

# **The Role of Stress in Changing Attachment Style over the Transition to Parenthood**

by

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B.A., University of Manitoba, 2009

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of the Requirements for the Degree of

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in the Department of Psychology

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## **Supervisory Committee**

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Dr. Erica Woodin, Department of Psychology  
**Supervisor**

Dr. Marsha Runtz, Department of Psychology  
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## Abstract

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This longitudinal study examined factors that contribute to change in attachment anxiety and attachment avoidance over the transition to parenthood. Participants were a community sample of 98 heterosexual couples expecting their first child who were recruited through maternity resources in the Victoria, B.C. area. Specifically, this study considered whether prenatal perceived stress levels predicted change in adult attachment security. For men, higher stress levels predicted more change in attachment security. We also examined whether increases in stress levels from the prenatal to the postnatal period predicted changes in attachment security and found that increases in stress from the prenatal to postnatal period were associated with more change in attachment for men; results were marginally significant for women. In addition to examining the impact of stress on the absolute value of change in attachment, this study considered perceived support and perceived anger as moderators of the relationship between stress and directional change in attachment. Measures of general support and perceived anger did not moderate this relationship. Observational ratings of partner's positive and negative support behaviours during support-seeking interactions were examined as potential moderators. The interaction between stress and positive emotional support predicted decreasing avoidance for women. Interactions between stress and negative affect marginally predicted increasing anxiety for men and women. Dyadic analyses were also

used to clarify how changes in participants' attachment security over time were influenced by their partners' prenatal attachment security. For women, partner levels of attachment avoidance at the prenatal period predicted increasing attachment anxiety. These findings emphasize that adult attachment exists in the context of interpersonal relationships, and demonstrate the importance of using dyadic and longitudinal data to study attachment. Implications for attachment theory and intervention are discussed.

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## **Introduction**

Attachment theory (Bowlby, 1969/1982, 1973) provides an account of how infant-caregiver bonds are part of a larger system of attachment that influences infant development. Attachment theory has been extended to examine how the quality of early attachment bonds influence behaviour in adult relationships. Attachment has been studied in a number of contexts, and has been demonstrated to have implications for personal and relational wellbeing, cognitive and physical development, and physical and mental health. The goal of this paper is to examine factors that influence attachment stability over the lifespan by considering Bowlby's original work on attachment as well as examining relevant empirical findings that help clarify how attachment change is best conceptualized. This paper will describe attachment theory, emphasizing areas of the theory most relevant to understanding Bowlby's conceptualization of processes affecting stability and change over time. Because Bowlby's theory discusses general rules, this paper will also attempt to demonstrate why specific environmental contexts and influences are best suited to studying attachment change. Specifically, I will demonstrate that the transition to parenthood is an ideal context to study attachment change, and that interpersonal stress and relationship quality should influence the trajectory of attachment security over time.

### **Attachment**

Attachment theory (Bowlby, 1969/1982, 1973) was developed to systematically explain the ways infants form attachments to their caregivers and to develop a comprehensive understanding of the roles infant-caregiver attachments play in

development. Bowlby conceptualized attachment as a complex and independent motivational system that guides infant behaviour and that continues to influence behaviour throughout the lifespan. Successfully formed attachment bonds between infants and attachment figures can be distinguished from other types of relationships by considering some distinctive features of attachment (Weiss, 1982). Infants will prefer to be physically near their attachment figure (proximity maintenance), and will show distress when separated from them (separation anxiety). Throughout evolution, infants who made efforts to remain close to their caregivers would be more likely to be protected should a threat be encountered, and showing distress upon separation will encourage the caregiver to also make efforts to maintain proximity. Central to Bowlby's theory is that infants will show preferential proximity maintenance and separation anxiety to one or a small number of individuals (Bowlby 1988), as this serves as the basis for developing meaningful emotional ties. In addition to proximity behaviour, attachment relationships can be recognized by distinctive exploratory behaviours. Infants will return to their attachment figure after exploring their environment, using the attachment figure as a 'secure base'. Infants will also seek their attachment figure when they experience fear or encounter threat, using the attachment figure as a 'safe haven'. These qualities of secure attachment demonstrate evolutionary advantages beyond simply seeking proximity in order to ensure food and protection will be available.

In addition to promoting physical safety, securely attached infants should be more competent across a number of domains. Infants' secure attachment enables them to freely explore their environment without anxious concern about whether their attachment figure will be available should a threat arise. Securely attached infants' more extensive

exploration of their environment facilitates physical, cognitive, and social development. Studies have found support for this ‘competence hypothesis’: Infants who are securely attached show cognitive benefits throughout childhood including better vocabulary and greater social flexibility (Meins, 1997). A meta-analysis of the relationship between attachment, intelligence, and language (van Ijzendoorn, Dijkstra, & Bus, 1995) concluded that “insecure attachment appears to be associated with a lower level of cognitive functioning and language competence” (p.126). Further, attachment style in infancy is associated with certain patterns of interactions with significant others, and securely attached infants develop more positive relationships with family (e.g., Volling & Belsky, 1992), friends (e.g. Schneider, Atkinson, & Tardif, 2001), and romantic partners in adulthood. In their review of cross-cultural patterns of attachment, van Ijzendoorn and Sagi-Schwartz (2008) found moderate cross-cultural support for the association between secure attachment and social and cognitive development.

**Attachment stability and environmental lability.** Bowlby’s description of attachment change was influenced by Waddington (1957), a developmental embryologist who wrote about the canalization of cell development in embryos. Waddington argued that early in development, cells are more susceptible to influence from external factors, and that as development progresses the cells become canalized, or more resistant to external influence. Applying Waddington’s theory of canalization to attachment is especially relevant when considering change in attachment, as the theory of canalization is an account of how trajectories of development are maintained over time, rather than examining static forces that maintain attachment at any given point in time. Waddington differentiated between physiological developmental processes that were resistant to

environmental differences and those whose development were highly dependent on external influences. Waddington described processes that were highly resistant to external factors as being highly canalized – these processes will develop similarly regardless of environmental influence. Bowlby discussed canalization in terms of ‘environmental lability’, or the extent to which the environment will influence an outcome. According to Bowlby, the development of attachment is highly canalized – all infants will develop an attachment system – while the quality of attachment, secure or insecure, is sensitive to the influence of the quality of caregiving the infant experiences.

In their chapter reviewing cross-cultural attachment research, van Ijzendoorn and Sagi-Schwartz (2008) discuss findings that support the hypotheses that the development of attachment is universal and that attachment style is sensitive to caregiver responsiveness, and discussed the findings in terms of attachment’s grounding in evolutionary psychology. The authors found that the attachment system develops across cultures; all infants, unless severely impaired, will form attachment bonds. The developmental trajectory of attachment formation was also found to be universal: Before infants can discriminate between faces they are highly responsive to contact, and by six months infants respond differently to their attachment figure (usually the mother) than to strangers. Around six months proximity maintenance and separation anxiety begin to emerge, as do signs of anxiety around strangers. Bowlby reasoned that attachment emerges around the same time as infants begin to move independently – as infants are able to crawl and later walk, they need to develop a system to indicate distress to their caregivers.

The second hypothesis evaluated in the review of cross-cultural research is that although the attachment system develops regardless of external influence, the quality of attachment is sensitive to the behaviour of the attachment figure. This hypothesis emphasizes that attachment styles develop in the context of the caregivers' responsiveness; infants adapt their attachment behaviours according to their caregivers' responses. Infants who have caregivers who are consistently available and appropriately responsive when the infant is distressed will learn to trust that their caregiver will continue to be available and provide safety. These securely attached infants will still show separation anxiety when distressed, but will not exhibit signs of anxiety that their caregiver will be unavailable. Infants whose caregivers are inconsistently available or who do not provide the infant with the appropriate support learn that safety is sometimes available, but that it is inconsistent and unreliable. These anxiously attached infants are preoccupied with concerns about their caregiver's availability even in the absence of threat and are not readily comforted by their caregiver. Infants whose caregivers are largely unavailable learn that caregivers are not a reliable source of safety and comfort, and tend to develop alternate methods to cope with stress. These infants tend to respond similarly to strangers as to their caregivers, and are said to have an avoidant attachment style. An infant's attachment style is classified as being secure, avoidant, or anxious using the 'strange situation paradigm', in which researchers observe the infant's response to being reunited with their caregiver after a period of separation (Ainsworth, 1967). The attachment classification assigned to infants at around eighteen months using the strange situation paradigm is predictive of a number of outcomes through childhood and into adulthood. Securely attached infants have advantages in social and cognitive

development by toddlerhood (Meins, 1997). A review of the effect of attachment on child outcomes found benefits for secure attachment across developmental periods, including less negative affect and aggression, better problem solving skills, and better mental and physical health (Ranson & Urichuck, 2008). In adulthood, secure attachment is associated with advantages in multiple domains, including higher relationship satisfaction (Banse, 2004), more adaptive coping with stress (Shaver & Hazan, 1993), higher cognitive functioning, lower levels of interpartner violence, and lower levels of psychopathology including depression and anxiety (Cooper, Shaver, & Collins, 1998).

**Attachment in adulthood.** Early attachment patterns exert their influence on the infant's subsequent development through the internalization of these patterns into what Bowlby called 'internal working models'. An important component of developing attachment, internal working models are the interpersonal cognitive schemas associated with secure and insecure attachment styles. An individual's 'model of self' refers to the cognitive schema of attachment relevant self-concept and self-evaluation, for example, of being worthy of love and attention from others. An individual's 'model of other' refers to the cognitive schema the individual possesses of others' attachment behaviours, for example, their availability and willingness to provide comfort or support. Individuals who are securely attached will internalize their attachment figure's pattern of consistent and sensitive caregiving, and develop favourable models of self and of others. Secure individuals believe that others are capable and willing to provide support in times of need. In early childhood, this pattern of beliefs is demonstrated by exploratory behaviour, willingness to separate from their attachment figure, and successful soothing by the caregiver when the child is distressed. In adulthood, beliefs about how others will

respond in times of distress are often studied by examining behaviours surrounding seeking and receiving social support from significant others. Favourable models of self and other in adulthood are evidenced by a willingness to seek social support in stressful situations (e.g. Anders & Tucker, 2000; Collins & Feeney, 2004).

Individuals who are insecurely attached internalize their attachment figure's pattern of inconsistent or unavailable caregiving. These individuals develop cognitive self-schemas that include beliefs that they do not deserve to receive support from others, and develop cognitive schemas of others that include beliefs that others will not be available in times of distress. Individuals with anxious attachment behaviours have internalized a pattern of inconsistent caregiving, developing an internal working model of other that includes distressing beliefs that significant others will be unavailable when they are needed. These individuals are concerned with the availability of significant others, and tend to be hypervigilant to threat cues in the environment and to the possibility that significant others will be absent in times of need. Individuals with avoidant attachment styles internalize patterns of unavailable or unresponsive caregiving. Their internal working model of others does not associate significant others with providing comfort or support. These individuals tend not to seek social support, and prefer to use alternative coping mechanisms in times of stress. Not surprisingly, individuals with avoidant attachment styles tend to use strategies that emphasize avoidance when coping with stressful situations (Lussier, Sabourin, & Turgen, 1997), for example by trying to distract themselves from the problem, using cognitive distancing to deny or repress problems (e.g. Feeney, 1995; Mikulincer & Orbach, 1995). Cognitive distancing in avoidant individuals was found to impact adherence to medication in insulin-dependent diabetics

(Turan, Osar, Turan, Ilkova, & Damci, 2003). Avoidant attachment has also been linked to substance misuse and suppression of negative emotion (Shaver & Mikulincer, 2008), as well as with somatic symptoms (Wayment & Vierthaler, 2002)

**Changes in adult attachment over the lifespan.** There is debate about the degree of flexibility attachment schemas have once they are established. In a meta-analysis of attachment stability through childhood, Fraley (2002) found a mean correlation of .35 between attachment classifications at age 1 year and at age 4 years, and a mean correlation of .67 between attachment classifications at age 1 year and age 6 years. Longitudinal studies have examined concordance rates between attachment classification using the strange situation paradigm in infancy and attachment style in adulthood. Concordance rates for these studies range from 40% (Lewis, Feiring, & Rosenthal, 2000) (which is not much different from chance given the high proportion of securely attached infants across samples) and over 60% (Hamilton, 2000). Fraley's (2002) meta-analysis found a mean correlation of .27 between strange situation classification and attachment style assessed at age 19-20. Given that concordance rates will be lower when attachment is assessed categorically, some of these rates may have been higher if they had used continuous measures of attachment. Overall, this suggests that attachment is moderately stable, although there is variation in the degree of stability (Mikulincer & Shaver, 2007). Given the number of studies that use attachment classification to predict a wide variety of cognitive, emotional, and behavioural outcomes, it is clear that early attachment continues to impact individuals throughout their development. However, attachment classifications do show some variability over the lifespan, and concordance rates between attachment styles at different ages are far

from perfect. In order to understand how and when attachment patterns change, it is important to understand what contributes to consistency and inconsistency of attachment patterns across time, under what circumstances attachment styles are most likely to be revised, and the extent to which an individual's attachment style is consistent across relationships.

*Factors that promote attachment stability.* According to attachment theory, working models are “environmentally labile” and “environmentally stable” (Bowlby, 1973). Environmental lability refers to the extent to which a construct changes in response to environmental influences; an environmentally labile schema is dependent on external information and changes with the environment. Environmental stability, on the other hand, refers to the extent to which a construct is resistant to change despite changes in the environment. Aside from continuity in the quality of the caregiving environment, Bowlby identified three factors that promote attachment stability over time: reciprocal influences between environment and attachment style, the ongoing influence of early attachment models on the development of new models, and decreasing sensitivity to external influences over time. Although Bowlby indicated that attachment should become less sensitive to environmental influences over the lifespan, he did not identify specific mechanisms underlying this change. Consequently, further discussion will be limited to the first two factors that promote attachment stability.

According to attachment theory, attachment stability is maintained through the reciprocal nature of interpersonal relationships and working models of attachment. Studies of attachment stability have yielded mixed results, supporting various levels of attachment stability or flexibility over time. Working models help people interpret social

interactions, providing continuity to interpersonal experiences. For example, individuals who are securely attached are more likely to perceive support from significant others, since it is consistent with their cognitive schemas of how others act. Individuals who are anxiously attached tend to be hypervigilant to threats in the environment (Mikulincer & Florian, 1998), increasing the odds that significant others will not be available during some of the threat perceptions and thereby confirming their beliefs that others are not consistently available. Insecurely attached individuals are less likely to rate their partners as being supportive, compared to objective raters and to their partners self-perceptions of providing support style (Simpson & Rholes, 2002). Anxiously attached individuals are also more likely to perceive neutral stimuli as threatening and to perceive ambiguous responses from others as negative. Overall, the perceptions and attributions of individuals who are anxiously attached serve to maintain the interpersonal beliefs they hold that are associated with anxious attachment. These perceptions in turn influence behaviour, often leading individuals to behave in ways that serve to perpetuate attachment patterns. For example, excessive reassurance seeking in response to frequent threat perception may actually create conflict with others in response to perceived threat, confirming their expectations that others will not respond sensitively when they seek reassurance. Similarly, individuals with avoidant attachment styles are less likely to engage in support seeking behaviours in relationships, making it less likely that they will have an opportunity to have their working models contradicted.

The third factor contributing to attachment stability identified in Bowlby's theory is that models of attachment figures formed early in development serve as prototypes for the development of future models. Some studies have found support for the idea that

although change in attachment can occur, childhood attachment influences subsequent attachment throughout the lifespan. This model of attachment change is called the prototype model, and was contrasted with a contextual or revisionist model by Fraley et al. (2002). The revisionist model of attachment change postulates that existing attachment patterns and schemas should not interfere with the processing of new, attachment-relevant information. In order to clarify conflicting empirical results supporting the prototype and revisionist models, Fraley et al. (2011) conducted a longitudinal study examining fluctuations in daily and weekly levels of attachment. In this study, participants either completed an attachment measure once daily for thirty days or once weekly for one year. This study found that although there were contextual fluctuations in self-reported attachment levels, attachment was influenced by an underlying prototype and was more stable over time than would be predicted by a contextual or revisionist model. The prototype model of attachment puts forth the idea that the prototypic working models are formed before the infant developed language or introspection, and so form a 'preverbal working model' that continues to exert influence over attachment patterns throughout the lifespan. Preverbal working models are thought to be reactivated in adult relationships and exert unconscious influence over individuals' expectations and reactions in interpersonal situations. Although the prototype model emphasizes the importance of preverbal working models and early attachment experiences on current attachment, it also acknowledges that sufficient experience that is incongruent with existing working models can lead to change in attachment security over time (Mikulincer & Shaver, 2007).

***Factors that affect attachment change.*** There are two major theories of how attachment styles change over time: the ‘life stress model of attachment’ and the ‘individual difference model of attachment’. According to the life stress model, the attachment system is continually revised as the individual experiences life stress and varying responses from significant others. If an individual experiences a stressful life event, the ways that others respond will be incorporated into their cognitive schemas and may revise previously held beliefs, leading to increases or decreases in attachment security. According to the individual difference model, attachment *stability* is viewed as an important aspect of attachment that varies from one individual to another. According to this theory, attachment stability will vary depending on the extent to which their models of self and other are unclear. Individuals with unclear models of self have less stable self-concepts, are less certain about their beliefs about themselves, and are more likely to indicate their beliefs about themselves change frequently. Similarly, individuals with unclear models of others hold beliefs about others with less certainty and are more likely to indicate their beliefs about others change over time. The individual difference model of attachment change predicts that individuals with unclear self-concepts and uncertain beliefs about others will be more susceptible to attachment change in response to relevant experiences than individuals with clear models of self and others. Davila and Cobb (2003) conducted a study evaluating the life stress and individual difference models of attachment change. In their one year longitudinal study, one thousand participants completed measures of attachment, a self-concept clarity scale, and a scale measuring certainty of beliefs about others at the beginning and end of the study, and also were questioned about interpersonally stressful life events at various times throughout the

study. The authors found that interpersonal stress and having unclear models of self and other contributed to attachment change, although interpersonal stress predicted change in attachment only when attachment was measured by interview, while having an unclear working models predicted change on both interview and self-report attachment measures. Previous studies have found inconsistent results using the life-stress model to predict attachment change. Davila and Sargent (2003) found that negative life events in general were not associated with attachment change. Rather, only negative life events that were interpersonally relevant predicted change in attachment for participants in their study. Although only interpersonally relevant life events predicted attachment change, this finding was consistent for participants regardless of their level of attachment security. In summary, change in attachment, measured by both self-report and interview methods, is more likely when working models of self and others are less clear and in response to interpersonally relevant stressful life events.

The stability of attachment may also vary depending on the context of the attachment relationship. For example, attachment may be more or less stable between parents and children, romantic partners, or friends. Attachment in childhood is most commonly assessed by examining attachment patterns between a child and his or her primary caregiver, while attachment in adulthood is most commonly assessed by examining attachment patterns between romantic partners. It is also possible to assess attachment between other significant relationships across the lifespan. Although the implications of attachment style are most often considered in the context of romantic partnerships, adult relationships that have the essential features of attachment, such as proximity seeking when distressed and using the attachment figure as a secure base, are

not restricted to romantic partners. Adults' attachment styles will influence close, meaningful relationships, and attachment security can be measured in the context of close friendships, and relationships with siblings and other family members. As noted, the prototype model of attachment change – which states that early experiences form a latent prototype for attachment relationships – suggests that attachment patterns should be relatively stable across relationships. However, this model also suggests that contextual or experiential factors that instigate change in one relationship may be insufficient to counteract the attachment prototype across all relationships. Fraley et al.'s (2011) study of university students found that attachment patterns with parents were more stable over time than attachment patterns in romantic relationships. This finding might suggest that attachment within a relationship becomes more entrenched over time. Alternatively, university students may have less frequent contact with parents, providing less opportunity for information to contradict their working models of their parents.

Studies have demonstrated that the prototype model of attachment provides the best explanation of how attachment changes over time – early attachment experiences have long-lasting implications through adulthood, but current attachment is also influenced by interpersonal experiences throughout the lifespan. In order to understand how attachment changes, then, it is important to understand what kinds of experiences will have sufficient impact on working models to warrant revision, and to consider the impact of moderating factors on the association between these experiences and attachment change. Bowlby (1972) conceptualized attachment change as occurring in the context of 'destabilizing forces', or powerful life events. Because the attachment system is activated in the context of distress, it seems reasonable that revision to attachment

models might be most likely to occur during stressful situations. As discussed, negative life events have been found to contribute to attachment instability, suggesting that attachment is most sensitive to revision in the context of interpersonally stressful events. One longitudinal study compared attachment classifications that were determined using the strange situation paradigm at around one year of age with attachment classifications determined by interview twenty years later (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). This study aimed to identify stressful life events that would contribute to attachment instability, and found evidence supporting the idea that negative life events, which included loss of a parent, parental divorce, life-threatening illness of parent or child, parental psychiatric disorder, and physical or sexual abuse by a family member. Although the majority of participants did not change attachment classifications from age 12 months to age 20, change was twice as likely for participants who experienced negative life events. In this study, secure and insecure infants were equally likely to change attachment classifications over time. However, negative stressful life events were predictive of infants moving from secure to insecure attachment, while no variables were identified as predicting infants' changing from insecure to secure attachment.

*Contexts for studying attachment change.* An extension of research evaluating the impact of stressful life events on change in attachment over time is to examine how stress during normative life transitions influence attachment. Previous research on attachment over life transitions has focused mainly on the transition to marriage, with a smaller body of literature evaluating the trajectory of attachment security over the transition to parenthood.

Results from Crowell, Treboux, & Waters' (2002) study of adult attachment patterns in newlyweds was consistent with Fraley et al.'s (2011) finding that attachment should be relatively stable over time, and with Davila and Sargent's (2003) finding that negative life events predict attachment change only when they are interpersonally relevant. Crowell et al.'s study assessed husbands' and wives' attachment style before and after marriage in order to assess the impact of a significant interpersonal transition on attachment stability. In this study, attachment classifications were measured using the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) three months prior to marriage, and again eighteen months after marriage. Crowell et al. found that although the majority of participants were given the same attachment classification three months before and eighteen months after marriage, for those participants whose classifications were different after marriage, change was associated with feelings and cognitions about their relationship. This study also found that when there was change in attachment it was most often toward increased attachment security. Similarly, change in attachment has been found to occur over the transition to parenthood. A study by Simpson, Rholes, Campbell, & Wilson (2003), found that women decreased in avoidance over the transition to parenthood. Increases in insecurity were found for individuals with low levels of support and high levels of perceived anger, although mean levels of attachment anxiety were stable across the transition when support and anger were not considered. The transition to parenthood is associated with increases in demands on new parents, increased conflict between partners, and decreased relationship satisfaction. In addition to interpersonal stress between the new parents, there is also the potential for interpersonal stress related to concerns about parenting. Parenting stress may be

especially salient to individuals with insecure attachment, who have less faith in their competence as parents (Nygren, Carstensen, Ludvigsson, & Frostell, 2012). Generally, life transitions that are interpersonally relevant and should be related to increased likelihood of a change in attachment security.

**Attachment style and appraisals of stressful situations.** While interpersonal stress might promote changes in attachment, it is important to note that the reciprocal nature of attachment style and environment suggests that individuals' attachment style will influence the way they perceive and cope with stress. In addition to affecting how individuals perceive threat and cope with stress generally, attachment styles also impact how individuals respond to changes specific to becoming parents. A study by Alexander, Feeney, Hohaus, and Noller (2001) examined the relationship between attachment style and coping strategies in new parents. The authors used Lazarus' cognitive theory of stress and coping (Lazarus, 1984, 1993) to describe how coping with stress is influenced by both personal factors and environmental factors. Lazarus' model emphasizes cognitive appraisals of situations as stressful or not stressful, as well as evaluations of what coping resources are available, as being important in determining how individuals will cope with stressful situations. Previous research has found that secure attachment is associated with problem-focused coping, including turning to others for support, avoidant attachment is associated with distancing behaviours, and anxious attachment is associated with maladaptive emotion-focused strategies including self-blame (Feeney, 1998; Ognibene & Collins, 1998). The authors hypothesized that attachment security affects coping indirectly, through appraisals of strain, and directly, through maladaptive responses to stressful situations. Alexander et al. found support for associations among

attachment, stress, and coping, with some gender differences. The authors found that attachment style influenced perceptions of stress, measured as parenting strain, and that higher perceived stress resulted in less effective coping. Husbands who were high in anxiety reported higher levels of strain and more emotion-focused coping. For both genders, discomfort with closeness, associated with avoidant attachment, and levels of partner anxiety were associated with less support seeking. The authors also tested for mediation of these effects by looking at 'coping resources'. The authors considered cultural norms and gender differences, and hypothesized that men would rely on high self-esteem to minimize maladaptive coping, whereas women would rely on social support. They found that self-esteem in men and social support in women mediated the effect of anxiety and discomfort with closeness on maladaptive coping.

### **Stress and the Transition to Parenthood**

It seems safe to say that many individuals experience increased stress levels during the transition to parenthood. Although the transition to parenthood will involve some stress for all couples, individuals and couples will vary in the amount of stress they experience. Many couples experience a decline in relationship satisfaction and communication, while some couples show resiliency over the transition (Cowan & Cowan, 2000). Given that perceived support is a coping resource, declines in marital satisfaction should impact perceived strain over the transition to parenthood. Other factors that affect stress levels over the transition to parenthood include infant temperament, parenting related self-efficacy, marital distress, demographic and socioeconomic factors, and psychological distress including maternal depression (Gelfand, Teti, & Fox, 1992). Adjustment to parenthood also depends on individuals'

expectations: individuals with high expectations regarding child care assistance and support from their spouse and extended families have more difficulty adjusting to parenthood, regardless of how much support they actually received (Kalmus, Davidson, & Cushman, 1992).

The extent to which stress levels change during transitions may also have implications for how new parents cope with stress. There is evidence that couples may be more successful over the transition to marriage if they have experienced relationship stress prior to marriage (Neff & Brody, 2011). Based on theories of stress inoculation in which moderate levels of stress help individuals become resilient to future stress, Neff and Brody hypothesized that experiences with early manageable stressors early in marriage would similarly serve to buffer couples against the impact of later stress. In this study, participants rated their experiences in twelve domains (e.g. the marital relationship, parenthood, experiences at work, finances, health) over the past six months using a likert scale that ranged from *exceptionally positive circumstances* to *exceptionally stressful circumstances*. The authors summed these scores to obtain a couple-level index of stress, but excluded marital stress in order to assess the impact of stress outside the marriage on marital functioning. The authors found that couples who had moderate stress combined with effective problem solving were more resilient to the impact of stress on relationship satisfaction. For these couples, marital satisfaction fluctuated less in response to changes in stress. Furthermore, these couples reported feeling more competent in their relationships.

Although new parents do not have previous parenting stress to learn from, they may be able to learn general coping skills from past stress, and so drastic increases in

stress levels may be more impactful than transitioning from high stress levels to slightly higher stress levels. Couples who are functioning at moderate stress levels may have sufficient resources in place and be skilled at adapting to stressful situations, whereas couples with low stress levels may be totally unprepared to cope with the stress of new parenthood. In a second study, Neff and Brody (2011) examined whether stress inoculation was effective at reducing the impact of stress in the transition to parenthood. The authors found that couples with moderate stress and good relationship resources adapted better following the transition to parenthood, as evidenced by higher levels of marital satisfaction in the two years following the birth of their first child. This suggests that how couples adapt to the stress of parenthood might be predicted by whether they have past experience coping with stress as a couple. It is important to note that for couples who did not have effective problem solving and good support-seeking behaviour, early stress did not predict better outcomes. As discussed in the next section, insecure attachment is associated with specific patterns in support-seeking behaviour. Given that attachment influences support-seeking, attachment style might moderate the relationship between stress and coping.

### **Stress, Social Support, and Attachment**

One resource used to cope with stress is the social support offered by significant others. Social support is especially relevant to attachment research; attachment style influences how individuals perceive social support and whether individuals are likely to seek social support in response to stress. How attachment affects perceptions of support also depends on whether the support is occurring in the context of a positive or negative interaction. For example, individuals who are insecurely attached may be more likely to

underestimate their partner's support when they are disclosing negative information and more likely to perceive support accurately when they are sharing positive information. Maisel, Gable, and Strachman (2008) examined how individuals responded to their partners' disclosed information about either a positive or a negative event. In order to account for subjective differences in perceptions of support, the authors used two observational coding systems for responsive behaviours as well as individuals' self-reports of perceived responsiveness. The authors found that relationship satisfaction was related to observed support, although they did not discuss directionality of this association. They also found that for women, self-esteem moderated the association between observed and perceived support when individuals were disclosing negative life events, such that women low in self-esteem were especially sensitive to unresponsive partners. Overall, the authors concluded that personality and contextual factors have more impact on negative interactions between couples than on positive interactions. Although this study used self-esteem as a moderator, attachment insecurity and low self-esteem are highly correlated. The fact that maladaptive interpersonal schemas interfere with accurate perception of support in threatening situations is consistent with the idea that attachment security is activated when individuals are distressed.

Because attachment security influences how individuals perceive support, objective support ratings and perceived support may be discrepant for individuals who are insecurely attached. In the context of studying changing attachment, both subjective and objective support ratings are important to consider. Improving attachment security requires that an individual perceive their significant other's behaviour in a way that contradicts their unfavourable working model; it is the individual's subjective perception

of support that will be associated with changes in attachment. In terms of changing attachment orientations, it is irrelevant how supportive an individual's partner behaves if that individual, by way of negative attribution or misperception, does not view their partner as supportive and therefore does not need to accommodate their cognitive schemas to adapt to contradicting information. However, objective ratings of social support in a relationship context would also be useful for several reasons. First, changing attachment may be reflected in changes in the discrepancy between perceived support and objectively rated support, if secure attachment is associated with more accurate perceptions in relationships. Second, partner perceptions and objective ratings may help to clarify relationship dynamics that could contribute to the behaviour of both members of a couple and that could have implications for attachment. For example, a partner whose supportive actions are consistently rejected by their insecure partner may reduce supportive behaviour over time (Rholes et al., 2001), as compared to a partner whose consistent lack of support leads their secure partner to revise their cognitive schemas to become less secure over time. Because attachment and support are closely involved in complex interactions between members of a couple over time, it is important to study attachment and support longitudinally in order to develop a clearer understanding of these relationships.

One reason that reports of perceived support may differ from a partner's perceptions of how much support they are providing is that the support offered may not 'match' the individual's needs. One way to conceptualize different types of social support is by considering different domains that might result in stress. For example, in addition to general life stress that is a compilation of stress from all areas, individuals

might have stress that is specific to work, family, finances, or other areas. Research has shown that domain-specific stress can be more predictive of outcomes in that domain than general life stress. For example, a study of the impact of stress on pregnancy outcomes conducted by Lobel (2008) found that pregnancy-specific stress predicted birth outcomes better than a general stress factor composed of state anxiety, perceived stress, and life event stress. In addition to domain-specific and general stress, individuals can have a global sense of social support as well as have perceived levels of support in different domains. A study by Davis, Morris and Kraus (1998) found results suggesting global support and domain support (support in four different social domains) have different influences on wellbeing, with global support uniquely predicting general negative affect and domain specific support uniquely predicting emotional loneliness. Around the transition to parenthood, stress related to pregnancy and parenting is likely to be especially salient and may be especially relevant to predicting changes in attachment.

Rodgers (1998) examined whether parenting stress and general stress differentially affected parenting behaviour, and how the effects of general and specific stress were impacted by perceived social support. Contrary to findings from past research, Rodgers did not find a main effect for perceived social support on parenting behaviour, and suggested that the types of social support measured (which included emotional and instrumental support from family, friends and professionals) may not have been perceived as effective in promoting good parenting or relieving distress. In this study, stress specific to parenting had direct effects on parenting behaviour, whereas general stress affected parenting only indirectly. Importantly, social support buffered the

relationship between parenting stress and parenting behaviour, but did not affect the indirect association between general stress and parenting.

### **Social Support, Perceived Anger, and Attachment Change**

The interpersonal stress associated with the transition to parenthood should promote attachment change, and change should depend on whether individuals perceive their partners' levels of social support as discrepant from their cognitive schema of their partner. For individuals who are low in attachment security, high levels of partner support should contradict their negative expectations and result in improved security. For individuals high in attachment security, low levels of perceived partner support should contradict positive expectations and result in lower security over time, although attachment security may buffer these individuals from perceiving low partner support in some cases.

Simpson & Rholes (2002) examined the effect of perceived support over the transition to parenthood on marital satisfaction. The authors found that women high in attachment anxiety who perceived low levels of social support experienced significant declines in perceived support and marital satisfaction, while their partners experienced declines in support offered and marital satisfaction. Another important finding from this study is that ambivalent women who perceived high levels of prenatal social support had similar patterns of marital satisfaction over the transition to parenthood as securely attached women. In a similar study, Rholes, Simpson, Campbell, & Grich (2001) found that attachment avoidance did not significantly predict declines in marital satisfaction. Individuals with avoidant attachment are less likely to seek social support in response to stress, and so interactions between stress levels and perceived partner support may be less

relevant to their relationship satisfaction. Individuals with avoidant attachment are also less comfortable providing emotional support to their partners, and actually offer less support when their partners are distressed (Campbell, Simpson, Kashy, & Rholes, 2001).

Simpson, Rholes, Campbell, and Wilson (2003) examined the impact of pre- and post-natal levels of perceived support on the stability of attachment over the transition to parenthood. In addition to experiencing declines in marital satisfaction, women who perceived less social support decreased in attachment security over the transition to parenthood, becoming more anxious. Social support predicted changes in attachment avoidance for both men and women: Women who entered parenthood seeking less spousal support became more avoidant over the transition to parenthood, while men who entered parenthood perceiving themselves as being highly supportive to their partners became less avoidant over the transition to parenthood. Further, there were partner effects of attachment: women whose husbands were high in avoidance became more avoidant over the transition to parenthood. Changes in support levels were important in predicting changes in women's attachment: women who reported the largest changes in perceived support experienced the largest changes in attachment ambivalence.

In addition to positive relationship qualities relevant to attachment schemas, it is important to consider whether negative relationship qualities are present. Hostility in relationships can impact attachment in two broad ways. Attachment schemas involve expectations of how significant others will respond, and may or may not involve expectations that a partner will or will not respond with anger or hostility. Similarly to expectations about social support, expectations about hostility may be confirmed or disconfirmed based on perceptions of partner behaviour. Simpson, Rholes, Campbell,

and Wilson (2003) identified perceived spousal anger, along with perceived social support, as an important predictor of attachment change over the transition to parenthood. This study found that women became more anxious over the transition to parenthood if they perceived low partner support and more spousal anger and actually found that perceived anger had a stronger impact than perceived support. In addition to considering that attachment schemas contain expectancies of how a significant other will respond, it is important to consider that these schemas are activated in times of distress. Partner hostility may serve as a threat that activates the attachment system, making interpersonal behaviours around conflicts more highly influenced by existing attachment schemas. If schemas are more amenable to revision when activated, it may also be the case that negative behaviours during conflict are especially important in developing and maintaining insecure attachment schemas. Studies have found that in addition to influencing attributions individuals make to their partner's behaviour, insecure attachment is associated with differences in hostile behaviour following conflict. Securely attached individuals expect that others will respond appropriately to signs of distress, whereas insecure individuals may exaggerate or suppress displays of negative emotions in accordance with their expectations of others. Simpson, Rholes, and Phillips (1996) found that anxiously attached women were more likely to show higher levels of stress, anxiety, and negative behaviour following conflict with their partner. In a study of attachment and problem solving using a sample of married couples, Kobak & Hazan (1991) found that both husbands and wives responded more negatively in a problem solving task when they perceived their partner as unavailable – these individuals were rated higher by observers on a scale assessing dysfunctional expression of negative

emotion, criticism, and rejection..

## **The Current Study: Attachment Security Trajectories over the Transition to Parenthood**

**How stress influences change in attachment.** According to attachment theory, the trajectory of attachment security will be altered when there is sufficient external influence to counteract the forces that stabilize attachment. In order for change to occur, working models of attachment must be activated and receive sufficient contradictory information to demand revision. Because the attachment system develops as a mechanism for developing children to cope with threatening environments, in adulthood, the attachment system is activated when an individual experiences stress.

**H1.** Given that the attachment system is activated in times of distress, and in accordance with previous research on the role of stress in attachment change, I predict that *couples who experience more stress over the transition to parenthood should also experience more change in attachment style.*

**H2.** Interpersonal stress is particularly relevant in eliciting change in attachment security. During the transition to parenthood, stress related to be parenting may be especially salient. *I predict that stress related to parenting will be a stronger predictor of change in attachment than general stress.*

**H3.** According to the inoculation hypothesis of stress, perceived stress levels may be more distressing to individuals who have less experience coping with stressful situations. *I predict that increases in stress from time 1 (T1) to time 2 (T1) will be associated with more change in attachment.*

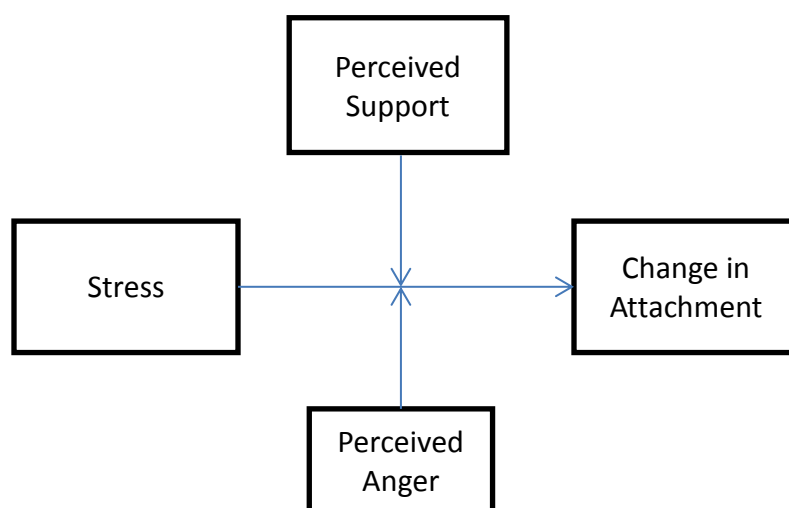
**Moderators of the relationship between stress and changing attachment.** Revision of the attachment system occurs when an attachment figure's actions are inconsistent with an individual's working models. Assuming that stress during the transition to parenthood is sufficient to activate the attachment system, change in attachment security should occur when individuals encounter responses from significant others that contradict their expectations. Based on a review of empirical studies of attachment change, factors that might impact whether the attachment system is revised include the clarity of the individual's models of self and other, whether the individual's model of the significant other in question is consistent or inconsistent with their prototype attachment style, and how longstanding and consistent their relationship with the significant other is. Further, interpersonal stress related to parenting may be especially salient at this time, and so may be especially relevant to promoting changes in attachment.

How individuals perceive and respond to stress levels has important implications for changing attachment security over time. If insecure individuals perceive interpersonal information that confirms their negative expectations, the activation of insecure attachment in interpersonally stressful situations will exacerbate existing relationship problems. If, however, insecure individuals' perceptions contradict their expectations, having their insecure attachment system activated by stress will allow them to adapt their insecure schemas to include more positive evaluations of their significant other.

**H4.** One way expectations can be confirmed or violated are through perceptions of partner social support. *I predict that for individuals who experience high levels of stress and high levels of perceived support, attachment security will increase over the transition to parenthood. I predict that for individuals who experience high levels of stress and low*

*levels of perceived support, attachment security will decrease over the transition to parenthood.*

**H5.** Working models may also be revised based on expectations and perceptions of hostile behaviour from attachment figures. *I predict that for individuals who experience high levels of stress and low levels of perceived negative emotions from the partner, attachment security will increase over the transition to parenthood. I predict that for individuals who experience high levels of stress and high levels of perceived negative emotions from the partner, attachment security will decrease over the transition to parenthood.*



**Figure 1. Moderators of the relationship between stress and change in attachment.**

**H6.** Because anxious attachment is associated with more support-seeking and hypervigilance to threat cues, *I predict that perceived support and perceived anger will be a stronger predictor of the direction of attachment change for those with anxious attachment than those with avoidant attachment.*

**H7.** However, given that the attachment system is activated in times of distress

regardless of attachment style, *I predict that the relationship between perceived stress and change in attachment will be similar for anxiously and avoidantly attached individuals.*

**H8.** Attachment security is also related to how willing we are to provide support to partners in times of distress. Specifically, attachment avoidance has been found to be associated with providing less support to partners in times of distress. This may be especially detrimental for individuals with anxious attachment, who are more likely to need reassurance in their relationship, are extra-sensitive to rejection cues, and who are more likely to interpret their partners' behaviour as hostile. *I predict that individuals with anxious attachment will become increasingly anxious from T1 to T2 when they have avoidant partners.*

## Method

### Participants and Procedure

For this study, 98 cohabiting couples who were expecting their first child were recruited for a larger study, using brochures distributed to maternity-related resources. Couples attended a laboratory visit in the third trimester of pregnancy (T1) during which they completed questionnaires on attachment anxiety and avoidance, perceived stress, and perceived partner anger. Of the 98 couples who participated at T1, 79 men and 88 women participated in a second survey approximately one year after having their child (T2), during which they completed the same attachment, perceived stress, and partner anger and support questionnaires as well as a questionnaire on parenting stress. At T2, 91% of men and 99% of women were still in a relationship with the child's other parent. Dropping out of the study was not associated with levels of stress, attachment anxiety, or attachment avoidance. To thank them for their participation, all participants received an honorarium of fifty dollars at T1 and of twenty-five dollars at T2.

Of the 98 couples who participated, 71% were legally married. Couples had been cohabiting for an average of 4.3 years ( $SD = 3.3$ ). At time 2, men in this sample were an average of 33.32 years old ( $SD = 5.51$ ), with an average length of education of 14.87 years ( $SD = 2.35$ ) and an average income of \$ 47, 600 ( $SD = 25\ 800$ ). Women in this sample were an average of 31.19 years old ( $SD = 5.315$ ), with an average length of education of 15.38 years ( $SD = 2.37$ ) and an average income of 27, 900 ( $SD = 23, 800$ ).

### Measures

*Attachment.* Individuals completed the Experiences in Close Relationships Scale (Brennan, Clark, & Shaver, 1998; Fraley, Waller, & Brennan, 2000), a widely used and

well validated 36-item scale that measures adult attachment *Anxiety* (e.g., “My desire to be very close sometimes scares people away.”) and *Avoidance* (e.g., “I prefer not to be too close to romantic partners.”) using a 7-point likert scale (1 = strongly disagree to 7 = strongly agree). This scale and all other measures are reproduced in full in Appendix A. In our sample, Cronbach’s alphas ranged from  $\alpha = .86$  to  $\alpha = .94$ . A higher total score on each subscale reflects higher levels of attachment anxiety and avoidance. Attachment anxiety and avoidance are theoretically orthogonal constructs (Mikulincer & Shaver, 2003) that may be impacted differently by partner behaviour over the transition to parenthood, and so will be analyzed separately rather than collapsed into an overall measure of insecurity. Although attachment anxiety and avoidance are theoretically orthogonal, we found that these constructs were correlated in our sample. *Change in attachment anxiety* was calculated by subtracting individuals’ T1 attachment anxiety scores from their T2 attachment anxiety scores. Similarly, *change in attachment avoidance* was calculated by subtracting individuals’ T1 attachment avoidance scores from their T2 attachment avoidance scores. The absolute value of these change scores were used when examining individuals’ overall change in attachment.

*Perceived Stress.* Participants rated their *perceived stress* on the 10-item Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983; e.g., “In the last month, how often have you found that you could not cope with all the things you had to do?”) using a 4-point likert scale (0 = Never, 4 = Very Often), such that a higher total score reflects higher general stress. In our sample, this scale was reliable for men and women at T1 ( $\alpha = .86$ ,  $\alpha = .89$ ) and T2 ( $\alpha = .86$ ,  $\alpha = .90$ ). The PSS was validated using two college samples and one community sample (Cohen, Kamarck, & Mermelstein,

1983), with evidence for convergent validity between the PSS and the number and perceived impact of stressful life events, and evidence for predictive validity in terms of depressive and physical symptomatology in the college samples.

*Parenting stress.* Parenting stress at T2 was measured using the Parenting Stress Index – Short Form (Abidin, 1995; e.g., “I feel trapped in my responsibilities as a parent”), a 36-item measure using a 5-point likert scale (1 = strongly disagree, 5 = strongly agree). A higher total score reflects higher parenting stress. In order to emphasize stress that was specific to parenting, the *Parent-Child Dysfunctional Interactions* subscale was used. This subscale is made up of twelve items that measure the extent to which parents feel disappointed by their parenting experience, concern over bonding with their child, or rejected by their child. High scores on this subscale can indicate the parent has not properly bonded with their child. Because domain specific stress can directly impact functioning in that domain, this measure of parents’ stress around forming a bond with their child was chosen because it seemed to reflect attachment-relevant parenting concerns that might impact attachment schemas more directly than general stress. Further, this scale contained items that were less related to the concerns about general stress that were captured by the Perceived Stress Scale, providing a more comprehensive understanding of participants’ experiences of stress during the transition to parenthood.

In our sample, this scale was reliable for men ( $\alpha = .93$ ) and women ( $\alpha = .96$ ). The PSI is internally consistent, and its construct validity has been demonstrated by examining correlations with measures of parent psychopathology, parental perceptions of

child adjustment, observed parent and child behaviour, and reports of child behaviour one year later (Haskett, Ahern, Ward, & Allaire, 2010).

*Social support.* Participants completed the 40-item Interpersonal Support Evaluation List (Cohen & Hoberman, 1983) to indicate levels of *perceived support* (e.g., “There are several people that I trust to help solve my problems”) using a 4-point likert scale (0 = definitely false, 3 = definitely true). In our study, reliabilities ranged from  $\alpha = .72$  to  $\alpha = .88$ . Higher scores on this scale reflect higher levels of perceived support. This scale consists of four subscales: Appraisal, Belonging, Self-Esteem, and Tangible Interpersonal Support. Two of the subscales measure ‘emotional supports’, which “emphasize persons’ evaluations and feelings about themselves” (Cohen & McKay, 1984, p. 259); the *belonging support* subscale measures the perceived availability of people to do things with, the *self-esteem support* subscale measures the perceived availability of a positive comparison to others. The *appraisal support* subscale measures social support that reduces the discrepancy between perceived threats and perceived resources, and the *tangible support* subscale measures the perceived availability of material aid (Cohen & Hoberman, 1983). For the purposes of this study, *general support* will be examined using the sum of all items. Factor analysis shows that the four factors are distinct but also representative of an underlying general support factor (Bookings & Bolton, 1988). Support for the reliability and validity of the ISEL total score is found in a paper examining the relationship between perceived support and negative life events (Cohen & Hoberman, 1983). The authors found the ISEL total score was as reliable as each of its subscales, was correlated with past support behaviours, and buffered the relationship between negative life events and physical and depressive symptoms.

*Perceived support* was also assessed using an observational coding system that was used to evaluate participants during a support-seeking interaction (Caldeira & Woodin, 2012). Participants were asked to have a discussion with their partner about something about themselves that they would like to change. These interactions were videotaped and specific dimensions of support interactions were independently rated by graduate and undergraduate students. Approximately 67% of the interactions were double-coded, and Intraclass Correlation Coefficients (ICCs) were calculated to ensure adequate reliability between coders. ICCs ranged from .75 to .88 ( $M = .83$ ) for positive support behaviours and from .79 to .89 ( $M = .85$ ) for negative support behaviours, which all exceed the acceptable level of reliability. Negative support behaviours included *negative communication skills* and *negative affect*. Positive support behaviours included *positive instrumental support* and *emotional support*. The *emotional support* code included partner behaviours that demonstrate relationship-promoting behaviours, including validating their partner, bolstering their partner's self-esteem, being affectionate, and communicating acceptance of their partner's shortcomings. The *instrumental support* code aimed to capture positive responses to support-seeking that emphasized providing practical or material support, including making specific suggestions, staying on topic, and trying to gather information about the problem. On the negative end of the coding spectrum, partners were rated on *negative affect*, including hostile behaviours and expressing doubt, and *negative communication skills*, including changing the subject and focusing on themselves instead of their partner.

*Perceived anger*. Participants' perceptions of their partner's anger in their relationship was assessed using the 15-item Flooding Questionnaire (Foran & Slep, in

press). This scale consists of two subscales, designed to assess the extent to which individuals feel *overwhelmed* by their partner's anger (e.g., "I get all jumbled when my partner is angry with me") and the extent to which individuals feel their partner's anger is *unpredictable* (e.g., "I can't predict when my partner will blow up at me"). Participants respond to scale items using a 5-point likert scale (1 = almost always, 5 = never), with higher total scores indicating higher levels of perceived anger. These subscales were each reliable for men and women at T1 ( $\alpha = .88$ ,  $\alpha = .89$ ) and T2 ( $\alpha = .88$ ,  $\alpha = .95$ ). Evidence for concurrent validity of this scale has been found by Slep & O'Leary (2009) and by Foran & Slep (2007).

## Results

### Preliminary Data Analyses

In order to examine the impact of outliers on analyses, univariate outliers greater than three standard deviations from the mean were identified. The following number of cases for each variable were identified: one T2 perceived stress score, two parenting stress scores, one T1 attachment anxiety score, two T2 attachment anxiety scores, five T1 attachment avoidance scores, three T2 attachment avoidance scores, one T1 perceived support score, one T2 perceived support score, one T1 perceived unpredictability of partner anger score, one T1 overwhelmed by partner anger score, four T2 perceived unpredictability of partner's anger scores, and one T2 overwhelmed by partner anger score. Because of the restricted range of attachment scores in this sample, individual outliers were examined to determine whether the outlier was extreme relative to this sample but still within a normal range of attachment security. Each of the outliers were evaluated to be representative of normal attachment security and not an error in responding. Analyses were run twice, once including outliers and once with outliers transformed so that the raw score is one unit more than the next most extreme score (Tabachnick & Fidell, 2001). Multivariate outliers were detected using Mahalanobis' distance. Values were compared to the  $\chi^2$  distribution, and cases with values greater than the critical value were omitted from analyses. A total of three male participants and three female participants were removed from analyses due to multivariate outliers.

Change scores for attachment anxiety and avoidance were calculated by subtracting scores at time 2 from scores at time 1. Because I was interested in the impact of stress on change in attachment in either direction, I have used the absolute value of

these change scores throughout analyses, unless otherwise indicated. In order to account for interdependence of couples' data, analyses were conducted separately for men and women.

Zero-order correlations between continuous demographic variables and variables of interest were examined separately for men and women to identify covariates. To examine the relationship between categorical demographic variables and variables of interest, one-way ANOVAs were conducted. Demographic information examined included age, education, income, years living together, and whether participants identified as visible minorities. Correlations between demographic information and predictor and outcome variables are presented in Table 1. For women, education emerged as a significant correlate of T1 and T2 perceived stress, T1 attachment anxiety, and both T1 perceived anger subscales. More education was associated with less general stress, lower T1 attachment anxiety, and lower T1 perceived anger. For men, no significant correlations were found between demographic variables and stress variables or attachment variables. In accordance with these findings, education was included in all regression analyses at Step One. For men, regressions were run twice – once with education entered at Step One and once without education entered at Step One. Entering education at Step One did not change the interpretation of the results, and so to maintain consistency between the models for males and females, results are reported for regressions that include education at Step One for both males and females. For men, income and years living together emerged as correlates of perceived support at T2. The models testing interactions between stress, perceived support and perceived anger included income and years living together at Step One. Entering income and years living

together at Step One did not change the interpretation of results for women, and so these demographic variables were included to maintain consistency with the models for men.

**Table 1. Correlations Between Demographic Variables, Predictors, and Outcomes**

Variable	Men					Women				
	Age	ED	INC	YLT	VM	Age	ED	INC	YLT	VM
PSS T1	.09	-.10	-.17	-.11	.01	-.12	-.32**	-.14	.19	-.04
PSS T2	-.17	-.21	-.07	-.07	-.05	-.04	-.22*	-.19	.02	-.04
PS CDI	.09	.02	-.04	-.05	-.08	.02	-.19	-.21	.15	.07
AN T1	.10	.08	-.19	-.22	.03	-.09	-.25*	-.01	.06	.00
AN T2	-.01	.07	-.06	-.12	.07	-.14	-.16	-.01	-.01	.00
AV T1	-.01	.07	-.07	-.11	-.10	-.01	-.12	.02	-.08	.03
AV T2	-.16	.14	.10	-.09	-.09	.13	.10	.21	-.06	.09
ISE T1	-.10	-.11	.16	.09	.17	-.10	.10	.21	-.06	-.03
ISE T2	.10	.140	.24*	.26*	.01	.17	.05	.02	-.00	-.03
PAO T1	-.19	.077	-.10	-.27*	-.20	-.04	-.23*	-.04	.07	.02
PAO T2	-.09	.079	-.01	-.15	-.15	-.09	-.13	-.04	.19	.09
PAU T1	-.24*	-.023	-.24*	-.15	-.13	-.17	-.29**	-.11	.08	-.05
PAU T2	-.09	.028	-.20	-.10	-.19	-.15	-.27*	-.13	.09	-.04

*Note.* ED = Education, INC = Income, YLT = Years Living Together, VM = Visible Minority, PSS = Perceived Stress Scale, T1= Time 1, PSCDI = Parenting Stress Difficult Child Interactions, T2 = Time 2, AN = Attachment Anxiety, AV = Attachment Avoidance, ISE = Interpersonal Support Evaluation List; PAO = Perceived Anger Overwhelmed, PAU = Perceived Anger Unpredictable, \* =  $p < .05$ , \*\* =  $p < .01$ .

Means and standard deviations of stress measures, attachment anxiety and avoidance, perceived support, and perceived anger were calculated separately for men and women at T1 and at T2. Means and standard deviations are reported in table 2,. Bivariate correlations among all variables are reported in table 3. Predictor variables include perceived stress and parenting stress, outcome variables include attachment security measures, and moderator variables include perceived support and perceived anxiety.

For men, at T1 and T2, stress was correlated with attachment anxiety, attachment avoidance, and both perceived anger subscales. At T1 only, stress was negatively correlated with perceived support. At T2 only, stress was correlated with parenting stress. Increases in stress from T1 to T2 were correlated with T2 anxiety and avoidance, and with increases in anxiety and avoidance from T1 to T2.

For women, at T1 and T2, stress was correlated with attachment anxiety and the overwhelmed subscale of the flooding measure. At T1, stress was also correlated with the unpredictable subscale of the perceived anger measure. At T1 only, stress was also negatively correlated with perceived support. At T2, stress was correlated with parenting stress. Increases in stress from T1 to T2 were negatively correlated with T1 perceived anger-overwhelmed scores.

For men, at T1 and T2, attachment anxiety was correlated with avoidance and both perceived anger subscales. Attachment anxiety and avoidance were both negatively correlated with perceived support.

For women, at T1 and T2, attachment anxiety was correlated with avoidance, both perceived anger subscales. Attachment avoidance was correlated with the unpredictable subscale of the perceived anger measure. At T1 only, attachment anxiety was negatively correlated with perceived support. Attachment avoidance was correlated with the overwhelmed subscale of the perceived anger measure and perceived support.

For women, change in anxiety was correlated with anxiety at T1 and T2, with both perceived anger subscales at T1 and T2, and with parenting stress. Increases in anxiety were negatively correlated with T1 stress, attachment anxiety, and 'overwhelmed' perceived anger, and were positively correlated with T2 attachment anxiety. Change in avoidance was correlated with T2 avoidance, and increases in avoidance were negatively correlated with T1 avoidance and positively correlated with T2 avoidance.

For men, change in anxiety was correlated with anxiety at T1 and T2 and with stress at T2. Increases in anxiety were correlated with parenting stress and attachment anxiety and avoidance at T2, and were negatively correlated with attachment anxiety at T1. Change in avoidance was correlated with avoidance and perceived anger - unpredictable at T1 and 2, and with perceived social support, perceived anger - overwhelmed, stress, and parenting stress at T2. Increases in avoidance were correlated with unpredictable perceived anger at T1 and T2, and with perceived support, parenting stress, and attachment anxiety and avoidance at T2.

**Table 2. Means and Standard Deviations**

	Time 1				Time 2			
	Males		Females		Males		Females	
	M	SD	M	SD	M	SD	M	SD
PSS	19.43	6.34	20.74	7.45	21.25	7.16	21.88	7.87
PSDCI	-	-	-	-	61.36	16.39	58.94	18.32
AN	37.11	14.02	45.02	17.27	38.84	15.44	44.63	16.52
AV	31.09	11.85	25.92	8.91	35.12	16.70	29.60	11.78
ISE	99.45	11.59	100.33	12.29	78.76	5.21	77.81	4.98
PAO	9.23	3.72	9.62	4.42	9.89	4.57	9.19	4.49
PAU	6.91	3.27	5.96	2.64	7.89	3.72	5.72	2.67

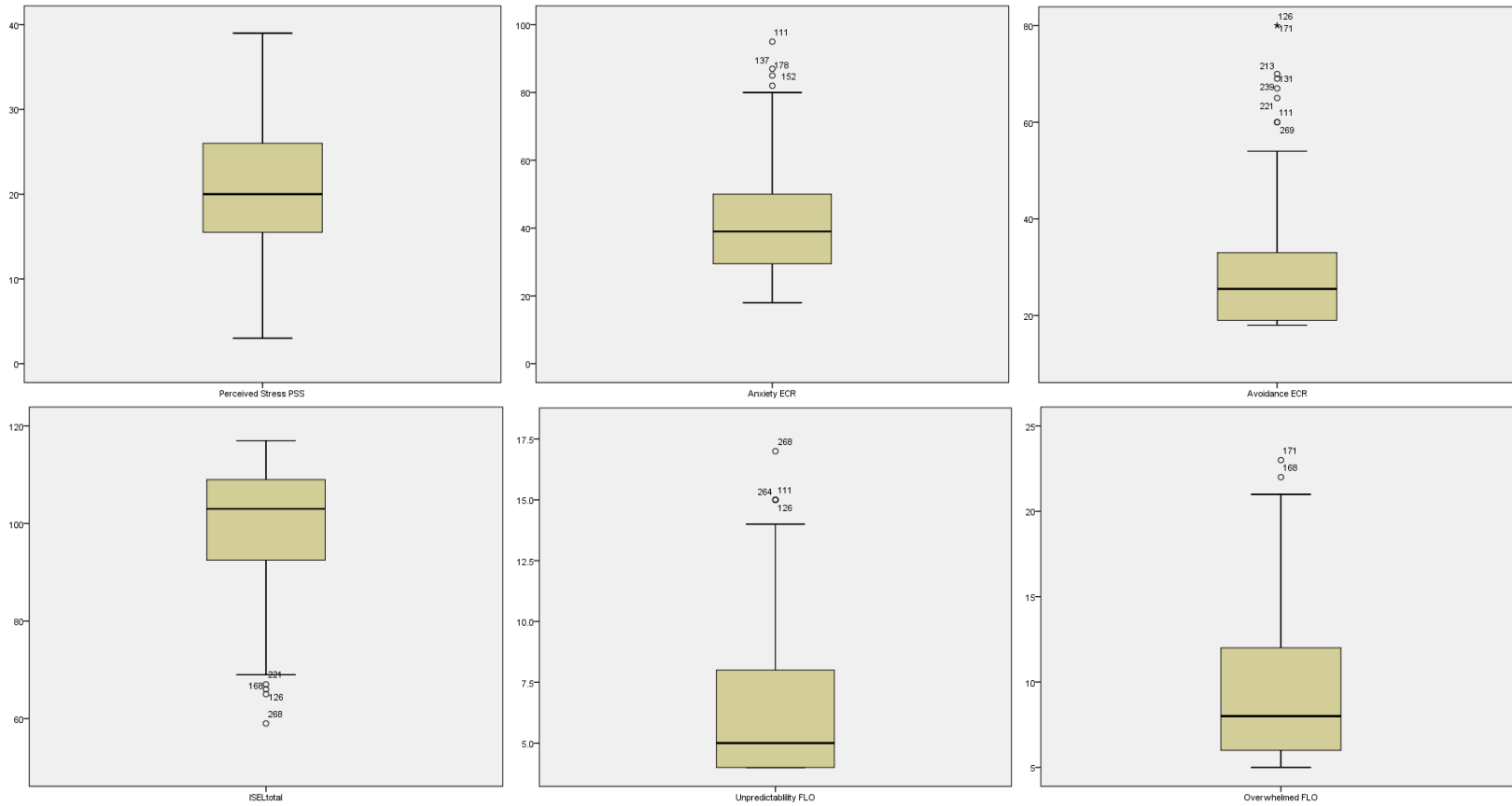
*Note.* M = Mean, SD = Standard Deviation, PSS = Perceived Stress Scale, PSDCI = Parenting Stress Difficult Child Interactions, AN = Attachment Anxiety, AV = Attachment Avoidance, ISE = Interpersonal Support Evaluation List, PAO = Perceived Anger – Overwhelmed, PAU = Perceived Anger - Unpredictable.

**Table 3. Bivariate correlations between stress, attachment, support, and perceived anger**

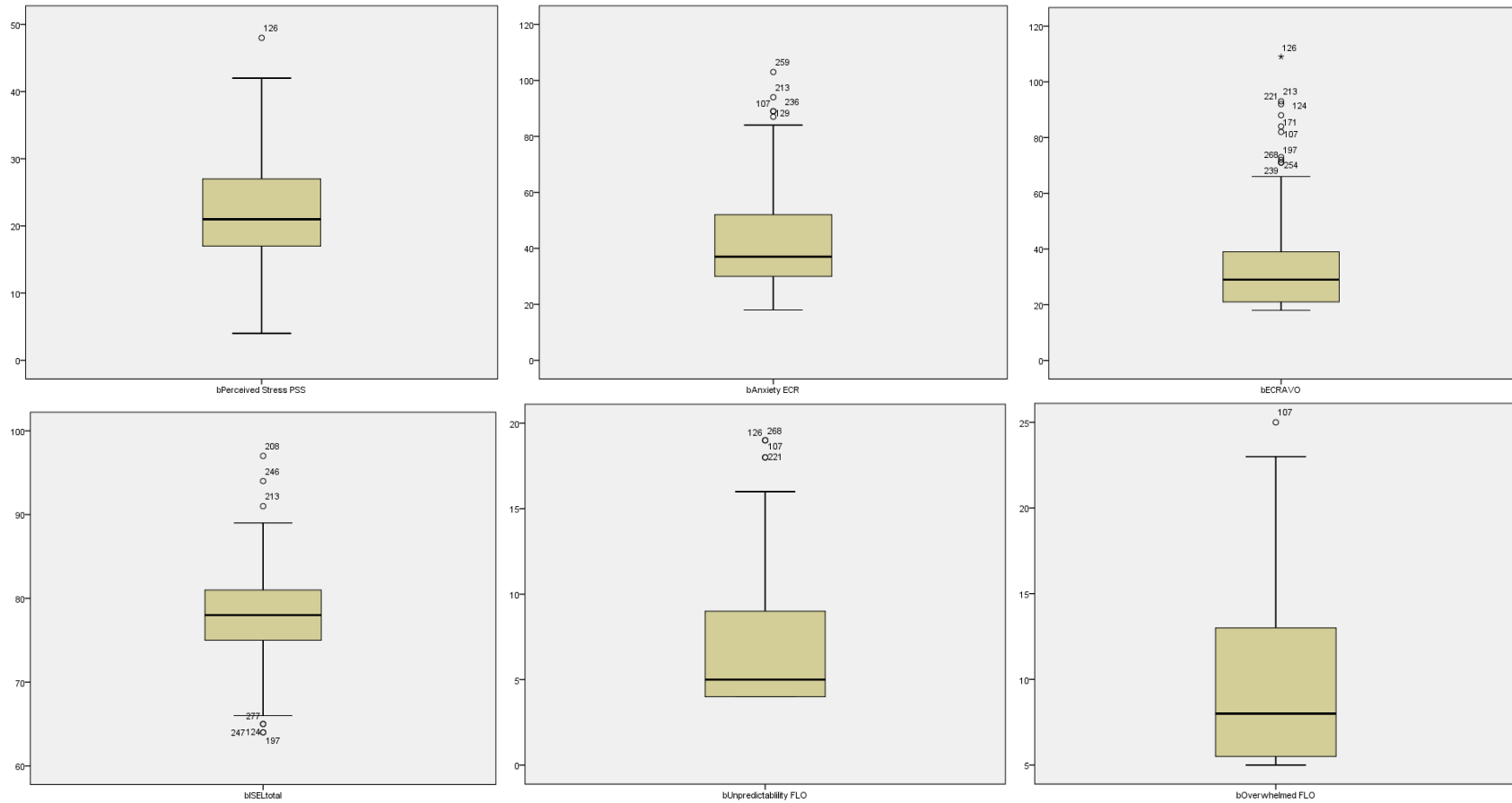
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) PSS T1	<b>.21*</b>	.56**	.37**	.45**	.29	.10	-.01	.14	-.08	-.22*	-.07	-.35**	-.06	.49**	.35**	.27*	.26*
(2) PSS T2	.43**	<b>.04</b>	.45**	.36**	.32**	.16	.16	.21	.09	-.05	.05	-.21	-.02	.22*	.26*	.14	.18
(3) PSCDI	.24*	.31**	<b>.36</b>	.32**	.28*	.28*	.17	.26*	-.07	-.07	-.04	-.44**	-.04	.26*	.36**	.19	.17
(4) AN T1	.43**	.33**	.23*	<b>-.03</b>	.72**	.45**	.29**	.43**	.04	-.40**	-.02	-.41**	-.03	.64**	.52**	.57**	.47**
(5) AN T2	.20	.40**	.44**	.60**	<b>-.20*</b>	.45**	.36**	.37**	.12	.34**	.03	-.29**	-.09	.48**	.39**	.46**	.42**
(6) AV T1	.38**	.35**	.37**	.27*	.20	<b>.02</b>	.43**	-.02	.15	.04	-.32**	-.42**	.10	.43**	.26*	.38**	.24*
(7) AV T2	.12	.48**	.45**	.18	.47**	.61**	<b>.11</b>	.08	.80**	.09	.72**	-.14	.07	.15	.14	.37**	.28*
(8)  Δ AN	-.22	.30**	.00	.39**	.38**	-.04	.14	<b>.14</b>	.05	-.10	.09	-.20	-.20	.25*	.27*	.27*	.26*
(9)  Δ AV	-.17	.35**	.28	.21	.45**	.26*	.63**	.39**	<b>.07</b>	.10	.72**	.09	-.09	.01	.04	.13	.17
(10) Δ AN	.15	.11	.27*	-.36**	.54**	-.04	.35**	.03	.30**	<b>-.22**</b>	.07	.15	-.18	-.25*	-.19	-.16	-.08
(11) Δ AV	.15	.22	.24*	-.03	.41**	-.13	.71**	.21	.56**	.48**	<b>.15</b>	.17	-.09	.10	-.05	-.19	.11
(12) ISE T1	-.24	.33**	-.29**	-.32**	-.26	-.52**	-.48**	-.11	-.22	.02	-.15	<b>.07</b>	.35	-.34**	.02	-.28*	.03
(13) ISE T2	.01	-.16	.00	-.11	-.16	.06	.16	.16	.24*	.18	.35**	-.11	<b>-.13</b>	-.05	.00	.11	.12
(14) PAO T1	.35**	.28*	.18	.53**	.19	.28	.23*	.14	.17	-.22	.13	-.29*	-.07	<b>.35**</b>	.74**	.72**	.47**
(15) PAO T2	.31**	.42**	.40**	.43**	.23	.56**	.30**	.07	.27*	.20	.18	-.26*	-.09	.57**	<b>.14</b>	.60**	.62**
(16) PAU T1	.47**	.30**	.23	.44**	.41**	.21	.34**	.04	.25*	.02	.24*	-.23*	.09	.77**	.54**	<b>.09</b>	.62**
(17) PAU T2	.34**	.44**	.42**	.43**	.29*	.54**	.49**	.10	.28*	.17	.36**	-.28*	.04	.51**	.67**	.69**	<b>.03</b>

*Note.* Women's scores are presented above the diagonal; men's scores are presented below the diagonal; bivariate correlations between men's and women's scores are presented along the diagonal. PSS = Perceived Stress Scale, T1 = Time 1, T2 = Time 2, PSCDI = Parenting Stress Difficult Child Interactions, AN = Attachment Anxiety, AV = Attachment Avoidance, Δ = Change, ISE = Interpersonal Support Evaluation List, PAO = Perceived Anger – Overwhelmed, PAU = Perceived Anger – Unpredictable., \* p < .05, \*\* p < .01

All variables were examined for normality. Perceived Stress scores at T1 and T2 were normally distributed; all other variables were skewed (see Figure 1). Variables that were positively skewed included attachment anxiety, attachment avoidance, change scores, parenting stress, and perceived anger. In order to make the data more normal, the natural log of these variables is used in regression analyses when indicated. Support scores were negatively skewed, and the square root of support scores were used in regression analyses when indicated.



**Figure 2. Distribution of variables at time 1. Boxplots generated using SPSS version 21.0. Child Interactions, ECR = Experiences in Close Relationships Scale, ISEL = Interpersonal Support Evaluation List, FLO = Flooding**



**Figure 3. Distribution of variables at time 2. Boxplots generated using SPSS version 21.0. b = Time 2, ECR = Experiences in Close Relationships Scale, ISEL = Interpersonal Support Evaluation List, FLO = Flooding**

To examine gender differences and change between timepoints for perceived stress, attachment anxiety and avoidance, perceived support, and perceived anger, 2X2 mixed ANOVAS were conducted. For perceived stress, the ANOVA showed no significant effect for gender, a marginally significant effect for timepoint ( $F(1,319) = 3.36, p = .07$ ), with more stress reported at T2 ( $M = 21.57$ ) than at T1 ( $M = 20.09$ ). The interaction between gender and timepoint was not significant. For attachment anxiety, the ANOVA showed a main effect for gender ( $F(1,318) = 14.28, p < .001$ ), with women ( $M = 44.69$ ) scoring higher than men ( $M = 37.98$ ). No main effect was found for timepoint, and the interaction between gender and timepoint was not significant. For attachment avoidance, the ANOVA showed no significant main effect for gender, but there was a main effect for timepoint ( $F(1,316) = 6.70, p = .01$ ), with higher average levels of avoidance at T2 ( $M = 32.16$ ) than at T1 ( $M = 28.50$ ). Further, an interaction effect between gender and timepoint ( $F(1,316) = 8.121, p = .04$ ) revealed that women were more likely than men to become more avoidant from T1 to T2. For perceived support, a main effect for timepoint was found ( $F(1,319) = 464.09, p < .001$ ), with higher perceived support reported at T1 ( $M = 100.39$ ) than at T2 ( $M = 78.29$ ). No main effect was found for gender, and the interaction between gender and timepoint was not significant. For the unpredictable subscale of perceived anger, a main effect was found for gender ( $F(1,315) = 20.35, p < .001$ ), with men reporting more unpredictability from their partners ( $M = 7.40$ ) than women reported ( $M = 5.84$ ). No main effect was found for timepoint. The interaction between gender and timepoint was marginally significant ( $F(1,315) = 1.13, p = .08$ ), with men showing more change over time than women in unpredictable perceived anger. No main effects or interactions emerged for the measure

of perceived anger that assessed how overwhelmed participants felt by their partners' anger. A one way ANOVA found no difference between men and women on parenting stress ( $F(1, 155) = .32, p = .58$ ).

### **The Impact of Stress on Changing Attachment**

In order to test hypotheses 1 and 2, I used hierarchical regression to examine whether general and parenting-specific stress at T2 predicted change in attachment. General stress at T2 was entered at Step One, and parenting stress was entered at Step Two. Results revealed that for men, general stress at T2 predicted change in attachment anxiety ( $\beta = .012, t(73) = 2.58, p = .01$ ) and attachment avoidance ( $\beta = .28, t(73) = 2.49, p = .02$ ). At Step Two, parenting stress did not contribute unique prediction value to the model. No significant predictors emerged for women. These results are presented in tables 4 and 5.

**Table 4. Hierarchical Multiple Regression Analyses of Stress Predicting Change in Attachment Anxiety and Avoidance in Men (N = 75)**

Step	Predictor	$\Delta$ Attachment Anxiety				$\Delta$ Attachment Avoidance			
		SE	$\beta$	<i>t</i>	<i>p</i>	SE	$\beta$	<i>t</i>	<i>P</i>
Step 1									
	Education	.02	-.11	-.91	.37	.02	.15	1.34	.19
Step 2									
	Education	-.01	-.04	-.39	.70	.02	.21	1.87	.07
	Perceived Stress T2	.02	.29	2.58	.01*	.01	.27	2.49	.02*
Step 3									
	Education	-.01	.02	-.33	.74	.02	.20	1.78	.08
	Perceived Stress T2	.02	.01	2.65	.01*	.01	.25	2.05	.04*
	Parenting Stress	-.01	.01	-.65	.52	.01	.11	.95	.34

*Note.* T2 = Time 2, SE = Standard Error, \* =  $p < .05$ , \*\* =  $p < .01$ .

**Table 5. Hierarchical Multiple Regression Analyses of Stress Predicting Change in Attachment Anxiety and Avoidance in Women (N = 80)**

Step	Predictor	Δ Attachment Anxiety				Δ Attachment Avoidance			
		SE	β	<i>t</i>	<i>p</i>	SE	β	<i>t</i>	<i>P</i>
Step 1									
Step 2	Education	.02	-.22	-1.96	.054	.02	.16	1.45	.15
	Perceived Stress T2	.01	.13	1.12	.267	.01	.13	1.13	.26
Step 3	Education	.02	-.18	-1.60	.12	.02	.19	1.67	.10
	Perceived Stress T2	.01	.09	.72	.48	.01	.11	.89	.38
	Parenting Stress	.01	.09	.68	.50	.01	.04	.29	.77

*Note.* SE = Standard Error, \* =  $p < .05$ , \*\* =  $p < .01$ .

Regression analyses were repeated without recoding outliers to evaluate the impact of the restricted range and positive skew of the attachment distribution on the model. When general stress at T2 was entered at Step One, and parenting stress was entered at Step Two, results revealed that for men, T2 general stress predicted change in attachment anxiety ( $\beta = .27, t(76) = 2.45, p = .017$ ) and attachment avoidance ( $\beta = .42, t(76) = 4.06, p < .001$ ). At Step Two, parenting stress did not contribute uniquely to predicting attachment anxiety; however, for attachment avoidance, parenting stress improved the model ( $\beta = .28, t(76) = 2.56, p = .01$ ). For women, general stress predicted change in attachment anxiety ( $\beta = .30, t(81) = 2.76, p = .01$ ) and attachment avoidance ( $\beta = .29, t(81) = 2.67, p = .01$ ). At Step Two, parenting stress was a marginally significant unique predictor of attachment anxiety ( $\beta = .22, t(80) = 1.85, p = .07$ ). Parenting stress did not contribute uniquely to predicting women's attachment avoidance. These regressions are presented in tables 6 and 7.

**Table 6. Hierarchical Multiple Regression Analyses of Stress Predicting Change in Attachment Anxiety and Avoidance in Men (N = 75)**

Step	Predictor	$\Delta$ Attachment Anxiety				$\Delta$ Attachment Avoidance			
		SE	$\beta$	<i>t</i>	<i>p</i>	SE	$\beta$	<i>t</i>	<i>P</i>
Step 1									
	Education	.49	-.14	-1.28	.21	.56	.18	1.59	.12
Step 2									
	Education	.48	-.11	-1.03	.31	.51	.23	2.19	.03*
	Perceived Stress T2	.14	.27	2.45	.02*	.15	.42	4.06	.00**
Step 3									
	Education	.49	-.11	-.96	.34	.50	.19	1.90	.06
	Perceived Stress T2	.16	.29	2.38	.02*	.16	.30	2.74	.01*
	Parenting Stress	.20	-.05	-.41	.68	.21	.28	2.56	.01*

*Note.* SE = Standard Error, \* =  $p < .05$ , \*\* =  $p < .01$ .

**Table 7. Hierarchical Multiple Regression Analyses of Stress Predicting Change in Attachment Anxiety and Avoidance in Women (N = 80)**

Step	Predictor	Δ Attachment Anxiety				Δ Attachment Avoidance			
		SE	β	<i>t</i>	<i>p</i>	SE	β	<i>t</i>	<i>P</i>
Step 1									
	Education	.47	-.18	-1.63	.11	.55	.11	1.04	.30
Step 2									
	Education	.46	-.12	-1.08	.28	.54	.17	1.60	.11
	Perceived Stress T2	.12	.30	2.76	.01**	.14	.29	2.63	.01**
Step 3									
	Education	.45	-.09	-.86	.39	.55	.18	1.66	.10
	Perceived Stress T2	.13	.20	1.67	.01**	.16	.25	2.06	.04
	Parenting Stress	.16	.22	1.86	.07	.19	.08	.63	.53

*Note.* SE = Standard Error

To examine the impact of change in stress from T1 to T2 on attachment, I used hierarchical regression with perceived stress from T1 entered at Step One, and perceived stress from T2 entered at Step Two. For these analyses, the outcome variables were the transformed absolute values of change in attachment anxiety and attachment avoidance; predictor variables were not transformed. For men, stress at T1 was not a significant predictor of change in attachment anxiety or avoidance. At Step Two, stress at T2 predicted change in attachment anxiety ( $\beta = .31, t(72) = 2.39, p = .02$ ) and attachment avoidance ( $\beta = .27, t(72) = 2.04, p = .05$ ). For women, stress at T1 was not a significant predictor of change in attachment anxiety or avoidance. Stress at T2 was a marginally significant predictor of attachment anxiety ( $\beta = .22, t(72) = 1.67, p = .10$ ) and avoidance ( $\beta = .23, t(72) = 1.73, p = .09$ ). These analyses demonstrate that changes in stress levels from the prenatal period to the postnatal period predicted changes in attachment security over the transition to parenthood.

**Table 8. Hierarchical Multiple Regression Analyses of Change in Stress Predicting Change in Attachment Anxiety and Avoidance in Men (N = 75)**

Step	Predictor	$\Delta$ Attachment Anxiety				$\Delta$ Attachment Avoidance			
		SE	$\beta$	<i>t</i>	<i>p</i>	SE	$\beta$	<i>t</i>	<i>P</i>
Step 1									
	Education	.02	-.11	-.91	.37	.02	.15	1.34	.19
Step 2									
	Education	.02	-.09	-.79	.43	.02	.17	1.51	.14
	Perceived Stress T1	.01	.11	.95	.34	.01	.16	1.40	.17
Step 3									
	Education	.02	-.05	-.39	.69	.02	.21	1.87	.07
	Perceived Stress T1	.01	-.04	-.29	.78	.01	.04	.27	.79
	Perceived Stress T1	.01	.31	2.39	.02*	.01	.27	2.04	.05*

*Note.* SE = Standard Error

**Table 9. Hierarchical Multiple Regression Analyses of Change in Stress Predicting Change in Attachment Anxiety and Avoidance in Women (N = 80)**

Step	Predictor	Δ Attachment Anxiety				Δ Attachment Avoidance			
		SE	β	<i>t</i>	<i>p</i>	SE	β	<i>t</i>	<i>P</i>
Step 1									
	Education	.02	-.22	-2.00	.05*	.02	.17	1.52	.13
Step 2									
	Education	.02	-.23	-2.05	.04*	.02	.14	1.23	.22
	Perceived Stress T1	.01	-.06	-.50	.62	.01	-.08	-.65	.52
Step 3									
	Education	.02	-.23	-1.99	.05*	.02	.15	1.31	.19
	Perceived Stress T1	.01	-.18	-1.32	.19	.01	-.20	-1.48	.14
	Perceived Stress T2	.01	.22	1.67	.10	.01	.23	1.73	.08

*Note.* SE = Standard Error

### **Moderators of the Relationship Between Stress and Change in Attachment**

Next, I used hierarchical linear regression to test hypotheses 4 and 5: that perceived support and perceived anger would moderate the relationship between stress and changing attachment. Perceived support, perceived anger, and stress variables were each centred by subtracting the mean of each variable from participants' raw scores. For these analyses, transformed variables were used for perceived support and perceived anger. Centred variables were used in the regression models testing moderation. To test the moderating effect of perceived support, main effects for perceived support and stress at T2 were entered at Step One, and the interaction between stress and perceived support was entered at Step Two. To test the moderating effect of perceived anger, main effects for perceived anger and stress at T2 were entered at Step One, and the interaction between stress and perceived anger was entered at Step Two. These regression equations were used to predict directional change in attachment anxiety and avoidance, and so the absolute values of the change scores were not used for these analyses. No significant interaction effects emerged. Because the relationship between stress and change in attachment followed the predicted pattern when outliers were included in analyses, I decided to examine whether any moderating effect would emerge if outliers were included in the model. For men, the interaction between stress and feeling overwhelmed by their partner's negative emotion was a marginally significant predictor of increasing avoidance ( $\beta = -.208$ ,  $t(74) = -1.75$ ,  $p = .084$ ). For women, the interaction between stress and perceived support was a marginally significant predictor of increasing anxiety ( $\beta = .204$ ,  $t(80) = 1.76$ ,  $p = .074$ ).

Next, I examined whether observational coding of support interactions would moderate the relationship between stress and change in attachment. When testing these moderators I included outliers in all analyses, as the data excluding outliers had a limited range of scores for attachment and would have limited our ability to detect what factors influenced change in attachment. For men, the interaction between stress and partner's negative affect was a marginally significant predictor of increasing anxiety ( $\beta = .208$ ,  $t(74) = 1.77$ ,  $p = .080$ ), while the interaction between stress and partner's positive emotional support was a marginally significant predictor of decreasing anxiety ( $\beta = -.203$ ,  $t(74) = -1.75$ ,  $p = .084$ ). For women, the interaction between stress and partner's negative affect was a marginally significant predictor of increasing anxiety ( $\beta = .218$ ,  $t(80) = 1.84$ ,  $p = .069$ ), and the interaction between stress and positive emotional support predicted decreasing avoidance ( $\beta = -.207$ ,  $t(80) = -2.06$ ,  $p = .043$ ). No other significant interactions emerged for men or women.

### **Partner Effects of Attachment Security on Change in Attachment**

Next, I used linear regression to test the hypothesis that partners' security will predict how individuals' attachment changes over the transition to parenthood. For these analyses, I regressed change in attachment anxiety and avoidance on partner attachment variables. For women, partner levels of attachment avoidance at T1 predicted change in attachment anxiety ( $\beta = .295$ ,  $t(69) = 2.49$ ,  $p = .015$ ). Partner levels of attachment anxiety at T1 did not predict change in attachment anxiety for women. No significant results emerged for men.

## Discussion

The purpose of the current study was to gain an understanding of couples' experiences transitioning to parenthood by examining the relationship between perceived stress and changing attachment over the transition to parenthood. By considering whether fluctuations in perceived stress levels are especially important in activating the attachment system, and looking at how people perceive their partner's responses when they seek support, I hoped to gain some clarification about how adult attachment changes during this complex transition period. Because the attachment system is activated by distress, I predicted couples who felt more stress, particularly interpersonal stress, following the birth of their child would undergo more change in attachment security over the transition to parenthood.

Applying statistical analyses to help answer these questions provided some inconsistent results. Men who felt more stress were more likely to experience change in attachment style. For women, however, feeling more stress was not associated with changing attachment. Feeling stress about parenting in particular was not related to more change in attachment for either men or women. Consistent with previous research that secure attachment promotes confidence in parenting abilities (Nygren et al., 2012), in our sample, feeling more stress about parenting was associated with feeling less securely attached. However, the finding that feeling stressed about parenting was not a unique indicator of whether attachment style changed over the transition to parenthood may have implications for understanding what kinds of interpersonal distress are relevant to the attachment system. One possible explanation is that the way we measure adult

attachment emphasizes attachment between partners rather than including schemas that relate to how successfully attachment bonds are being formed with children. Previous research found that parenting stress had a direct influence on parenting outcomes, whereas general stress has indirect effects on parenting outcomes (Rodgers, 1998). Further, attachment theory states that the attachment system should be activated when an individual is distressed. Previous research considering the impact of negative life events on attachment change over time found that revisions to the attachment system is most likely to happen when an individual experiences interpersonal stress (Davila & Sargent, 2003), suggesting that interpersonal distress is more likely to activate the attachment system. One explanation of why feeling more stress about parenting was not predictive of experiencing more change in attachment is that parenting stress may not hold the same potential to threaten the attachment system if parents are not concerned that their parenting struggles are negatively impacting their relationship with their partner. Further, the measure of parenting stress used in these analyses emphasized parents' stress related to forming successful bonds with their children. Parents may express high levels of stress related to parenting without having concerns that they are not successfully forming bonds with their children.

It is important to note that for men, there was a correlation between their postnatal stress level and how much change in attachment anxiety ( $r = .300$ ,  $p < .01$ ) and avoidance ( $r = .352$ ,  $p < .01$ ) they experienced over the transition to parenthood, but there was no correlation between stress levels and directional change in attachment anxiety or avoidance. In other words, men who felt more stressed were more likely to experience change in their attachment style, but the change was not consistently in either direction.

These results support the hypothesis that higher stress levels in men provide the context necessary for change in attachment security to take place, and that higher stress is not necessarily associated with decreasing attachment security. This finding is consistent with the idea that the attachment system is activated during times of interpersonal distress, allowing for the revision of attachment schemas if conflicting information about attachment relationships are encountered. Further, the findings suggest that while the stress the participants experienced activated the attachment system, it was not in and of itself confirmation of expectations associated with insecure attachment. Individuals who experienced more stress did not also become more insecure; rather, individuals who experienced more stress had more fluctuations in attachment security.

Overall, attachment security at the prenatal period was not significantly different from attachment at the postnatal period. However, comparing mean directional change scores with mean absolute value of change scores reveals that although there was not a trend towards becoming more or less secure over the transition to parenthood, both men and women did experience change in attachment. Studies looking at correlations between attachment security at different times throughout the lifespan find a wide range of associations (e.g., Zhang & Labouvie-Vief, 2004). Previous research on attachment change during the transition to parenthood found that mean scores on attachment anxiety did not change, but that individuals with high perceived support or low perceived anger were more likely to become less anxious from the prenatal to the postnatal period (Simpson, Rholes, Campbell, & Wilson 2003). In this sample, participants who reported having more social support were not more likely to have improvements in attachment

security, and reporting more social support was associated with increasing avoidance for men.

Models that included outliers in the analyses showed some different results: For men, feeling more stressed did predict experiencing a change in attachment anxiety and avoidance, and feeling stress about parenting predicted changing attachment avoidance over and above feeling stress generally. For women, feeling stress predicted change in attachment anxiety and avoidance, and feeling stress specific to parenting contributed some unique predictive value but statistically was only marginally significant. The difference between the conclusions that can be drawn from models that include or exclude may indicate that more extreme levels of stress are more consistent predictors of change in attachment. Another possible explanation is that although the couples in our study did experience some change in attachment, the correlation between attachment measures across the transition to parenthood suggests that there was also considerable stability in attachment security. Including outliers may have included individuals whose attachment security was more labile over the transition to parenthood. On measures of attachment, support, and flooding, most of the participants in our sample responded in a way that suggests they are quite high functioning. Further, insecure attachment had a low base-rate in our sample. In our sample, adjusting outliers may have excluded participants who are not functioning as well. It may be important to consider a couple's current level of functioning when making predictions about how stress will impact attachment.

The difference between the predictive value of stress for men and women was not consistent with this study's hypotheses. In this sample, at the postnatal period, feeling supported was not related to feeling stressed or feeling stress about parenting for women.

Given that feeling stressed was unrelated to feeling supported, that previous research has found that social support may be especially relevant to women's attachment security (Simpson, Rholes, Campbell, & Wilson, 2003), and that interpersonal stress is more predictive of change in attachment than general stress (Davila & Sargent, 2003), it may be the case that the stress that the women in our sample experienced was not sufficiently interpersonal to activate the attachment system. Given that attachment theory proposes that the attachment system develops universally to regulate interactions with attachment figures, it is important to consider that gender differences in attachment behaviour may represent differences in strategies each gender uses to accomplish the same underlying goals. In the current study, gender differences were found in the predictive value of stress on changing attachment. Both men and women had marginal increases in stress from the prenatal to the postnatal period, with no interaction between gender and time. This suggests that the gender difference in the predictive value of stress in changing attachment is not best explained by differences in stress levels between men and women. The gender difference may instead reflect a difference in whether perceived stress as it was measured in this study is relevant to the attachment system, rather than differences in whether attachment-relevant stress activates the attachment system. In other words, the fact that men who were more stressed had more change in attachment may indicate that our measure of stress was more relevant to the attachment system for men than for women. Stress should be relevant to the attachment system when it is interpersonally relevant or threatening. Men in our sample who felt more stress may have also felt more distress about their relationships, whereas women in our sample may have felt stress without feeling interpersonal distress.

Other gender differences emerged: Women in our sample had higher levels of attachment anxiety, were more likely to increase in avoidance over the transition to parenthood, and were less likely to report that their partner's anger was unpredictable. A recent meta-analysis of gender differences in attachment insecurity found that overall, women showed higher attachment anxiety and lower attachment avoidance than men, and that these gender differences were stronger in community samples (Del Giudice, 2011). Previous research examining change in attachment over the transition to parenthood found conflicting results, namely that women became less avoidant over the transition to parenthood (Simpson, Rholes, Campbell, & Wilson, 2003) It may be the case that the women in our sample had especially low levels of avoidance at the prenatal period, and that the shift toward higher levels of avoidance may reflect a functional change. Although women in our sample became more avoidant over the transition to parenthood, women's postnatal avoidance was still lower than men's avoidance at either timepoint. In Simpson et. al's (2003) study, adult attachment security was measured using the Adult Attachment Questionnaire (AAQ; Simpson et al., 1996). The AAQ is comprised of 8 attachment avoidance items and 9 attachment anxiety items, each rated on a 7 point likert scale with higher scores indicating more insecure attachment. Means for attachment avoidance for women in their study were 25.54 (SD = 8.17) and 24.27 (SD = 8.36), out of a total possible score of 63. In our study, attachment avoidance were measured using the Experiences in Close Relationships scale (Brennan et al., 1998), with 18 items rated on a 7 point likert scale with higher scores indicating more insecure attachment. Women in our sample had mean scores of 25.92 (SD = 8.91) and 29.60 (SD = 11.78) out of a possible total score of 136. It may be the case that the direction of attachment change

varies depending on the initial level of insecurity. Because attachment avoidance is associated with a lack of comfort depending on significant others for support, it may be the case that in our sample a move towards a higher but still low level of avoidance indicates that women felt more self-sufficient and less reliant on their partners at the postnatal period than they did prenatally.

Differences in correlations for men and women suggest similarities and differences in how attachment anxiety and attachment avoidance can be conceptualized for men and women in this sample. For example, at the postnatal period attachment anxiety was correlated with the same variables for men and women: Attachment avoidance, parenting stress, and the unpredictable flooding subscale. Postnatal attachment avoidance showed some differences between men and women. Although attachment avoidance was correlated with attachment anxiety and both flooding measures for men and women, men's attachment avoidance was also correlated with perceived stress and parenting stress. In other words, while attachment anxiety seems to be a similar construct for men and women in our sample, attachment avoidance was associated with stress for men but not for women. Parenting stress was also correlated with increasing attachment anxiety and avoidance for men but not women. While attachment theory does not make specific predictions about how attachment differs for males and females, the way that males and females experience and express insecure attachment may be different, especially around the transition to parenthood. It is interesting that stress related to parenting was associated with attachment avoidance and with becoming more insecure for men but not for women, despite similar levels of parenting stress for men and women and similar correlations between parenting stress and

general stress for men and women. These findings suggest that gender differences around parenting may be an important piece of understanding adult attachment. Specifically, the fact that for men stress was associated with attachment anxiety and avoidance and that for women stress was only associated with attachment anxiety might indicate that men are more likely to use avoidance as a coping mechanism. Attachment theory states that individuals are more likely to become avoidant when their partners are consistently not responsive to them in times of distress. It is possible that gender roles around the transition to parenthood are less favourable for men who are in need of support. Another possible interpretation is that men who are avoidant are more likely to find the transition to parenthood stressful. Men who have been successful in using avoidance as a coping mechanism may find their emotional detachment becomes problematic during the emotionally charged and intimate process of becoming a parent.

One possible explanation for the gender difference in the association between stress and change in attachment is that women in our sample were less distressed by their stress levels. It is possible that during the transition to parenthood there are differences in how men and women experience and cope with stress. Previous research has found that overly optimistic expectations and lack of experience can contribute to feeling more stress when faced with challenges (Kalmus, Davidson, & Cushman, 1992). Women's experience during pregnancy may leave them better prepared for the adjustments and new challenges they encounter over the transition to parenthood.

Consistent with the idea that changes in stress are more important to changing attachment than overall levels of stress is the finding that postnatal perceived stress was a significant predictor of attachment change when controlling for prenatal levels of

perceived stress. This finding supported the hypothesis that fluctuations in perceived stress levels have a stronger impact on attachment security than overall levels of perceived stress. Couples who have experience dealing with stressful situations may develop better coping skills, may become more effective problem solvers, and may become more confident that their relationship is resilient to life stresses than couples who are experiencing high stress levels for the first time. This is consistent with Neff and Brody's (2011) finding that couples who experienced moderate stress and effective problem solving felt more competent in their relationship, and that these couples' marital satisfaction was less likely to fluctuate in response to changing stress.

Testing the moderating effects of perceived support and perceived anger did not support the hypothesis that for individuals high in stress attachment would change as a function of partner responses to support-seeking. A possible explanation for this finding is that variance was limited by the positive skew of the perceived anger and attachment measures, negative skew of perceived support in our sample, and high correlations between attachment measures at each timepoint. A second possible explanation is that the perceived support and perceived anger measures used did not necessarily tap into how participants felt their partners' responded to them in times of distress. The perceived support measure was not partner specific, and participants may have felt strong support from people other than their partner, or low overall support despite feeling supported by their partner. The perceived anger measure is a good measure of partner reactivity, but may not capture how partners react specifically during times of distress. For example, participants may feel that overall their partners are highly reactive and have strong

negative affect, but that their partner is able to react positively when they are discussing a sensitive issue.

Post-hoc analyses using alternative moderators found some support for the hypothesis that perceived support and anger should moderate the relationship between stress and change in attachment. These analyses used observational ratings of couples that considered partners' positive and negative responses during support-seeking interactions. Results showed that men became increasingly anxious over the transition to parenthood when they were high in perceived stress and had partners whose responses to support-seeking were rated as being high on negative affect. Further, men who were high in stress whose partners were rated high on providing emotional support during the support-seeking interaction became less anxious over the transition to parenthood. No significant interactions emerged for men when attachment avoidance was the outcome variable. For women, being high in stress and having a partner respond to support-seeking with negative affect was associated with increasing anxiety, while being high in stress and having a partner who provided positive emotional support was associated with decreases in avoidance.

Interestingly, ratings of partners' instrumental support and negative communication behaviour did not moderate the relationship between stress and either dimension of attachment security for men or women. This is consistent with the idea that the attachment system is responsive to partner behaviour that threatens or affirms the relationship itself. A partner who provides instrumental support may alleviate stress and promote relationship satisfaction, but a partner who provides emotional support is not only solving a practical problem but indicating that the emotional bond between partners

is intact. Similarly, a partner who has negative communication patterns, such as changing the subject or being self-focused, may not be providing good support, but may not be threatening the relationship the same way that responding with sarcasm or criticism does. Although attachment working models are most often conceptualized as being cognitive schemas, it is important to note that these models of attachment are also affective in nature. Feedback from a partner that has a strong affective impact may be more likely to elicit revision of the working model than feedback from a partner that is contradictory but lacks an affective component.

Analysis of partner effects found that fluctuations in women's attachment anxiety were influenced by their partner's levels of attachment avoidance. For women, having a partner high in avoidance predicted becoming more anxious over time. Previous research has found that couples who have discrepant attachment styles are more likely to differ in how much intimacy they desire in the relationship (Millwood & Waltz, 2008). This difference is in turn associated with a demand-withdraw pattern in relationships, where one person pulling away drives the other to seek more intimacy, which leads the first individual to pull away further, continuing in a cycle that leads to polarization and increased relationship conflict (Sullaway & Christensen, 1983). Conversely, couples in which both individuals are securely attached display the most constructive communication during conflict (Domingue & Mollen, 2009). Research has also found that for men, demand-withdrawal communication patterns were associated with increases in attachment avoidance over time (Givertz & Safford, 2011). Understanding how attachment security influences the cycle of demand-withdraw communication and declining relationship satisfaction has important implications for intervention. The

current findings suggest that promoting engagement in the relationship may be a crucial step in preventing couples from entering a cycle of polarization that can be detrimental to intimate relationships.

In our study, having a partner high in attachment avoidance predicted increasing attachment anxiety over the transition to parenthood for women but not men. This may reflect a gender difference in how individuals respond to avoidant behaviours. Previous research examining partner effects of attachment style on attachment change over the transition to parenthood found that women whose husbands were high in avoidance became more avoidant over the transition to parenthood (Simpson, Rholes, Campbell, & Wilson, 2003), suggesting that women may be more responsive to avoidant behaviours from their partners than men. However, the gender difference in partner effects that emerged in the current study may also be reflective of the low levels of avoidance found in the women in our sample. Women who were relatively high in avoidance were still low in avoidance, and so may not have exhibited the avoidant behaviours that elicit an increase in anxiety.

### **Limitations**

While the current study provides insight into the complex interactions between stress, attachment security, and transitioning to parenthood, it is not without its limitations. Although the community sample used in this study was representative of the population from which it was drawn, the sample was very high functioning. The low levels of attachment insecurity, high levels of perceived support, and low levels of perceived anger found in this sample may have limited our ability to gain insight into how more destructive interpersonal behaviours exert influence on relationships over time.

Further, high levels of functional behaviour were relatively stable over time, limiting analyses that predict change over time. Despite high stability of attachment over the transition to parenthood, several of the hypothesized models were consistent with the study's hypotheses for predicting change in attachment over time.

Another limitation of this study is that many of the reported findings were only marginally significant. Although marginal findings provide important information about trends in the data, the findings must be interpreted with caution and keeping in mind that even cautiously drawn conclusions reflect trends in the data that may reflect patterns that have emerged by chance. Additionally, a distinction must be made between clinical significance and statistical significance. While results may indicate a significant difference between two groups, the difference in predicted raw scores between the two groups may not be associated with any meaningful difference in the participants' experiences. Replicating the findings with a more diverse sample would provide further information about whether marginal findings would become statistically and clinically significant if there were more variability in insecure attachment.

Another limitation of the current study is that the measures of perceived support and perceived anger may have been insufficiently relevant to attachment to moderate the relationship between perceived stress and attachment change. Our measure of perceived support may have tapped participants' overall evaluation of their support network, rather than the extent to which they feel their partner is supportive. Additionally, post-hoc analyses suggest that even feeling supported by your partner may be insufficient to moderate attachment change if the support is tangible rather than emotional support. Further investigations into moderation of stress and change in attachment should consider

including a measure of self-reported perceived emotional support in order to better test this study's hypothesis that high perceived support will improve attachment security over time for individuals experiencing high stress or increases in stress levels. Similarly, our measure of perceived anger may not have effectively captured how participants believe their partners respond during times of distress. Given the lack of precision in measuring these constructs, it is difficult to draw conclusions about whether the findings contrary to the study's hypotheses indicate inaccurate measurement or that support and anger do not moderate the relationship between stress and attachment change. Despite its limitations, this study has important implications for potential intervention and for future research.

### **Implications and Directions for Future Research.**

The current research is important because it provides important information necessary to clarify the relationship between stress and change in attachment. Prior research has found that attachment changes across important life transitions and that negative life events promote increasing attachment insecurity. However, this is the first study to evaluate the role of stress during life transitions in promoting change in attachment overall. Importantly, correlations between stress and directional attachment change were non-significant, while correlations between stress and the absolute value of attachment change showed that higher stress is associated with more change in attachment. This indicates that stressful life transitions can provide an opportunity for positive changes toward more secure attachment for couples. Further, this study incorporated stress-inoculation theory (Meichenbaum, 1985) to predict that changes in stress would be more distressing for couples, promoting more change in attachment than

overall stress levels. Future research examining how attachment changes over time should consider changes in stress levels in addition to stressful life events.

The current study also has important implications for what methodology and design is best suited to studying stress and attachment. This study illustrates that the relationship between stress and attachment is complex, and suggests that future research studying stress and attachment would benefit from longitudinal designs that can study how change in each influences the other over time. Further, the current study found partner effects for changes in attachment security over time, demonstrating that in addition to considering how stress and attachment vary over time, longitudinal designs that include dyadic data are best suited to studying the interplay between couples' stress and attachment security.

Identifying transitions that are associated with changes in stress levels may provide points for intervention: By learning effective problem-solving strategies prior to experiencing new challenges, couples may be better able to make use of their resources and be less impacted by increases in stress. Further, the current findings emphasize that how individuals respond when their partners come to them for support affects the couples' functioning over time. Teaching support-provision strategies that emphasize emotional support to couples transitioning to parenthood might be an effective way to improve attachment security.

This research found inconsistent results for moderators of the relationship between stress and attachment change. Prior findings that perceived support and perceived anger predicted directional change in attachment (Simpson et al, 2003) were not supported. However, post-hoc analyses finding that emotional support and negative

affect during support-seeking interactions did moderate the relationship between stress and attachment change suggest that the null findings may result from imprecise measurement of the perceived support and perceived anger dimensions. This research suggests that further investigation into moderating variables is worthwhile. New parents may vary in how much time they spend together. Partners who spend more time together following the birth of their child may have more opportunities to engage in interactions that promote change in attachment, with those who spend time with supportive partners experiencing improvements in attachment security, and those who spend time with unsupportive partners becoming more insecure over time. Couples who have less time to spend together after becoming parents may experience less change overall, or may experience the lack of availability of their partner as being consistent with an insecure attachment schema. In addition to clarifying when partner responses to support-seeking are sufficient to promote revisions to attachment schemas, it may be interesting to examine whether individual-level variables contribute to attachment change over time. Although the attachment system regulates interpersonal behaviour, it may also be interesting to consider intra-individual moderators. Previous research has found that constructive coping fluctuates concurrently with attachment security within individuals over time, while maladaptive coping fluctuates concurrently with attachment insecurity over time (Zhang & Labouvie-Vief, 2004). Coping skills may be an important moderator of stress and change in attachment, especially considering current findings that suggest that increases in stress are particularly distressing. Attempting to replicate the moderating effects of emotional support and negative affect would also provide important information for intervention.

Intervention to promote positive functioning between couples can also be informed by the dyadic findings in this study. The finding that men's prenatal avoidance predicted women's postnatal anxiety, and the fact that no other partner effects were found, suggests that men's disengagement from the relationship may be an important first step toward a demand-withdrawal pattern associated with high levels of relationship dissatisfaction and relationship degradation over time (Givertz & Safford, 2011). Parenting and pregnancy literature may benefit from including information on how new fathers can maintain an active role in maintaining their relationship during the transition to parenthood. The fact that parenthood is a normative transition for most couples, and that increases in stress during this transition are also normative, further support the importance of identifying factors that facilitate improvement in attachment security.

Previous research has demonstrated empirically that stressful, interpersonally relevant life transitions promote change in attachment. The current study found some support for this claim. In our sample, higher stress and increases in stress were associated with absolute change in attachment security but not directional change in attachment security. Importantly, increases in stress levels were a better predictor of change in attachment for couples in our sample than high but stable stress levels. This suggests that increases in stress during life transitions are especially distressing and therefore more relevant to attachment security than consistently high stress levels that couples may have the opportunity to adapt to. The current findings reflect Attachment Theory's emphasis on motivations during times of distress, and suggest that attachment schemas in adulthood follow the same principle of activation during times of distress that are laid out in Attachment Theory as it was conceptualized for infants. Although

attachment schemas in infancy continue to influence attachment behaviours into adulthood, the current research adds to a body of literature that seeks to identify how working models of attachment are revised, in order to help identify opportunities to improve attachment security.

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## Appendix A

### Experiences in Close Relationships Inventory

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The following statements concern how you feel in romantic relationships. We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by indicating how much you agree or disagree with it. Write the number in the space provided, using the following rating scale:

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

1. I prefer not to show a partner how I feel deep down.
2. I worry about being abandoned.
3. I am very comfortable being close to romantic partners.
4. I worry a lot about my relationships.
5. Just when my partner starts to get close to me I find myself pulling away.
6. I worry that romantic partners won't care about me as much as I care about them.
7. I get uncomfortable when a romantic partner wants to be very close.
8. I worry a fair amount about losing my partner.
9. I don't feel comfortable opening up to romantic partners.
10. I often wish that my partner's feelings for me were as strong as my feelings for him/her.
11. I want to get close to my partner, but I keep pulling back.
12. I often want to merge completely with romantic partners, and this sometimes scares them away.
13. I am nervous when partners get too close to me.
14. I worry about being alone.
15. I feel comfortable sharing my private thoughts and feelings with my partner.

16. My desire to be very close sometimes scares people away.
17. I try to avoid getting too close to my partner.
18. I need a lot of reassurance that I am loved by my partner.
19. I find it relatively easy to get close to my partner.
20. Sometimes I feel that I force my partners to show more feeling, more commitment.
21. I find it difficult to allow myself to depend on romantic partners.
22. I do not often worry about being abandoned.
23. I prefer not to be too close to romantic partners.
24. If I can't get my partner to show interest in me, I get upset or angry.
25. I tell my partner just about everything.
26. I find that my partner(s) don't want to get as close as I would like.
27. I usually discuss my problems and concerns with my partner.
28. When I'm not involved in a relationship, I feel somewhat anxious and insecure.
29. I feel comfortable depending on romantic partners.
30. I get frustrated when my partner is not around as much as I would like.
31. I don't mind asking romantic partners for comfort, advice, or help.
32. I get frustrated if romantic partners are not available when I need them.
33. It helps to turn to my romantic partner in times of need.
34. When romantic partners disapprove of me, I feel really bad about myself.
35. I turn to my partner for many things, including comfort and reassurance.
36. I resent it when my partner spends time away from me.

### **Flooding Questionnaire**

**Instructions:** Please use the following scale to rate how often you feel this way when you have conflicts with your partner.

Almost Always

*Almost Always  
Often  
Sometimes  
Rarely  
Never*

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. I find my partner's anger to be overwhelming.                      | 1 | 2 | 3 | 4 | 5 |
| 2. My partner tends to explode without any warning signs.             | 1 | 2 | 3 | 4 | 5 |
| 3. I get all jumbled when my partner is angry with me.                | 1 | 2 | 3 | 4 | 5 |
| 4. I get so stressed when my partner blows up at me that I shut down. | 1 | 2 | 3 | 4 | 5 |
| 5. My brain short-circuits when my partner gets angry.                | 1 | 2 | 3 | 4 | 5 |
| 6. My partner's anger seems to come out of nowhere.                   | 1 | 2 | 3 | 4 | 5 |
| 7. My partner's anger overpowers me.                                  | 1 | 2 | 3 | 4 | 5 |
| 8. Anger from my partner makes me unable to focus.                    | 1 | 2 | 3 | 4 | 5 |
| 9. The intensity of my partner's anger catches me off guard.          | 1 | 2 | 3 | 4 | 5 |
| 10. I feel flooded by my partner's anger.                             | 1 | 2 | 3 | 4 | 5 |
| 11. I can't predict when my partner will blow up at me.               | 1 | 2 | 3 | 4 | 5 |
| 12. I feel paralyzed during my partner's angry outbursts.             | 1 | 2 | 3 | 4 | 5 |
| 13. I'm taken aback by how angry my partner gets during an argument.  | 1 | 2 | 3 | 4 | 5 |
| 14. My partner's anger leaves me feeling disorganized and stressed.   | 1 | 2 | 3 | 4 | 5 |
| 15. I can't think straight when my partner is angry with me.          | 1 | 2 | 3 | 4 | 5 |

**Interpersonal Support Evaluation List (ISEL) -- General Population**

This scale is made up of a list of statements each of which may or may not be true about you. For each statement check “definitely true” if you are sure it is true about you and “probably true” if you think it is true but are not absolutely certain. Similarly, you should check “definitely false” if you are sure the statement is false and “probably false” if you think it is false but are not absolutely certain.

1. There are several people that I trust to help solve my problems.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

2. If I needed help fixing an appliance or repairing my car, there is someone who would help me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

3. Most of my friends are more interesting than I am.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

4. There is someone who takes pride in my accomplishments.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

5. When I feel lonely, there are several people I can talk to.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

6. There is no one that I feel comfortable to talking about intimate personal problems.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

7. I often meet or talk with family or friends.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

8. Most people I know think highly of me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

9. If I needed a ride to the airport very early in the morning, I would have a hard time finding someone to take me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

10. I feel like I'm not always included by my circle of friends.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

11. There really is no one who can give me an objective view of how I'm handling my problems.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

12. There are several different people I enjoy spending time with.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

13. I think that my friends feel that I'm not very good at helping them solve their problems.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

14. If I were sick and needed someone (friend, family member, or acquaintance) to take me to the doctor, I would have trouble finding someone.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

15. If I wanted to go on a trip for a day (e.g., to the mountains, beach, or country), I would have a hard time finding someone to go with me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

16. If I needed a place to stay for a week because of an emergency (for example, water or electricity out in my apartment or house), I could easily find someone who would put me up.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

17. I feel that there is no one I can share my most private worries and fears with.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

18. If I were sick, I could easily find someone to help me with my daily chores.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

19. There is someone I can turn to for advice about handling problems with my family.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

20. I am as good at doing things as most other people are.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

21. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

22. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

23. If I needed an emergency loan of \$100, there is someone (friend, relative, or acquaintance) I could get it from.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

24. In general, people do not have much confidence in me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

25. Most people I know do not enjoy the same things that I do.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

26. There is someone I could turn to for advice about making career plans or changing my job.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

27. I don't often get invited to do things with others.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

28. Most of my friends are more successful at making changes in their lives than I am.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

29. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

30. There really is no one I can trust to give me good financial advice.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

31. If I wanted to have lunch with someone, I could easily find someone to join me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

32. I am more satisfied with my life than most people are with theirs.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

33. If I was stranded 10 miles from home, there is someone I could call who would come and get me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

34. No one I know would throw a birthday party for me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

35. It would be difficult to find someone who would lend me their car for a few hours.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

36. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

37. I am closer to my friends than most other people are to theirs.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

38. There is at least one person I know whose advice I really trust.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

39. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

40. I have a hard time keeping pace with my friends.

\_\_\_ definitely true (3) \_\_\_ definitely false (0)

\_\_\_ probably true (2) \_\_\_ probably false (1)

### **Parenting Stress Index (PSI)**

#### **\*Items marked with an asterisk make up the Parent-Child Dysfunctional**

#### **Interactions subscale that was used in this study's analyses.**

To what extent do you agree with each of the following statements?

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly  
Disagree

1. My child gets upset easily
2. Having a child has caused problems with my partner
3. I feel alone and without friends
4. I am not as interested in people as I used to be
5. I don't enjoy things as I used to
6. My child rarely does things for me
7. My child does not like me or want to be close
8. Quite a few things bother me
9. My child does some things that bother me
10. My child smiles at me less than expected
11. My efforts for my child aren't appreciated
12. My child doesn't giggle or laugh much while playing
13. My child doesn't learn as quickly as other children\*
14. I feel that I cannot handle things with my child\*
15. My child doesn't smile as much as other children\*
16. My child isn't able to do as much as expected\*
17. It takes a long time for my child to get used to new things\*
18. I do not feel competent as a parent\*
19. I expected to have closer feelings to my child\*
20. My child does things that both me to be mean\*
21. I am unhappy with the last purchase of clothing for myself\*
22. My child cries or fusses more often than other children\*
23. I am never able to do things that I like to do\*
24. My child often wakes in a bad mood\*

25. I expect not to enjoy myself at parties
26. My child is moody and easily upset
27. I feel trapped by parenting responsibilities
28. My child does things that both me a great deal
29. My child reacts strongly
30. I feel unable to do new and different things
31. My child's sleeping or eating schedule is hard to establish
32. Getting my child to do something is hard
33. My child does a number of bothersome things
34. I feel that I gave up my life for my child's needs
35. My child is more of a problem than expected
36. My child makes demands on me

### **Perceived Stress Scale**

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

For each question choose from the following alternatives:

0. Never
1. Almost never
2. Sometimes
3. Fairly often
4. Very often

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and "stressed"?
4. In the last month, how often have you dealt successfully with irritating life hassles?
5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?
6. In the last month, how often have you felt confident about your ability to handle your personal problems?
7. In the last month, how often have you felt that things were going your way?
8. In the last month, how often have you found that you could not cope with all the things that you had to do?
9. In the last month, how often have you been able to control irritations in your life?

10. In the last month, how often have you felt that you were on top of things?
11. In the last month, how often have you been angered because of things that were outside of your control?
12. In the last month, how often have you found yourself thinking about things that you have to accomplish?
13. In the last month, how often have you been able to control the way you spend your time?
14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?