in severity and in number), stress created by independent life events may play a larger role in their adjustment outcomes instead, especially if they are insecurely attached (i.e., avoidant or anxious).

Understanding the effect of adjustment as a contributor to future stressful life events may shed light on mechanisms underlying the cross-temporal continuity of adjustment problems. That is, the reciprocal effects between stressful life events and adjustment, as moderated by attachment quality to mother, should be further investigated. The investigation of positive as well as negative adjustment measures allowed the present research project to display that life stressors have an important influence upon not only negative adjustment outcomes but positive adjustment outcomes as well. With both types of adjustment outcomes, when stress played a role it was always independent life events in combination with attachment (i.e., specifically attachment anxiety, except in the case of responsive caregiving when it was attachment avoidance). Interestingly, a combination of higher independent stress with lower attachment was associated with higher negative adjustment outcomes (i.e., delinquent acts) and higher positive adjustment outcomes (i.e., responsive caregiving acts and positive affect). That is, independent life stressors were found to play a role in combination with attachment in potentially influencing

adolescents' risky behaviours and played a role in their resilience. The findings that stress can help promote positive outcomes in adolescents suggests that researchers should expand their projects to include a broader range of adjustment outcomes that encompass positive as well as negative outcomes. This work would help us understand the protective and vulnerability mechanisms that underlie adolescents' positive as well as negative adjustment indices.

References

Ainsworth, M. D. (1985). Patterns of attachment. *Clinical Psychologist, 38,* 27-29.

Ainsworth, M. D. S., Blehar, M .C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation.* Hillsdale, NJ: Erlbaum.

Allen, J. P., & Land, D. (1999). Attachment in adolescence. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 319-335). NY: Guilford.

Allen, J. P., Moore, C. M., Kuperminc, G. P., & Bell, K. (1998). Attachment and adolescent psychosocial functioning. *Child Development, 69,* 1406-1419.

Armsden, G., & Greenberg, M. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16,* 427-454.

Aseltine, R. H., Gore, S., & Colten, M. E. (1994). Depression and the social developmental context of adolescence. *Journal of Personality and Social Psychology, 6,* 252-263.

Aseltine, R. H., Gore, S., & Gordon, J. (2000). Life stress, anger and anxiety, and delinquency: An empirical test of general strain theory. *Journal of Health and Social Behavior, 41,* 256-275.

Avison, W. R., & McAlpine, D. D. (1992). Gender differences in symptoms of depression among adolescents. *Journal of Health and Social Behavior, 33,* 77-96.

Baron, P., Toubert, N., & Mercier, P. (1991). Situations stressantes et symptômatologie dépressive chez les adolescents. *Revue Européenne de Psychologie Appliquée, 41,* 173–180.

Basch, C. E., & Kersch, T. B. (1986). Adolescent perceptions of stressful life events. *Health Education, 17,* 4-7.

Bolte, A., Goschkey, T., & Kuhl, J. (2003). Emotion and intuition: Effects of positive and negative mood on implicit judgments of semantic coherence. *Psychological Science, 14,* 416-421.

Booker, C. L., Gallaher, P., Unger, J. B., Ritt-Olson, A., & Johnson, C. A. (2004). Stressful life events, smoking behavior, and intentions to smoke among a multiethnic sample of sixth graders. *Ethnicity & Health, 9,* 369-397.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36,* 129-148.

Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1. Attachment.* NY: Basic Books.

Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger.* NY: Basic Books.

Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss: Sadness and depression.* NY: Basic Books.

Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory.* London: Routledge.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson, & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). NY: Guilford Press.

Bretherton, I. (1985). Attachment theory: Retrospect and prospect. *Monographs of the Society for Research in Child Development, 50,* 3-35.

Brooks-Gunn, J., & Warren, M. (1989). Biological and social contributions to negative affect in young adolescent girls. *Child Development, 60,* 40-55.

Brown, G. W., & Harris, T. O. (1978). *Social origins of depression: A study of depressive disorder in women.* New York: Free Press.

Bryk, A. S., & Raudenbush, S. W. (1987). Application of hierarchical linear models to assessing change. *Psychological Bulletin, 101,* 147-158.

Buist, K. L., Dekovic, M., Meeus, W. H., & van Aken, M. A. G. (2004). Attachment in adolescence: A social relations model analysis. *Journal of Adolescent Research, 19,* 826-850.

Carlson, M. (1981). *Life change events, pregnancy and pregnancy outcome decisions in adolescents.* Master's research paper. University of Nebraska Medical Center, Omaha.

Caspi, A., Elder, G. H., Jr., & Bem, D. J. (1987). Moving against the world: Life-course patterns of explosive children. *Developmental Psychology, 23,* 308-313.

Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. *Monographs of the Society for Research in Child Development, 59,* 228-283.

Cassidy, J., & Shaver, P. R. (Eds.). (1999). *Handbook of attachment: Theory, research, and clinical applications.* New York: Guilford Press.

Cicchetti, D., & Toth, S. L. (1995). Developmental psychopathology and disorders of affect. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology, Vol. 2: Risk, disorder, and adaptation.* New York: Wiley.

Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology, 78,* 1053-1073.

Collins, N. L., & Read, S. J. (1994). Cognitive representations of attachment: The structure and function of working models. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood* (pp. 53-90). London: Kingsley.

Compas, B. E., Howell, D. C., Phares, V., Williams, R., & Giunta, C. T. (1989). Risk factors for emotional/behavioral problems in young adolescents: A prospective analysis of adolescent and parental stress and symptoms. *Journal of Consulting and Clinical Psychology, 57,* 732-740.

Compas, B. E., & Phares, V. (1991). Stress during childhood and adolescence: Sources of risk and vulnerability. In E. M. Cummings, A. L. Greene, & K. H. Karraker (Eds.), *Life-span perspective on stress and coping* (pp. 111-129). Hillsdale, NJ: Erlbaum.

Compas, B. E., & Wagner, B. M. (1991). Psychosocial stress during adolescence: Intrapersonal and interpersonal processes. In M. E. Colten & S. Gore (Eds.), *Adolescent stress: Causes and consequences* (pp. 67-86). NY: Aldine de Gruyter.

Daley, S. E., Hammen, C., Burge, D., Davila, J., Paley, B., Lindberg, N., & Herzberg, D. S. (1997). Predictors of the generation of episodic stress: A longitudinal study of late adolescent women. *Journal of Abnormal Psychology, 106,* 251-259.

Doyle, A. B., & Markiewicz, D. (2004). Parenting, marital conflict and adjustment from early- to mid-adolescence: Mediated by adolescent attachment style. *Journal of Youth and Adolescence, 34,* 97-110.

Elliott, D. S. (1994). Serious violent offenders: Onset, developmental course, and termination – the American Society of Criminology 1993 Presidential Address. *Criminology, 32,* 1-21.

Elliott, D. S., & Ageton, S. S. (1980). Reconciling race and class differences in self-reported and official estimate of delinquency. *American Sociological Review, 45,* 91-110.

Elliott, D. S., Huizinga, D., & Ageton, S. S. (1985). *Explaining delinquency and drug use.* Beverly Hills, CA: Sage.

Epstein, M., Cullinan, D., & Lloyd, J. (1986). Behavior problem patterns among learning disabled: Replication across age and sex. *Learning Disabilities Quarterly, 9,* 43-54.

Feeney, J. A. (1998). Adult attachment and relationship-centered anxiety: Responses to physical and emotional distancing. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 189-218). New York: Guilford.

Feeney, B. F., & Collins, N. (2001). Predictors of caregiving in adult intimate relationships: An attachment theoretical perspective. *Journal of Personality and Social Psychology, 80,* 972-994.

Fleming, J. E., & Offord, D. R. (1990). Epidemiology of childhood depressive disorders: A critical review. *Journal of the American Academy of Child and Adolescent Psychiatry, 29,* 571-580.

Fraley, R.C. (2002). Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling of developmental mechanisms. *Personality and Social Psychology Review, 6,* 123-151.

Fraley, R. C., & Spieker, S. J. (2003). What are the differences between dimensional and categorical models of individual differences in attachment? Reply to Cassidy (2003), Cummings (2003), Sroufe (2003), and Waters and Beauchaine. *Developmental Psychology, 39,* 423-429.

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item-response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 78,* 350-365.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56,* 218-226.

Fredrickson, B. L., & Branigan, C. A. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and Emotion, 19,* 313-332.

Frisch, M. B. (2000). Improving mental and physical health care through quality of life therapy and assessment. In E. Diener, & D. R. Rahtz (Eds.), *Advances in quality of life theory and research* (pp. 207-241). Dordecht, Netherlands: Kluwer.

Garmezy, N. (1993). Children in poverty: Resilience despite risk. *Psychiatry: Interpersonal and Biological Processes, 56,* 127-136.

Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child D Development, 55,* 97-111.

Garmezy, N., & Masten, A. S. (1994). Chronic adversities. In M. Rutter, L. Herzov, & E. Taylor (Eds.), *Child and adolescent psychiatry* (pp. 191-208). Oxford: Blackwell Scientific.

Ge, X., Conger, R. D., Elder Jr., G. H. (2001). Pubertal transition, stressful life events, and the emergence of gender differences in adolescent depressive symptoms. *Developmental Psychology, 37,* 404-417.

George, C., Kaplan, N., & Main, M. (1985). *The Adult Attachment Interview.* Unpublished manuscript, Department of Psychology, University of California at Berkeley.

Gest, S. D., Reed, M.-G., J., & Masten, A. S. (1999). Measuring developmental changes in exposure to adversity: A life chart and rating scale approach. *Development and Psychopathology, 11,* 171-192.

Greenspoon, P. J., & Saklofske, D. H. (2001). Toward an integration of subjective well-being and psychopathology. *Social Indicators Research, 54,* 81-108.

Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology, 100,* 555-561.

Harrington, R., Rutter, M., & Fombonne, E. (1996). Developmental pathways in depression: Multiple meanings, antecedents, and endpoints. *Development and Psychopathology, 8,* 601-616.

Hazan, C., Hutt, M. J., Sturgeon, J., & Bricker, T. (1991). *The process of relinquishing parents as attachment figures.* Paper presented at the biennial meetings of the Society for Research in Child Development, Seattle, WA.

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52,* 511-524.

Herman-Stahl, M., & Petersen, A. C. (1996). The protective role of coping and social resources for depressive symptoms among young adolescents. *Journal of Youth and Adolescence, 25,* 733-754.

Hodges, K. (1990). *Child and Adolescent Functional Assessment Scale (CAFAS).* Ypsilanti, MI: Eastern Michigan University, Department of Psychology.

Hoffmann, J. P., & Su, S. S. (1997). The conditional effects of stress on delinquency and drug use: A strain theory assessment of sex differences. *Journal of Research in Crime and Delinquency, 34,* 46-78.

Hollingshead, A. B. (1975). *Four factor index of social status.* New Haven, CT: Yale University, Department of Sociology.

Holmes, T. H., & Rahe, R. H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research, 11,* 213-218.

Jaccard, J., Turrisi, R., & Wan, C. K. (1990). Interaction Effects in Multiple Regression. *Quantitative Applications in Social Sciences, 72.* Newbury Park, CA: Sage.

Jackson, B. A. (1982). Student stress: The relationship between life change events and health changes for senior high school students. Unpublished dissertation, Seattle University, Seattle, WA.

Jackson, Y., & Warren, J. S. (2000). Appraisal, social support, and life events: Predicting outcome behavior in school-age children. *Child Development, 71,* 1441-1457.

Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist, 48,* 117-126.

Kaiser, K. L. (1980). *Life change events, social support and pregnancy in adolescents.* Master's research paper. University of Nebraska Medical Center, Omaha.

Kamkar, K, Doyle, A. B., & Markiewicz, D. (under review). The relation between parent-child attachment and psychological distress between early adolescents and young adults: Mediating role of attributions to interpersonal stressors.

Karavasilis, Doyle, A. B., & Markiewicz, D. (2003). Associations between parenting style and attachment to mother in middle childhood and adolescence. *International Journal of Behavioral Development, 27,* 153-164.

Kessler, R. C., Gillis-Light, J., Magee, W. J., Kendler, K. S., & Eaves, L. J. (1997). Childhood adversity and adult psychopathology. In I. H. Gotlib, & B. Wheaton (Eds.), *Stress and adversity over the life course: Trajectories and turning points* (pp. 29-49). NY: Cambridge University Press.

Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior, 43,* 207-222.

Kim, K. J., Conger, R. D., Elder, Jr. G. H., & Lorenz, F. O. (2003). Reciprocal influences between stressful life events and adolescent internalizing and externalizing problems. *Child Development, 74,* 127-143.

Kirkpatrick, L. A., & Hazan, C. (1994). Attachment styles and close relationships: A four-year prospective study. *Personal Relationships, 1,* 123-142.

Kobak, R. R., Cole, H. E., Ferenz-Gillies, R., Fleming, W. S., & Gamble, W. (1993). Attachment and emotion regulation during mother-teen problem-solving: A control theory analysis. *Child Development, 64,* 231-245.

Kobak, R. R., & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development, 59,* 135-146.

Kobak, R. R., Sudler, N., & Gamble, W. (1991). Attachment and depressive symptoms during adolescence: A developmental pathways analysis. *Development and Psychopathology, 3,* 461-474.

Kovacs, M. (1985). The children's depression inventory (CDI). *Psychopharmacology Bulletin, 21,* 995-1024.

Kunce, L. J., & Shaver, P. R. (1994).An attachment-theoretical approach to caregiving in romantic relationships. In K. Bartholomew, & D. Perlman (Eds.), *Advances in Personal Relationships,* Vol. 5 (pp. 205-237). London: Jessica Kingsley Publishers.

Lazarus, R. S. (2003). Does the positive psychology movement have legs? *Psychological Inquiry, 14,* 93-109.

Leadbeater, B. J., Blatt, S. J., & Quinlan, D. M. (1995). Gender-linked vulnerabilities to depressive symptoms, stress, and problem behaviors in adolescents. *Journal of Research on Adolescence, 5,* 1-29.

Leadbeater, B. J., Kuperminc, G. P., Blatt, S. J., & Hertzog, C. (1999). A multivariate model of gender differences in adolescents' internalizing and externalizing problems. *Developmental Psychology, 35,* 1268-1282.

Lee, V. E. (2000). Using hierarchical linear modeling to study social contexts: The case of school effects. *Educational Psychologist, 35,* 125-141.

Lobel, T. E., & Teiber, A. (1994). Effects of self-esteem and need for approval on affective and cognitive reactions: Defensive and true self-esteem. *Personality and Individual Differences, 16,* 315-321.

Lopez, F. G., & Brennan, K. A. (2000). Dynamic processes underlying adult attachment organization: Toward an attachment theoretical perspective on the healthy and effective self. *Journal of Counseling Psychology, 47,* 283-301.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71,* 543-562.

Luthar, S. S., & Zelazo, L. B. (2003). Research on resilience: An integrative review. In S. S. Luthar (Ed.), *Resilience and vulnerability: Adaptation in the context of childhood adversities* (pp. 1-25). Cambridge: Cambridge University Press.

Lyons-Ruth, K. (1996). Attachment relationships among children with aggressive behavior problems: The role of disorganized early attachment patterns. *Journal of Consulting and Clinical Psychology, 64,* 64-73.

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/ disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention,* (pp.121-160). Chicago: University of Chicago Press.

Markiewicz, D., & Dudeck, M. R. (2004). Life Structure Scale. *Unpublished questionnaire.* Concordia University, Montreal, Quebec.

Markiewicz, D., Lawford, H., Doyle, A. B., & Haggart, N. (2006). Developmental differences in adolescents' and young adults' use of mothers, fathers, best friends, and romantic partners to fulfill attachment needs. *Journal of Youth and Adolescence, 35,* 127-140.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56,* 227-238.

Masten, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology, 2,* 425-444.

Masten, A. S., & Powell, J. L. (2003). A resilience framework for research, policy, and practice. In S. S. Luthar (Ed.), *Resilience and vulnerability: Adaptation in the context of childhood adversities* (pp. 1-25). Cambridge: Cambridge University Press.

Mazure, C. M. (1998). Life stressors as risk factors in depression. *Clinical Psychology, Science and Practice, 5,* 291-313.

Mikulincer, M., Florian, V., & Tolmacz, R. (1990). Attachment styles and fear of personal death: A case study of affect regulation. *Journal of Personality and Social Psychology, 58,* 273-280.

Mikulincer, M., Gillath, O., & Shaver, P. R. (2002). Activation of the attachment system in adulthood: Threat-related primes increase the accessibility of mental representations of attachment figures. *Journal of Personality and Social Psychology, 83,* 881-895.

Mikulincer, M., & Shaver, P. R. (2003). The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal process. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 35, pp. 52-153). New York: Academic Press.

Monroe, S. M., & Hadjiyannakis, K. (2002). The social environment and depression: Focusing on severe life stress. In I. H. Gotlib, & C. Hammen (Eds.), *Handbook of depression.* New York: Guilford Press.

Nada-Raja, S., McGee, R., & Stanton, W. R. (1992). Perceived attachments to parents and peers and psychological well-being in adolescence. *Journal of Youth and Adolescence, 21,* 471-485.

Newcomb, M. D., Huba, G. J., & Bentler, P. M. (1981). A multidimensional assessment of stressful life events among adolescents: Derivation and correlates. *Journal of Health and Social Behavior, 22,* 400-415.

Nolen-Hoeksema, S. (1987). Sex differences in unipolar depression: Evidence and theory. *Psychological Bulletin, 101,* 259-282.

Nolen-Hoeksema, S. (1990). *Sex differences in depression.* Stanford, CA: Stanford University Press.

Papini, D. R., & Roggman, L. A. (1992). Adolescent perceived attachment to parents in relation to competence, depression, and anxiety: A longitudinal study. *Journal of Family Psychology, 9,* 161-174.

Paternoster, R., & Mazerolle, P. (1994). General strain theory and delinquency: A replication and extension. *Journal of Research in Crime and Delinquency, 31,* 235-263.

Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behaviour. *American Psychologist, 44,* 329-335.

Pereg, D., & Mikulincer, M. (2004). Attachment style and the regulation of negative affect: Exploring individual differences in mood congruency effects on memory and judgment. *Personality and Social Psychology Bulletin, 30,* 67-80.

Petersen, A. C., Kennedy, R., & Sullivan, P. A. (1991). Coping with adolescence. In Colten, M. E., & S. Gore (Eds.), *Adolescent stress: Causes and consequences.* NY: Aldine de Gruyter.

Petersen, A. C., Sarigiani, P. A., & Kennedy, R. E. (1991). Adolescent depression: Why more girls? *Journal of Youth and Adolescence, 20,* 247-271.

Radloff, L. S. (1991). The use of the Center for Epidemiologic Studies Depression Scale in Adolescents and Young Adults. *Journal of Youth and Adolescence, 20,* 149-166.

Rholes, W. S., Simpson, J. A., & Stevens, J. G. (1998). Attachment orientations, social support, and conflict resolution in close relationships. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 166-188). New York: Guilford.

Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in nonclinical samples: A meta-analysis. *Psychological Bulletin, 116,* 55-74.

Rudolph, K. D., Hammen, C., Burge, D., Lindberg, N., Herzberg, D., & Daley, S. E. (2000). Toward an interpersonal life-stress model of depression: The developmental context of stress generation. *Development and Psychopathology, 12,* 215-234.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57,* 316-331.

Rutter, M. (1999). Resilience concepts and findings: Implications for family therapy. *Journal of Family Therapy, 21,* 119-144.

Rutter, M. (2000). Resilience reconsidered: Conceptual considerations, empirical findings, and policy implications. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early intervention* (2nd ed., pp. 651-681). New York: Cambridge University Press.

Rutter, M. (2003). Genetic influences on risk and resilience: Implications for understanding resilience. In S. S. Luthar (Ed.), *Resilience and vulnerability: Adaptation in the context of childhood adversities* (pp. 1-25). Cambridge: Cambridge University Press.

Rutter, M., & Sroufe, A. (2000). Developmental psychopathology: Concepts and challenges. *Development and Psychopathology, 12,* 265-296.

Sallinen, M., Ronka, A., Kinnunen, U., & Kokko, K. (2007). Trajectories of depressive mood in adolescents: Does parental work or parent-adolescent relationship matter? A follow-up study through junior high school in Finland. *International Journal of Behavioral Development, 31,* 181-190.

Sameroff, A. J. (2000). Dialectical processes in developmental psychopathology. In A. J. Sameroff, M. Lewis, & S. M. Miller (Eds.), *Handbook of Developmental Psycholopathology (2nd ed.).* NY: Kluwer Academic/Plenum Publishers.

Sameroff, A. J., & Seifer, R. (1983). Familial risk and child competence. *Child Development, 54,* 1254-1268.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55,* 5–14.

Silberg, J., Pickles, A., Rutter, M., Hewitt, J., Simonoff, E., Maes, H., Carbonneau, R., Murrelle, L., Foley, D., & Eaves, L. (1999). The influence of genetic factors and life stress on depression among adolescent girls. *Archives of General Psychiatry, 56,* 225-232.

Sroufe, L. A. (1989). Pathways to adaptation and maladaptation: Psychopathology as developmental deviation. In D. Cicchetti (Ed.), *Rochester Symposium on Developmental Psychopathology: Vol. 1. The emergence of a discipline* (pp. 13-40). Hillsdale, NJ: Erlbaum.

Sroufe, L. A., Egeland, B., & Carlson, E. (1999). One social world: The integrated development of parent-child and peer relationships. In W. A. Collins & B. Laursen (Eds.), *Relationships as developmental context: The 30th Minnesota Symposium on Child Psychology.* Hillsdale, NJ: Erlbaum

Sroufe, L. A., Egeland, B., & Kreutzer, T. (1990). The fate of early experience following developmental change: Longitudinal approaches to individual adaptation in childhood. *Child Development, 61,* 1363-1373.

Sroufe, L. A., & Rutter, M. (1984). The domain of developmental psychopathology. *Child Development, 55,* 1184-1199.

Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development, 48,* 1184-1199.

Steffensmeier, D., Streifel, C., & Harer, M. D. (1987). Relative cohort size and youth crime in the United States, 1953-1984. *American Sociological Review, 52,* 702-710.

Steinberg, L. (1996). *Adolescence* (4th ed). New York: McGraw-Hill.

Stouthamer-Loeber, M., Loeber, R., Farrington, D. P., Zhang, Q., van Kamman, W., & Maguin, E. (1993). The double edge of protective and risk factors for delinquency: Interrelations and developmental patterns. *Development and Psychopathology, 5,* 683-701.

Strahan, R., & Gerbasi, K. C. (1972). Short homogenous version of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology, 28,* 191-193.

Thompson, R. A. (2000). The legacy of early attachments. *Child Development, 71,* 145-152.

Vaux, A., & Ruggiero, M. (1983). Stressful life change and delinquent behavior. *American Journal of Community Psychology, 11,* 169-183.

Waaktaar, T., Borge, A. I., Fundingsrud, H. P., Christie, H. J., Torgersen, S. (2004). The role of stressful life events in the development of depressive symptoms in adolescence – a longitudinal community study. *Journal of Adolescence, 27,* 153-163.

Waters, E., Merrick, S., Treboux, D., Crowell, J., & Albersheim, L. (2000). Attachment security in infancy and early adulthood: A twenty-year longitudinal study. *Child Development, 71,* 684-689.

Weiss, R. L. (1980). Strategic behavioral marital therapy: Toward a model for assessment and intervention. In J. P. Vincent (Ed.), *Advances in family intervention, assessment and theory* (Vol. 1, pp. 229-271). Greenwich, CT: JAI Press.

Wilcox, H. C., & Anthony, J. C. (2004). Child and adolescent clinical features as forerunners of adult-onset major depressive disorder: Retrospective evidence from an epidemiological sample. *Journal of Affective Disorders, 82,* 9-20.

Williamson, D. E., Birmaher, B., Anderson, B. P., Al-Shabbout, M., & Ryan, N. D. (1995). Stressful life events in depressed adolescents: The role of dependent events during the depressive episode. *Journal of the American Academy of Child and Adolescent Psychiatry, 34,* 591-598.

Yeaworth, R. C., McNamee, M. J., & Pozehl, B. (1992). The Adolescent Life Change Event Scale: Its development and use. *Adolescence, 27,* 783-802.

Yeaworth, R. C., York, J., Hussey, M. A., Ingle, M. E., & Goodwin, T. (1980). The development of an adolescent life change event scale. *Adolescence, 15,* 91-97.

Zimmerman, M. (1983). Methodological issues in the assessment of life events: A review of issues and research. *Clinical Psychology Review, 3,* 339-370.

Zuckerman, M., & Lubin, B. (1985). *Manual for the multiple affect adjective checklist revised.* San Diego, CA: Educational and Industrial Testing Service.

Appendix A

Letter to participants

Centre for Research in Human Development
Department of Psychology
tel: (514) 848-7560 fax: (514) 848-2815

November 2001

Dear Student,

We are writing to ask for your participation in the Concordia Relationships and Well-Being Project. With this project we hope to better understand how relationship quality with others helps adolescents, like you, deal with challenges in your life.

Your participation will help us a lot! We are asking you to complete questionnaires and a computer task at school. The questionnaires ask about your relationships with your parents and friends, other family relationships, and how you feel and act (e.g., breaking rules, drug use, mood, decision making, helpfulness to others). These questionnaires have often been used with adolescents like you. The computer task is about possible situations with parents and friends. You will be asked what you would think, do, and feel in these situations. The questionnaires and computer task will each take about one class period to complete, at a time that is convenient for your teacher.

Of course we keep all your answers confidential. We hope that you choose to participate; if so, please sign the consent form, have one of your parents sign it too, and return it to your French teacher as soon as possible. *Even if you say no*, please complete the top of the consent form, and return it. **All students returning the form (whether answering "yes" or "no") will have their names entered in a draw for *Cineplex Odeon movie passes and HMV gift certificates!!***

Our work is funded by the Social Sciences and Humanities Research Council of Canada, and is concerned with the development of adolescents' academic performance and social well-being. Because changes over time are important, we will ask you again in the next two years to complete similar questionnaires. However, you don't have to continue at that time if you don't want to.

If you (or your parents) have questions or wish further information to decide about participating, please indicate a convenient telephone number on the form so that we can call you. Also, please do not hesitate to call one of us at the numbers below. Thanks for your assistance.

Sincerely,

Daniela Pelle
Research Assistant
(848-7560)

Anna Beth Doyle, Ph.D.
Professor of Psychology
(848-7538)

Dorothy Markiewicz,Ph.D.
Professor of Applied Human Sciences and Psychology
(848-2268)

Appendix B

Adolescent consent form

Centre for Research in Human Development
Department of Psychology
tel: (514) 848-7560 fax: (514) 848-2815

November 2001 (JHS-i)

Consent Form For Students To Participate in Research

Student's Name:_____

Student's Date of Birth:_____Age:_____

School: LCCHS Grade:_____ French Teacher's name/class:_____

Check where applicable:

_____ YES, my parent(s) and I agree to **my participation** in the Relationships and Well-being study conducted by Dr. Anna Beth Doyle, and Dr. Dorothy Markiewicz. **(Student and parent please sign below).**

_____ Before my parent(s) or I agree to my participation, please call to discuss the project.
Name_____ and phone number _____.

_____ NO, my parent(s) or I do not agree to my participation.

IF YOU AGREE TO THE STUDENT'S PARTICIPATION, please complete the following:

We have been informed that the purpose of the study is to understand students' relationships with family and peers, and well-being. Participation will involve approximately 2 hours of the student's class time in the winter term, completing questionnaires about friendships and family relationships. Students will also answer questions on a computer about their thoughts and feelings in possible situations with parents and friends. We understand that **all information will be confidential** to the research team and identified only by number, although if life-threatening circumstances are reported, the research team will legally have to break confidentiality. We understand that the student may withdraw consent and may discontinue participation at any time.

Student's Signature: _____

Parent's Signature:_____Date_____

Parent(s) Name(s)_____

Address_____

City & Postal Code_____Phone Number_____

PLEASE RETURN THIS FORM TO YOUR FRENCH TEACHER AS SOON AS POSSIBLE.

Appendix C

Experiences in close relationships - mother

EXPERIENCES WITH MOTHER (ECRM)

Please do not mark in this area

						3

Order ☐☐

If you have both a mom and a stepmom, tell us about the one most important to you.
If you don't have a mom or stepmom, just leave this blank and go to the next questionnaire.

Please tell us who you are thinking of when you fill out this questionnaire (☒ one box):

☐ Mom OR ☐ Stepmom

Think about your relationship with your (step)mother. Now read each statement below and indicate how much each describes your feelings with your (step)mother. Respond how you generally feel with your (step)mother.
Put an ☒ in the box with the number that is true for you.

	1 Disagree Strongly	2	3	4 Neutral/ Mixed	5	6	7 Agree Strongly
1. I worry about being abandoned by my mother.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
2. I am very comfortable being close to my mother.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
3. I worry a lot about my relationship with my mother.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
4. I worry that my mother doesn't care about me as much as I care about her.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
5. I get uncomfortable when my mother wants to be very close.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
6. I worry a lot about losing my mother.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
7. I don't feel comfortable opening up to my mother.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
8. I often wish that my mother's feelings for me were as strong as my feelings for her.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
9. I want to be close to my mother, but I keep pulling back.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
10. I am nervous when my mother gets too close to me.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
11. I worry about being without my mother.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
12. I am comfortable sharing my private thoughts and feelings with my mother.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
13. I try to avoid getting too close to my mother.	☐1	☐2	☐3	☐4	☐5	☐6	☐7

Disagree Strongly			Neutral/ Mixed			Agree Strongly
1	2	3	4	5	6	7

Appendix D

Social desirability scale

MC-SD

For the following questions, please ☒ "T" for True and "F" for False.	**True**	**False**
1. It is sometimes hard for me to go on with my work if I am not encouraged.	☐ T	☐ F
2. I sometimes feel resentful when I don't get my way.	☐ T	☐ F
3. On a few occasions, I have given up doing something because I thought too little of my ability.	☐ T	☐ F
4. I like to gossip at times.	☐ T	☐ F
5. There have been times when I felt like rebelling against people in authority even though I knew they were right.	☐ T	☐ F
6. No matter who I'm talking to, I'm always a good listener.	☐ T	☐ F
7. There have been occasions when I took advantage of someone.	☐ T	☐ F
8. I'm always willing to admit it when I make a mistake.	☐ T	☐ F
9. I sometimes try to get even, rather than forgive and forget.	☐ T	☐ F
10. I am always courteous, even to people who are disagreeable.	☐ T	☐ F
11. At times I have really insisted on having things my own way.	☐ T	☐ F
12. I have never been annoyed when people expressed ideas very different from my own.	☐ T	☐ F
13. There have been times when I was quite jealous of the good fortune of others.	☐ T	☐ F
14. I am sometimes irritated by people who ask favours of me.	☐ T	☐ F
15. I have never deliberately said something that hurt someone's feelings.	☐ T	☐ F

Appendix E

Life events scale

LIFE EVENTS SCALE

Please do not mark in this area

				3

Please indicate whether the following events did (Y) or did not (N) happen to you **in the past year**

1. A parent dying ☐ Yes ☐ No
2. Brother or sister dying ☐ Yes ☐ No
3. Close friend dying ☐ Yes ☐ No
4. Parents getting divorced or separated ☐ Yes ☐ No
5. Failing one or more subjects in school ☐ Yes ☐ No
6. Flunking a grade in school ☐ Yes ☐ No
7. Family member having trouble with alcohol ☐ Yes ☐ No
8. Getting into drugs or alcohol ☐ Yes ☐ No
9. Parent or relative in your family getting very sick ☐ Yes ☐ No
10. Losing a job ☐ Yes ☐ No
11. Breaking up with a close girlfriend or boyfriend ☐ Yes ☐ No
12. Quitting school ☐ Yes ☐ No
13. Close girlfriend getting pregnant ☐ Yes ☐ No
14. Parent losing a job ☐ Yes ☐ No
15. Getting badly hurt or sick ☐ Yes ☐ No
16. Fighting with parents ☐ Yes ☐ No
17. Trouble with teacher or principal ☐ Yes ☐ No
18. Having problems with body image (for ex. acne, weight, height) ☐ Yes ☐ No
19. Starting a new school ☐ Yes ☐ No
20. Moving to a new home ☐ Yes ☐ No
21. Change in physical appearance (for ex. braces, glasses) ☐ Yes ☐ No
22. Fighting with brother or sister ☐ Yes ☐ No
23. Starting menstrual periods (for girls) ☐ Yes ☐ No
24. Having someone new move in with your family (for ex. grandparent, adopted brother or sister) ☐ Yes ☐ No
25. Starting a job ☐ Yes ☐ No
26. Mother getting pregnant ☐ Yes ☐ No
27. Starting to date ☐ Yes ☐ No
28. Making new friends ☐ Yes ☐ No
29. Brother or sister getting married ☐ Yes ☐ No
30. Parents having money problems ☐ Yes ☐ No
31. Parents fighting a lot ☐ Yes ☐ No
32. Parent remarrying ☐ Yes ☐ No
33. Getting pregnant or getting someone pregnant ☐ Yes ☐ No
34. Getting or giving a sexually transmitted disease ☐ Yes ☐ No
35. Getting into trouble with the law ☐ Yes ☐ No

Appendix F

Life structure scale

Life Structure Scale

Please do not mark in this area

					3

Please make an ☒ in the box indicating how much the following parts of your life **have changed** for you **in the past year**.

	No change at all				Lots of change
1. Family relationships (e.g., feeling closer to sister; parents divorced, etc.)	☐1	☐2	☐3	☐4	☐5
2. Romantic relationships (e.g., starting/ending a new relationship; spending more/less time together, etc.)	☐1	☐2	☐3	☐4	☐5
3. Friendships (e.g., new friends; change in quality of old friendships, etc.)	☐1	☐2	☐3	☐4	☐5
4. School and career goals (e.g., amount of homework; what you want to be when older; etc.)	☐1	☐2	☐3	☐4	☐5
5. Hobbies (e.g., clubs; sports; reading; tv; etc.)	☐1	☐2	☐3	☐4	☐5
6. Living situation (e.g., moving; change in who you live with; etc.)	☐1	☐2	☐3	☐4	☐5
7. Values (e.g., what you care about such as kindness; wealth; physical appearance; etc.)	☐1	☐2	☐3	☐4	☐5

Make an ☒ in the box indicating **your overall satisfaction** with the parts of your life below over the past year.

	Not at all satisfied				Extremely satisfied
1. Family relationships	☐1	☐2	☐3	☐4	☐5
2. Romantic relationships	☐1	☐2	☐3	☐4	☐5
3. Friendships	☐1	☐2	☐3	☐4	☐5
4. School and career goals	☐1	☐2	☐3	☐4	☐5
5. Hobbies	☐1	☐2	☐3	☐4	☐5
6. Living situation	☐1	☐2	☐3	☐4	☐5
7. Values	☐1	☐2	☐3	☐4	☐5

Life Structure Scale

Please do not mark in this area

					3

Make an ☒ in the box indicating **how stressful** each of the following parts of your life have been over the past year.

	Not at all stressful				Extremely stressful
1. Family relationships	☐1	☐2	☐3	☐4	☐5
2. Romantic relationships	☐1	☐2	☐3	☐4	☐5
3. Friendships	☐1	☐2	☐3	☐4	☐5
4. School and career goals	☐1	☐2	☐3	☐4	☐5
5. Hobbies	☐1	☐2	☐3	☐4	☐5
6. Living situation	☐1	☐2	☐3	☐4	☐5
7. Values	☐1	☐2	☐3	☐4	☐5

Think about your life over the past year. Do you see yourself as mainly going through changes or mainly as staying the same?

Over the past year, in my life, I have experienced

(Please check only one).

☐ mainly change

☐ mainly stability

Appendix G

Depressive symptoms scale

FEELINGS AND IDEAS (CDI)

Please do not mark in this area

				3

People sometimes have different feelings and ideas. This form lists feelings and ideas in groups. From each group, pick **one** sentence that describes you best for the past two weeks. There are no right or wrong answers.

From each group, put an ☒ next to the sentence that **best** describes your feelings and ideas **in the past two weeks.**

---

1. ☐ I am sad once in a while.
   ☐ I am sad many times.
   ☐ I am sad all the time.

---

2. ☐ Nothing will ever work out for me.
   ☐ I am not sure if things will work out for me.
   ☐ Things will work out for me O.K.

---

3. ☐ I do most things O.K.
   ☐ I do many things wrong.
   ☐ I do everything wrong.

---

4. ☐ I think about bad things happening to me once in a while.
   ☐ I worry that bad things will happen to me.
   ☐ I am sure that terrible things will happen to me.

---

5. ☐ I hate myself.
   ☐ I do not like myself.
   ☐ I like myself.

---

6. ☐ All bad things are my fault.
   ☐ Many bad things are my fault.
   ☐ Bad things are not usually my fault.

Please do not mark in this area

				3

7. ☐ Things bother me all the time.
   ☐ Things bother me many times.
   ☐ Things bother me once in a while.

---

8. ☐ I cannot make up my mind about things.
   ☐ It is hard to make up my mind about things.
   ☐ I make up my mind about things easily.

---

9. ☐ I look O.K.
   ☐ There are some bad things about my looks.
   ☐ I look ugly.

---

10. ☐ I never have fun at school.
    ☐ I have fun at school only once in a while.
    ☐ I have fun at school many times.

---

11. ☐ I can never be as good as other kids.
    ☐ I can be as good as other kids if I want to.
    ☐ I am just as good as other kids.

---

12. ☐ Nobody really loves me.
    ☐ I am not sure if anybody loves me.
    ☐ I am sure that somebody loves me.

Appendix H

Delinquent behaviours scale

BEHAVIOURS

Please do not mark in this area

				3

This section asks about different behaviours that teenagers are sometimes involved in. Your answers are very important to us: we want to know what really happens for people your age so please answer all questions **honestly**. Remember, **ALL YOUR ANSWERS ARE CONFIDENTIAL**.

For each question,

- First indicate whether or not you have **ever** done what is described (☒ YES or NO).
- Then, **if** you answer **YES**, indicate how many times **in the last year** you have done each behaviour.
- **If** you answer **NO**, skip to the next question.

Have you ever ...?

1. **Purposely damaged or destroyed property (includes vandalism/graffiti) belonging to your school or employer?** ☐ Yes ☐ No

   If "YES", how many times in the last year? If "NO", skip to the next question.

   ☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

2. **Purposely damaged or destroyed other property (includes vandalism/graffiti) that did not belong to you, not counting family, school, or work property?** ☐ Yes ☐ No

   If "YES", how many times in the last year? If "NO", skip to the next question.

   ☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

3. **Carried a hidden weapon other than a plain pocket knife?** ☐ Yes ☐ No

   If "YES", how many times in the last year?

   ☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

4. **Attacked someone with the idea of seriously hurting that person?** ☐ Yes ☐ No

   If "YES", how many times in the last year?

   ☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

5. **Been involved in gang fights?** ☐ Yes ☐ No

   If "YES", how many times in the last year?

   ☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

Please do not mark in this area

				3

6. Hit or threatened to hit anyone (e.g., friends, strangers)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

7. Been loud, rowdy, or unruly in a public place (disorderly conduct)? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

8. Tried to cheat someone by selling them something that was worthless or not what you said it was? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

9. Bought liquor as a minor? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

10. Been drunk in a public place? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

11. Stolen or tried to steal things worth between $5.00 and $50.00? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

12. Broken into or tried to break into a building (including an abandoned building) or vehicle to steal something or just to look around? ☐ Yes ☐ No

If "YES", how many times in the last year?

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12 ☐13 or more

Appendix I

Responsive caregiving scale

CAREGIVING PATTERNS (CP)

Please do not mark in this area

						3

Please take a moment to think about the way YOU usually act when a close friend is upset or is experiencing a problem. Read each of the following items and mark ☒ in the box that most closely describes how you feel and act.

	Never	Almost Never	Some-times	Often	Very Often	Always
1. I am bossy when trying to help my friend.	☐1	☐2	☐3	☐4	☐5	☐6
2. I don't realize when my friend is upset or worried about something.	☐1	☐2	☐3	☐4	☐5	☐6
3. I'm good at recognizing my friend's needs and feelings.	☐1	☐2	☐3	☐4	☐5	☐6
4. I can tell when my friend needs comforting, even when s/he doesn't ask for it.	☐1	☐2	☐3	☐4	☐5	☐6
5. I tell my friend what to do when s/he is trying to make a decision.	☐1	☐2	☐3	☐4	☐5	☐6
6. When I help my friend with something, I like to do things "my way".	☐1	☐2	☐3	☐4	☐5	☐6
7. I don't get involved in my friend's problems.	☐1	☐2	☐3	☐4	☐5	☐6
8. When my friend wants to tell me about a problem he/she is having, I make excuses not to talk about it.	☐1	☐2	☐3	☐4	☐5	☐6
9. When my friend has a problem, I try to help him/her to come up with something to do about it.	☐1	☐2	☐3	☐4	☐5	☐6
10. When my friend tells me about a problem, I change the topic or say it's not important.	☐1	☐2	☐3	☐4	☐5	☐6
11. When my friend has a problem that only he/she can solve, I try to do other things to help (e.g., bring food, etc.).	☐1	☐2	☐3	☐4	☐5	☐6
12. When my friend is feeling bad about something, I say things to let him/her know I care about him/her.	☐1	☐2	☐3	☐4	☐5	☐6
13. When my friend needs help with something, I spend a lot of time helping him/her.	☐1	☐2	☐3	☐4	☐5	☐6
14. When my friend is having a problem, I try to show him/her that I understand how he/she is feeling.	☐1	☐2	☐3	☐4	☐5	☐6
15. When my friend is feeling stressed about something, I encourage him/her to tell me how he/she is feeling.	☐1	☐2	☐3	☐4	☐5	☐6

Appendix J

Positive affect scale

FEELINGS (MAACLT-R)

Please do not mark in this area

				3

On this page, you will find words which describe different kinds of moods and feelings. Mark an ☒ in the boxes beside the words which describe how you **generally feel**. Some words may sound alike, but we want you to ☒ **all the words** that **describe** your feelings. Work rapidly.

I GENERALLY FEEL ...

1. ☐ affectionate
2. ☐ afraid
3. ☐ alone
4. ☐ angry
5. ☐ annoyed
6. ☐ complaining
7. ☐ critical
8. ☐ cruel
9. ☐ destroyed
10. ☐ disagreeable
11. ☐ discouraged
12. ☐ disgusted
13. ☐ enraged
14. ☐ fearful
15. ☐ free
16. ☐ friendly
17. ☐ frightened
18. ☐ furious
19. ☐ glad
20. ☐ good
21. ☐ good-natured
22. ☐ happy
23. ☐ hostile
24. ☐ impatient
25. ☐ interested
26. ☐ irritated
27. ☐ joyful
28. ☐ lonely
29. ☐ loving
30. ☐ lost
31. ☐ mad
32. ☐ mean
33. ☐ miserable
34. ☐ nervous
35. ☐ panicky
36. ☐ peaceful
37. ☐ pleased
38. ☐ pleasant
39. ☐ polite
40. ☐ rejected
41. ☐ sad
42. ☐ satisfied
43. ☐ secure
44. ☐ shaky
45. ☐ steady
46. ☐ suffering
47. ☐ tender
48. ☐ tense
49. ☐ timid
50. ☐ understanding
51. ☐ warm
52. ☐ whole
53. ☐ worrying

Appendix K

Intercorrelations of Predictor and Outcome Variables Controlling for Social Desirability Responding

Vari-able	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Sex	-														
2. Mean Anx	-0.03	-													
3. Mean Avd	0.23**	0.16*	-												
4. DpS1	-0.16	0.20*	0.16	-											
5. DpS2	-0.08	0.08	0.12	0.28**	-										
6. DpS3	-0.07	0.05	0.10	0.25**	0.57**	-									
7. InS1	-0.18	0.19*	0.09	0.49**	0.18*	0.23**	-								
8. InS2	-0.12	0.06	0.08	0.07	0.47**	0.33**	0.23**	-							
9. InS3	-0.33**	0.15	0.07	0.10	0.37**	0.37**	0.29**	0.44**	-						
10. Dpn1	-0.05	0.08	0.14	0.22**	0.19*	0.09	0.09	0.02	0.12	-					
11. Dpn2	-0.03	0.18*	0.14	0.06	0.10	0.04	-0.07	-0.01	0.00	0.39**	-				
12. Dpn3	-0.22*	0.10	-0.01	0.12	0.27**	0.21*	0.10	0.10	0.20*	0.49**	0.53**	-			
13. Delq1	0.05	-0.02	0.19*	0.32**	0.29**	0.36**	0.16	0.07	0.02	0.12	-0.00	0.07	-		
14. Delq2	0.06	0.01	0.14	0.27**	0.39**	0.36**	0.07	0.18*	0.00	0.08	0.24**	0.09	0.62**	-	
15. Delq3	0.14	-0.04	0.04	0.19*	0.39**	0.40**	0.05	0.21*	-0.02	0.15	0.09	0.16	0.59**	0.69**	-

Continued on next page.

Vari-able	16.	17.	18.	19.	20.	21.	22.	23.	24.
1. Sex	-0.53**	-0.50**	-0.58**	-0.15	0.04	-0.02	-0.04	0.12	-0.01
2. Mean Anx	0.13	0.08	-0.02	-0.16	-0.05	0.00	0.01	-0.22**	-0.24**
3. Mean Avd	-0.29**	-0.21*	-0.13	-0.12	0.00	-0.10	-0.20*	-0.25**	-0.25**
4. DpS1	0.19*	0.23**	0.05	-0.10	-0.08	0.01	-0.34**	-0.18*	-0.20*
5. DpS2	0.15	0.17*	0.09	-0.10	-0.01	0.02	-0.18*	-0.25**	-0.24**
6. DpS3	0.16	0.18*	0.16	-0.01	0.05	-0.00	-0.08	-0.17*	-0.28**
7. InS1	0.16	0.21*	0.07	-0.07	-0.09	-0.06	-0.23**	-0.20*	-0.25**
8. InS2	0.22*	0.18*	0.09	0.02	0.12	0.03	-0.02	-0.14	-0.12
9. InS3	0.22*	0.19*	0.19*	-0.02	0.02	0.04	-0.01	-0.15	-0.15
10. Dpn1	-0.01	-0.02	-0.02	-0.21*	-0.10	-0.20*	-0.18*	-0.26**	-0.14
11. Dpn2	-0.05	-0.19*	-0.10	-0.29**	-0.21*	-0.24**	-0.16	-0.15	-0.21*
12. Dpn3	0.09	0.09	0.09	-0.20*	-0.24**	-0.34**	-0.06	-0.17*	-0.22**
13. Delq1	-0.10	0.08	0.04	-0.08	-0.14	-0.12	-0.35**	-0.21*	-0.24**
14. Delq2	-0.07	0.01	-0.08	-0.13	-0.13	-0.15	-0.32**	-0.30*	-0.25**
15. Delq3	-0.13	0.06	-0.04	0.01	-0.07	-0.10	-0.27**	-0.26**	-0.28**
16. RspC1	-	0.58**	0.60**	0.24**	0.20*	0.15	0.13	0.09	0.08
17. RspC2	0.58**	-	0.70**	0.32**	0.21*	0.09	0.13	0.06	0.05
18. RspC3	0.60**	0.70**	-	0.24**	0.18*	0.10	0.27**	0.15	0.17*
19. PosAf1	0.24**	0.32**	0.24**	-	0.52**	0.37**	0.17*	0.01	0.05
20. PosAf2	0.20*	0.21*	0.18*	0.52**	-	0.52**	0.10	0.12	0.13
21. PosAf3	0.15	0.09	0.10	0.37**	0.52**	-	0.01	0.11	0.11
22. SD1[a]							-	0.57**	0.51**
23. SD2[a]								-	0.60**
24. SD3[a]									-

Note. 1, 2 and 3 refer to the three time points. Mean Anx=Mean Attachment Anxiety. Mean Avd=Mean Attachment Avoidance. DpS=Dependent Life Stress. InS=Independent Life Stress. Dpn=Depressive symptoms. Delq=Frequency of Delinquent Acts. RspC=Responsive Caregiving. PosAf=Positive Affect. SD=Social Desirability Responding. *$p < .05$. **$p < .01$. [a] = Zero-order correlations.

Appendix L

Hierarchical linear modeling formulae

Depressive Symptoms:
Level-1 Model
Y = B0 + B1*(TIME) + B2*(MCSD) + R

Level-2 Model
B0 = G00 + G01*(AVD) + G02*(ANXAVD) + G03*(DEPST1) + U0
B1 = G10 + G11*(AVD) + U1
B2 = G20

Delinquency:
Level-1 Model
Y = B0 + B1*(TIME) + B2*(MCSD) + B3*(DEPSTR) + R

Level-2 Model
B0 = G00 + G01*(AVD) + G02*(DEPST1) + G03*(INDSANX) + U0
B1 = G10 + G11*(ANXAVD) + G12*(INDSANX) + U1
B2 = G20
B3 = G30

Responsive Caregiving:
Level-1 Model
Y = B0 + B1*(TIME) + B2*(MCSD) + R

Level-2 Model
B0 = G00 + G01*(SEX) + G02*(ANX) + G03*(AVDSEX) + G04*(INDSAVD) + U0
B1 = G10 + G11*(ANX) + U1
B2 = G20

Positive Affect:
Level-1 Model
Y = B0 + B1*(TIME) + B2*(MCSD) + R

Level-2 Model
B0 = G00 + G01*(SEX) + G02*(DEPST1) + G03*(INDSANX) + U0
B1 = G10 + G11*(ANXAVD) + U1
B2 = G20