Adult Attachment Anxiety and Avoidance as Mediators of the Relationship between Child Sexual Abuse and Complete Mental Health in Adulthood

by

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"An investment in knowledge always pays the best interest"

~Benjamin Franklin

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ABSTRACT

Research has shown that adult attachment mediates the relationship between child sexual abuse and mental health functioning in adulthood. However, there is great variability across these projects as to the operational definition of attachment. Hence, the primary goal of this project was to clarify the literature by providing a comprehensive definition of attachment which would allow for the translation of research findings into a treatment application for child sexual abuse. The second goal of this project was to update the child sexual abuse and attachment research bases by providing a complete definition of mental health outcome. That is, rather than defining mental health solely as the absence of psychopathology, it was defined both as the absence of psychopathology *and* the presence of psychological wellbeing. From these goals it was hypothesized that child sexual abuse would be positively related to adult psychopathology and negatively related to adult psychological wellbeing. The relationships were expected to be mediated by both adult attachment anxiety and attachment avoidance. To test the hypotheses a total of 421 men and women undergraduate students were sampled and completed numerous questionnaires. The analyses revealed a significant positive relationship between child sexual abuse and adult psychopathology and this relationship was found to be completely mediated by adult attachment anxiety and partially mediated by attachment avoidance. Contrary to prediction, the inverse relationship found between child sexual abuse and psychological wellbeing was not statistically significant. Unfortunately, all supportive findings had to be nullified because the size of the relationship between child sexual abuse and psychopathology was exceptionally small and post-hoc corrections were unable to increase the size of the effect. A considerable investigation was undertaken to

identify potential sources of this apparent error and the relationships between the attachment and complete mental health variables were explored further. The most impressive finding of the exploratory analyses was that nearly one quarter of the variation of complete mental health was accounted for by adult attachment. Taken together, although this project did not unfold as predicted, it did partially satisfy its secondary goal and hence it remains an interesting and viable contribution to the literature.

CHAPTER ONE

INTRODUCTION

British psychoanalyst John Bowlby's (1969; 1973; 1980) attachment theory is an eloquent, parsimonious and efficient theory of human behaviour and mental health. In its time, however, it was a deeply controversial theory (Pearce & Pezzot-Pearce, 2007) and Bowlby was regarded as a heretic within the psychoanalytic community (Bretherton, 1995). Nevertheless, attachment theory has proven to have tremendous staying power, resurfacing three decades later to revolutionize our understanding of human behaviour (Bretherton, 1995; Bacon & Richardson, 2001).

Humans and primates have evolved certain behavioural and motivational systems that have allowed for species survival despite the vulnerabilities associated with being born immature and requiring protection to survive infancy (Shaver & Mikulincer, 2008). One of these systems is the called the attachment system and it is responsible for establishing primary social connections between infants and caregivers and evoking those connections in times of stress.

"Attachment" is a specific type of bond that develops between an infant and his or her caregiver within a "critical period" of the first six to 12 months of life (Grossman, 1995; Bacon & Richardson, 2001; Pearce & Pezzot-Pearce, 2001; Pearce & Pezzot-Pearce, 2007; Mikulincer, & Shaver, 2008; Mikulincer, & Shaver, 2008). This bond and the system that controls it activates in response to both "natural clues" of danger (e.g., the dark, loud noises), as well as to actual attachment-related threats, such as loss and separation. The attachment bond is also functional, or goal-directed in that the purpose of seeking proximity, or "attaching" to an attachment figure when distressed is to restore

equanimity, or felt-security within the infant (Mikulincer & Shaver, 2003; Mikulincer & Shaver, 2007).

Attachment relationships are universal. That is, all infants, independent of culture, are "hard-wired" with a neural system and corresponding behavioural repertoire designed to seek proximity and elicit care from caregivers in times of stress. Similarly, the reaction of caregivers to infants is hard-wired and controlled by a "caregiving behavioural system" designed to protect and foster the survival of the infant (Mikulincer, & Shaver, 2007). Attachment is also an evolutionarily adaptive relationship in that infants who maintain proximity to a protective caregiver are more likely to survive to adulthood and eventually reproduce, thereby propagating genes that control proximity seeking behaviours into the gene pool of future generations (Pearce & Pezzot-Pearce, 2001; Mikulincer, and Shaver, 2007).

There are two components to attachment (Alexander, 2003). First, human infants instinctually engage in a wide variety of attachment behaviours designed to elicit care from their caregivers (e.g., cooing, crying, babbling, smiling, frowning, laughing, etc). Hence, attachment is *behavioural* (Grossman, 1995; Mikulincer & Shaver, 2007). As infants learn language, however, the attachment relationship becomes internalized, or "introjected" and is represented by what Bowlby termed "*internal working models,"* or mental schemas for both the self and generalized other. Hence, attachment is *cognitive.* Working models are far more complex than cognitive-behavioural templates, however. For example, working models are influenced by countless experiences and include autobiographical and episodic memories, as well as beliefs and attitudes about the self and relational others. They also contain declarative knowledge about attachment

relationships and procedural knowledge about how to regulate emotions and behave effectively in interpersonal relationships (Mikulincer, & Shaver, 2007). Indeed, internal working models, in all their complexity, are thought to be the unconscious foundation of personality, providing a central organizing role in the modulation of affect, the regulation of impulses, and the processing of cognitive information (Pearce, & Pezzot-Pearce, 1994; Blinder, 2002; Alexander, 2003; Mikulincer, & Shaver 2007; Mikulincer, & Shaver, 2008).

Working models may be dichotomized as either positive or negative and whether a working model is positive or negative is thought to be based on the consistency, and quality of parental treatment in childhood (Bartholomew, 1990; 1993; Pearce & Pezzot-Pearce, 1994; Pearce & Pezzot-Pearce, 2001). Positive models of self reflect a healthy self-concept, which includes a sense of self as worthy of love and attention. Negative models reflect a poor self-concept, which includes a sense of self as unworthy of love and attention. Positive models of other reflect a perception of others as trustworthy, caring and available. Negative models of other reflect a perception of attachment figures as uncaring, rejecting, and distant.

Working models also provide the "skeleton" of an infant's *attachment style.* Attachment styles refer to various patterns of individual differences in the attachment related expectations, needs, emotions and social behaviours of human infants (Mikulincer, & Shaver, 2007; 2008). Our current understanding of attachment and attachment styles is due in-part to Mary Ainsworth (1978). Ainsworth's research and theoretical elaborations of Bowlby's work is also responsible for bringing attachment theory back into psychological focus. Specifically, Ainsworth was able to empirically

study the attachment behaviours of young children creating the laboratory procedure known as the *strange situation.* The essential feature of the strange situation is that it involves two separations and a reunion between a young child and the caregiver of the child (typically the child's mother). By observing the behaviour of children during this distressing procedure Ainsworth classified three distinctive styles of attachment (Goldberg, 1995).

The most common and optimal pattern was labeled *secure* (Goldberg, 1995). Infants classified as securely attached would use their mothers as a secure base for exploration. That is, they were not afraid in her presence and they actively and freely explored the environment as a result. These infants would periodically check on their mothers' whereabouts and reactions within the strange situation and they would frequently restrict their exploration and become distressed when she was away. However, secure infants not only greeted their mothers positively upon her return, those who were distressed in her absence actively sought and were comforted by physical contact with her and returned to exploring the environment with ease (Pearce, & Pezzot-Pearce, 1994; Goldberg, 1995; Mikulincer, & Shaver, 2007). The next most common but not optimal, or insecure attachment pattern was labeled *avoidant* (Goldberg, 1995). Infants classified as avoidant explored their environment without interest in their mothers' whereabouts and they would often snub their mothers upon her return, modulating distress by *deactivating,* or inhibiting the attachment system (Pearce, & Pezzot-Pearce, 1994; Goldberg, 1995; Mikulincer, & Shaver, 2007; Mikulincer, & Shaver, 2008). Finally, the third pattern of attachment was labeled *anxious-ambivalent* or *resistant* (Goldberg, 1995). Infants classified with this attachment style exhibited considerable difficulty separating

from their mothers to explore their environments. When they did separate from their mothers, their play behaviours were impoverished due to a preoccupation with her whereabouts. These infants were also extremely distressed by the departure of their mothers and although they sought contact upon her return, they were not comforted by her. Further, they would frequently lash out at their mothers and they had a difficult time returning to exploration of the environment. Unlike avoidant infants who would "down-regulate" the attachment system, anxious-ambivalent infants appeared to "up-regulate" the attachment system and become *hyperactivated* toward seeking, if not demanding proximity to their mother (Pearce, & Pezzot-Pearce, 1994; Goldberg, 1995; Mikulincer, & Shaver, 2007; Mikulincer, & Shaver, 2008).

Although these three attachment patterns served well in the classification of infant attachment, Main and Solomon (1986) noticed that there was a group of children whose behaviour did not fit within the three-tiered classification system. These children, classified as *disorganized/disoriented*, tended to be abused, neglected and/or exposed to parents who demonstrated frightening and contradictory parenting behaviours. The behaviour of these infants was observed to oscillate between hyperactivation and deactivation strategies and as such, it was contradictory, paradoxical and bizarre. For example, these infants would often approach their mothers (hyperactivation or proximity seeking behaviour) with their backs towards her (deactivation or avoidance behaviour). These infants were also observed to dissociate, "space out" or exhibit trance-like and frozen behaviours (Goldberg, 1995; Schore, 2001; Mikulincer, & Shaver, 2007).

Although Bowlby's work centred on childhood attachment he proposed that attachment is a relatively stable lifespan phenomenon, although the attachment figures of

interest shifts with age, from parent/caregiver(s) to friends and partner (Bretherton, 1995; Mikulincer, & Shaver, 2007; Mikulincer, & Shaver, 2008; Crowell, Fraley, & Shaver, 2008). Indeed, even fully mature, healthy and relatively autonomous adults benefit from seeking and receiving care from others when in pain, lonely, threatened, or have been demoralized (Mikulincer & Shaver, 2007).

Research tends to support the proposal that attachment is a lifespan phenomenon. For example, longitudinal research has found that internal working models of self and other remained consistent across time in 72% of the infant/adult classifications studied (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). Even though this research is supportive of the stability hypothesis, it also indicates that attachment, like the brain, is plastic or malleable and hence can change in response to environmental circumstances (Grossman, 1995). For example, the 28% of individuals who experienced a change in their attachment were likely exposed to either extremely nurturing and supportive environments which resulted in an insecure attachment becoming secure, or to various traumatic environments which resulted in either a secure attachment becoming insecure or an insecure attachment changing expression (e.g., from ambivalent to avoidant, or avoidant to disorganized etc).

There are a number of other differences between adult attachment and child-parent attachment. For example, adult attachment relationships are reciprocal and adult partners are not usually placed permanently in the role of attachment figure. The threshold for activating the adult attachment system is also higher than it is in childhood. This is because adults have developed a wide array of coping and problem-solving strategies other than proximity-seeking behaviour. Additionally, because adults have

"incorporated" or "introjected" their attachment relationships (e.g., internal working models) they have access to "symbolic proximity" as a means of coping, in addition to actual proximity seeking behaviour. Finally, both caregiving and attachment behaviours are evidenced in adult attachment relationships and partners shift between these two roles based on situational demands (Mikulincer& Shaver, 2007; Crowell, Fraley, & Shaver, 2008).

Two distinct programs of research dominate the adult attachment literature (Bartholomew and Shaver, 1998; Bartholomew, Kwong & Hart, 2001). The first line of research is from clinical psychology and it focuses on the unconscious dynamics of internal working models which are inferred from the narratives of childhood relationships with attachment figures. This research tends to be small in scale and it uses behavioural and interview data to classify attachment. The second line of research is from social and personality psychology. It is the outgrowth of Hazan & Shaver's (1987) observations that the patterns of childhood attachment identified by Ainsworth are similar to romantic attachments evidenced in adulthood (Bartholomew, Kwong & Hart, 2001; Mikulincer & Shaver, 2003). This line of research focuses on the behavioural and emotional aspects of attachment that are available to conscious awareness, and as such, it allows for self-report research methodologies and large-scale sampling procedures.

The model of attachment used in this study is taken from social psychology. It has been used in hundreds of studies querying adult attachment phenomena and it classifies adult attachment as an interaction between two dimensions of labeled attachment anxiety and avoidance (Brennan, Clark and Shaver, 1998; Mikulincer, & Shaver, 2008). An alternative and equally important cognitive model equates the attachment anxiety

dimension with Bowlby's "internal working model of self" and the avoidance of close relationships dimension with the "internal working model of other" (Bartholomew, Kwong & Hart, 2001). Combining these two models, the *secure* attachment (also called *secure* in childhood) is defined as low attachment anxiety and low attachment avoidance. Persons presenting with this attachment style have a positive internal working model of both self and other. The *dismissing* attachment style (called *avoidant* in childhood) is characterized by high attachment avoidance and low attachment anxiety. A positive internal working model of self and a negative working model of other are also characteristic of this attachment style. Conversely, the *preoccupied* attachment style (called *ambivalent/resistant* in childhood) is defined as high attachment anxiety and low attachment avoidance. Individuals presenting with this attachment style have a negative internal working model of self and a positive working model of other. Finally, the *fearful-avoidant* or *unresolved* attachment style (called *disorganized/disoriented* in childhood) is opposite to the secure attachment and it is represented by high attachment anxiety and high attachment avoidance. A negative internal working model of both self and other is characteristic of this attachment style.

Securely attached adults tend to have high self-esteem. They are confident, trusting of others, and they value interpersonal relationships (Alexander, 1992; 2003; Crowell, Fraley, & Shaver, 2008). The dismissing attachment is characterized by an avowed lack of need for intimate relationships and a reticence to discuss topics of attachment (Alexander, 1992; 2003; Crowell, Fraley, & Shaver, 2008). Dismissingly attached individuals also appear to be "more normal than normal" (Alexander, 2003, p. 345-346) in that they project an overly inflated sense of self-esteem as an ego-defense.

The preoccupied attachment is characterized by a passive or angry preoccupation with attachment figures and conflict is viewed as a strategy for attaining intimacy. Individuals classified with this style of attachment tend to offer superfluous, confusing, and irrelevant information when discussing attachment figures and they are described as being clingy, lonely and having low self-esteem (Alexander, 1992, 2003; Crowell, Fraley, & Shaver, 2008). Finally, the fearful-avoidant or unresolved adult attachment style is associated with a characterlogical sense of mistrust, badness and/or shame (Alexander, 1992; 2003). Consistent with the alternative label for this attachment style, adults classified with a fearful attachment tend to have experienced childhood maltreatment and abuse which remains *unresolved* in adulthood (Alexander, 2003).

Interestingly, although much has been written about the impact of physical abuse and neglect on attachment, Bowlby's appreciation of the possible impact of child sexual abuse came late into the development of his theory (Alexander, 1992; Holmes, 1995). The converse is also true, however, in that the child sexual abuse researchers have only recently begun to incorporate attachment into their repertoires of study. This seemingly delayed connection appears somewhat curious given that sexual abuse is a relational trauma and attachment is a relational theory. However, Bowlby's psychodynamic theory of attachment was deeply controversial in its time and only recently resurfaced as a fruitful clinical theory and therapeutic guide (Bretherton, 1995). Similarly, although child sexual abuse no-doubt has always existed, social taboos delayed the study and treatment of the phenomenon (Merill, Thomsen, Sinclair, Gold, & Milner, J., 2001). Taken together, although it is very important that child sexual abuse and attachment researchers unite, it is understandable why this research connection is underdeveloped.

Child Sexual Abuse

Child sexual abuse is a serious and potentially life-altering relational trauma that affects countless individuals. Although the exact prevalence is not known, it is estimated that between 15 to 36% of North American females and 1 to 15% of North American males, have been or will be sexually abused prior to their 18th birthday (e.g., Cosentino, Meyer-Bahlburg, Alpert, Weinberg, & Gaines, 1995; Friedrich, 1998; Andrews, Gould & Corry, 2002; Ackard, & Neurmark-Sztainer, 2003; Johnson, 2004). However, due to systematic variations in the samples studied, response rates, method of data collection, definitions of child sexual abuse used, as well as accuracy and willingness of survivors to share often painful memories, the exact prevalence of child sexual abuse is unknown (Leventhal, 1998).

Child abuse, in general, and child sexual abuse, in specific, is associated with an extremely varied symptom presentation (Pearce & Pezzot-Pearce, 2007). This is likely because the development of childhood psychopathology is not linearly related to child sexual abuse. Instead, psychopathology is thought to result from a transaction between numerous factors, such as abuse specific factors (e.g., abuse severity), individual factors (e.g., temperament, sex, stage of development associated with abuse onset), family factors (e.g., emotional support, ability to protect the child, and family functioning factors, such as the attachment between a child and his or her caregiver), and environmental factors (e.g., cultural and religious factors and availability environmental supports; Kordich Hall, Matthews, & Pearce, 2002; Pearce & Pezzot-Pearce, 2007).

As with the extremely varied symptom presentation seen in child survivors of sexual abuse, the documented sequelae of adult survivors is equally varied (Jonzon &

Lindblad, 2004; Koopman, Gore-Felton, & Spiegel, 1997). For example, Putnam (2003) summarized that difficulties with impulse control, somatization, affect regulation, socialization, cognitive distortions, and an impaired sense of self are quite common in adult survivors of child sexual abuse, irrespective of psychological diagnosis.

Common long-term diagnoses made within the population of adult survivors are mood and anxiety disorders (e.g., dysthymia, major depression, bipolar disorder, social phobia, etc.), drug addictions, posttraumatic stress disorder (PTSD), eating disorders such as bulimia, and a variety of personality disorders (Horwitz, Widom, McLaughlin, & White, 2001; Fassler, Amodeo, Griffin, Clay, & Ellis, 2003; Owens & Chard, 2003; Putnam, 2003). Additional long-term correlates between child sexual abuse and antisocial behaviour, including pedophilia, anxiety about sex, low self-esteem, increased risk of revictimization and suicide risk also have been demonstrated (Cecil & Matson, 2001; Coid, Petruckevitch, Feder, Chung, Richardson, & Moorey, 2001; de Visser, Smith, Rissel, Richters, & Grulich, 2003; Dube, 2001; Horwitz et al., 2001; Putnam, 2003).

Finally, how child sexual abuse is experienced and impacts adult mental health is related to a large number of complex and interwoven factors (Putnam, 2003). These variables include, but are not limited to the age of child sexual abuse onset (Putnam, 2003), the nature of the relationship between the adult and the child (Colton & Vanstone, 1996; Holmes & Slap, 1998), the physical severity of the abuse and the use of force or coercion (Colton & Vanstone, 1996), as well as abuse frequency and duration (Cecil & Matson, 2001). Additional factors include the presence of other forms of childhood maltreatment (Edwards, Holden, Felitti, & Anda, 2003) and perceived social support both in child and adulthood (Reyes, Kotovic, & Cosden, 1996; MacDonald & De Luca, 2005).

Child Sexual Abuse and Attachment Research

As mentioned, attachment theory has only recently been incorporated into the study of child sexual abuse (e.g., within the last 15 years). This is reflected in the quantity of published research projects to date. For instance, a total of 10 peer-reviewed journal articles were located connecting child sexual abuse to attachment theory within this time frame.

Nevertheless, two themes emerge within this research base which are relevant to this research project. The first theme addresses the impact of child sexual abuse on adult attachment and the second concerns whether attachment mediates the relationship between child sexual abuse and the psychological adjustment of adult survivors.

Bacon and Richardson wrote in 2001 that *"there is little evidence so far that sexual abuse can be specifically linked to any one pattern of insecure attachment"* (p. 384). Indeed, a large portion of the research examines the relationship between child sexual abuse and insecure attachment, in general, but not attachment styles, in specific (Campbell, 1997; Owens, 2001; Andreopoulos, 2002; Rich, 2004; Ortega, 2005).

Given that child sexual abuse is a relational trauma, survivors should present with an attachment presentation similar to that associated with other relational traumas of childhood. For example, childhood neglect and physical abuse are associated with high rates of the disorganized attachment in childhood (e.g., 82% in physically abused and/or neglected children vs. 19% in a demographically matched sample; Carlson, Chicchetti, Barnett, & Braunwald, 1989). As such, a similar disorganized attachment presentation should be found to predominate within the child survivors of sexual abuse. If the sexual

trauma is not resolved by adulthood the disorganized attachment of childhood should continue into adulthood (but manifesting as the fearful attachment style).

Prior to Bacon and Richardson's (2001) comments, three studies were conducted that supported this theoretical deduction (Alexander, 1993; Alexander, Anderson, Brand, Schaeffer, Grelling, & Kretz, 1998; Roche, Runtz & Hunter, 1999). In the years following, three additional studies were conducted which also demonstrated that child sexual abuse was associated with an elevation of fearful attachment style in adulthood (e.g., Hanna, 2003; MacDonald & De Luca, 2005; Yates-Tuppett, 2006).

The earliest attachment studies constrained the definition of child sexual abuse to intrafamilial forms of abuse (e.g., incest). For example, Alexander (1993) studied 112 female incest survivors from the community and found that 14% described themselves as secure, 13% as Preoccupied, 16% as Dismissing and 58% as Fearful. Similarly, Alexander, Anderson, Brand, Schaeffer, Grelling, & Kretz (1998) studied the attachment classification of 92 female incest survivors from a community sample and found that 9% described themselves as secure, 21% as preoccupied, 11% as dismissing and 60% as fearful. Both sets of findings are particularly salient when they are compared to a normative sample generated by Bartholomew and Horowitz (1991). Specifically, within this sample of men and women university students (excluding first year students), 57% of participants described themselves as secure, 10% as preoccupied, 18% as dismissing, and 15% as fearful.

Later studies utilized a broader definition of child sexual abuse, which includes incest, in addition to other types of extrafamilial sexual abuse. For example, Roche, Runtz and Hunter (1999) and MacDonald and De Luca (2005) both found that in general

child sexual abuse survivors scored significantly higher on measures of the fearful attachment than their non-abuse counterparts. Given that the fearful attachment style is dimensionally opposite to the secure attachment style, it was not surprising that both studies also demonstrated that the child sexual abuse groups scored significantly lower on attachment security than their non-abuse counterparts. Finally, the projects converged on the finding that both groups of participants did not differ on either the preoccupied or dismissing attachment styles. One notable difference between MacDonald and De Luca's study and four of six outcome studies located (Alexander, 1993; Hanna, 1993; Alexander, Anderson, Brand, Schaeffer, Grelling, & Kretz, 1998; Roche, Runtz, & Hunter, 1999) is that the former study sampled both men and women as opposed to just women. Although a general trend toward the fearful attachment has been documented within the child sexual abuse population, researchers should continue to assess this trend with both men and women participants to ensure that findings generalize across sex.

Finally, although the general trend points toward a relationship between child sexual abuse and adult attachment security and fearfulness, not all research findings follow this trend. For example, a published abstract by Viviano (2004) reported a failure to find support for the study's mediation hypothesis because the child sexual abuse group was not found to differ from the non-abuse group on any of the attachment styles. Aspelmeier, Elliot and Smith (2007) found that of a sample of 324 female undergraduate students, those who experienced child sexual abuse were significantly more preoccupied, dismissing and fearful than those who did not experience sexual abuse. Further, although the child sexual abuse group was found to be less secure than the non-abused group, the effect size associated with this difference was not significant.

Irrespective of studies such as these, the general trend amongst the literature supports the hypothesis that child sexual abuse is related to the fearful attachment style in adulthood. Specifically, child sexual abuse is a devastating interpersonal trauma that has the potential to profoundly impact *both* dimensions of attachment, hence elevating attachment fearfulness (defined as high attachment anxiety and high attachment avoidance). Given that the fearful attachment is dimensionally opposite to secure attachment, this rise in fearful attachment should also correspond with a diminution of the secure attachment (defined as low attachment anxiety and low attachment avoidance).

Additional support for the connection between child sexual abuse and the fearful attachment style is indirectly found by the observation that hallmark sequelae of child sexual abuse parallel that of the fearful attachment style. For example, dissociation, PTSD, borderline personality disorder and a fundamental sense of shame and worthlessness are common for both child sexual abuse survivors and adults presenting with fearful attachment style.

The second theme within the research assesses whether attachment functions as a mediator of the long-term effects of sexual abuse. In the spirit of mediation, Gold, Sinclair, and Balge's (1999) also proposed a theoretical model of the cycle of sexual revictimization wherein the somewhat vague concept of an *insecure attachment* was included as one of many proposed mediating variables of revictimization.

In total, seven studies were located which explored attachment as a possible mediator of the relationship between child sexual abuse and the long-term psychological adjustment of adult survivors (e.g., Roche, Runtz, & Hunter, 1999; Shapiro & Levindosky, 1999; Kutil, 1999; Gold, Sinclair & Balge, 1999; Roche, 2000; Twaite &

Rodriguez-Srednicki, 2004; Viviano, 2004). However, only three correspond with peer-reviewed publications (Roche et al., 1999; Shapiro and Levindosky, 1999; Twaite & Rodriguez-Srednicki, 2004). Although this review will be constrained to the published research, the overall findings are that five studies support the general mediation hypothesis. One study (Gold et al., 1999) supported the Gold, Sinclair and Balge (1999) mediation hypothesis and one study (Viviano, 2004) failed to find an effect for the general mediation hypothesis. Further, only two of the seven studies sampled *both* men and women.

Roche, Runtz, and Hunter (1999) were the first authors to publish on the matter of attachment as a mediator of long-term impact of child sexual abuse on adult adjustment. They demonstrated that when *all four* attachment styles were included in their regression analysis, adult attachment style predicted psychological adjustment independent of child sexual abuse. Child sexual abuse, however, did not predict psychological adjustment independent of attachment. According to the authors, this pattern of findings indicates that adult attachment style mediates the relationship between child sexual abuse and adult psychological adjustment. However, given the authors also found that the child sexual abuse group differed significantly from the comparison group *only* on attachment security and fearfulness, this finding is somewhat curious. Specifically, if the child sexual abuse group did not differ from the non-abuse group on the preoccupied and dismissing attachment styles, these attachment styles logically should not function as mediators. This project does, however, indirectly support the hypotheses that adult attachment security and fearfulness are the operative variables of interest. Specifically, when the authors constrained the four attachment styles to reflect the attachment dimensions of model of

self and model of other, both dimensions were found to function as mediators. In other words, the relationship between child sexual abuse and adult psychological adjustment was accounted for by both the internal working model of self and other. These findings suggest that child sexual abuse impacts attachment by eroding both model of self and model of other, thereby reducing attachment security and increasing attachment fearfulness.

Shapiro and Levindosky (1999) studied eighty adolescent girls, aged 14-16 years, and found that attachment style mediated the effect of child sexual abuse, neglect and physical abuse on coping and psychological distress. Although this study supports the mediation hypothesis once more, it would appear the biggest flaw is that the authors used a 3-factor model of attachment, as opposed to the four-factor model. That is, the authors excluded the most important attachment variable to consider when studying trauma: the fearful attachment style.

Twaite & Rodriguez-Srednicki (2004) conducted a novel study with a sample of men and women directly exposed to the terrorist attacks of September 11, 2001. These authors demonstrated that adult attachment security and dissociation mediated the relationship between child sexual abuse and symptoms of PTSD in response to the terrorist attacks. Unfortunately, the authors did not assess whether the other three attachment styles (e.g., preoccupied, dismissing and fearful) mediated the relationship.

A final mediation study was located after this project had been proposed. Specifically, Dimitrova, Pierrehumbert, Glatz, Torrisi, Heinrichs, Halfon and Courchena (2009) found that adult attachment, defined in terms of closeness in relationships, anxiety and dependence mediated the relationship between child sexual abuse and

psychopathology in adulthood. Although these three dimensions were proposed by the authors to underlie the secure, preoccupied and avoidant adult attachment styles, the fearful adult attachment style was not represented in the model.

These studies of mediation are valuable and informative in that they support the general notion that attachment is an important variable to consider when assessing the relationship between child sexual abuse and adult psychopathology. However, it is difficult to translate these findings into a therapeutic application for child sexual abuse because there is little convergence between the operational definitions of attachment provided in the literature. Hence, the first goal of this project was to add clarity to the research by providing a precise and comprehensive definition of attachment which includes not only a measure of the dimensions of attachment but attachment styles as well.

Given that the vast majority of child sexual abuse survivors present with a fearful attachment, it is most likely that the fearful attachment style will mediate the relationship between child sexual abuse and mental health. This hypothesis can also be conceptualized in terms of attachment dimensions. Specifically, because the fearful attachment represents high scores on the dimensions of attachment anxiety and avoidance, both of these dimensions should serve to mediate the relationship between child sexual abuse and mental health outcome.

Complete Mental Health

The secondary goal of this project was to expand the child sexual abuse and attachment research bases by providing a holistic or complete definition of mental health. That is, rather than defining mental health as the absence of psychopathology alone,

mental health was defined as the absence of psychopathology *and* the presence of psychological wellbeing.

This definition is consistent with the definition of health provided by World Health Organization (WHO) in 1948. Specifically, health is not merely the absence of infirmity, nor is it the presence of high wellbeing. Instead, health is the complete state of the absence of infirmity *and* the presence of wellbeing. Conversely, illness is not simply the presence of infirmity. It is the complete state of both the presence of infirmity and the erosion of wellbeing (Keyes & Lopez, 2005). Even though this definition was published over 60 years ago, clinicians and researchers have continued to focus on psychopathology at the expense of psychological wellbeing. As such, this second goal of study is more than timely.

One might argue that it is not necessary to study *both* psychopathology and psychological wellbeing as they represent opposite ends of a single continuum. However, Seligman's positive psychology movement, initiated at the turn of this century (Peterson & Seligman, 2004) has prompted research that has shown that although psychopathology and psychological wellbeing are inversely related phenomena, they are also separate, or different phenomena. For example, measures of psychological wellbeing have been found to correlate, on average -.51 with the Zung Depression Inventory and -.55 with the Centre for Epidemiological Studies Depression Scale (Ryff & Keyes, 1995). Findings such as these non-perfect correlations have prompted the U.S. Department of Health and Human Services to state in *Mental Health: A Report of the Surgeon General* (1999; cited by Keyes & Lopez, 2005) that mental health and psychopathology are not opposite ends of a single health continuum.

The most comprehensive definition of psychological wellbeing was created by Ryff (1985; 1989) and is described as a broader variant of a phenomenon known as *subjective wellbeing.* Subjective wellbeing is typically defined in affective and cognitive terms. The affective dimension, labeled *happiness,* concerns how people feel about themselves and about their environment. The cognitive dimension, termed *satisfaction with life,* addresses a broader, global judgment about the acceptability of one's life (Compton, 2005). A similar but slightly different definition of subjective wellbeing includes perceptions and evaluations of affective (happiness or satisfaction), psychological (personal growth) and social functioning (social integration; Keyes & Lopez, 2005).

Moving beyond subjective wellbeing, Ryff (1985; 1989) identified six factors of psychological wellbeing: 1) *self-acceptance*— the attitude one has toward the self, 2) *personal growth*—openness to new experiences and a feeling of continued development, 3) *purpose in life*— having goals, direction and a sense of life as meaningful, 4) *environmental mastery*— feeling competent and able to manage complex environments, 5) *autonomy*— the ability to resist social pressures and to instead think and act in a self-determined fashion, and 6) *positive relations with others*— the ability to develop satisfying, reciprocal and intimate relationships with others (Keyes & Lopez, 2005). With recent interest in spiritual wellbeing, van Dierendonck (2005) expanded Ryff's definition of psychological wellbeing to include a spiritual dimension. This dimension includes the presence of inner-spiritual resources, as well as having a relationship to a higher power.

Child Sexual Abuse and Complete Mental Health

To date, it would appear that no research projects have been conducted looking at the impact of child sexual abuse on complete metal health. Similarly, and unlike the abundant research base connecting child sexual abuse to adult psychopathology, the research relating child sexual abuse to "symptoms" of psychological wellbeing appears scant. This feature of the child sexual abuse research base is unfortunate because it not only fails to represent survivors of sexual abuse holistically, it perpetuates the trend for clinicians to provide incomplete therapy to clients. This trend is reflected in the metaphor that psychology has learned much about how to take individuals from negative eight to zero, but not how to take individuals from zero to positive eight (Gable & Haidt, 2005). The positive "twist" to this project should help to lay the groundwork for understanding how child sexual abuse erodes various factors of psychological wellbeing, thereby providing important information to clinicians who provide therapy to survivors of child sexual abuse.

Two research projects were located with the search terms of "psychological wellbeing" and "child sexual abuse." As expected, both studies indicated that child sexual abuse is associated with lowered psychological wellbeing in adulthood, when compared to non-sexually abused counterparts. Unfortunately, however, the first study defined psychological wellbeing as the absence of psychopathology (Roberts, O'Connor & Golding, 2004) and the second study was published in an Indian journal that could not be located (Hasnain & Kumar, 2006). A review of the abstract reveals that the authors defined wellbeing according to the PGI Well-Being Scale by Maudgil, Verma, Kaur and Pal (1986). This measure could not be located as it too was published in the *Indian*

Journal of Clinical Psychology. As such, it remains unclear as to whether a negative and/or positive definition of wellbeing was utilized. Nevertheless, the authors concluded that those adult survivors of sexual abuse who experienced moderate to severe types of sexual abuse in childhood scored significantly lower on the PGI than the non-abuse control. No group differences were reported between the control group and adult survivors of minimal forms of child sexual abuse.

A literature review was conducted for the search terms "child sexual abuse" and each of the six wellbeing variables identified by Ryff (1989), as well as the spirituality variable identified by van Dierendonk (2005). Relevant research was located supporting the relationship between child sexual abuse and both the interpersonal functioning and spirituality variables.

According to a review article, women survivors of child sexual abuse tend to report a variety of relational difficulties in adulthood (Rumstein-McKean & Hunsley, 2001). For example, altered sexuality, sexual dysfunction and a lack of sexual satisfaction in relationships are common in female survivors of child sexual abuse (Alexander & Lupfer, 1987; Feinauer, Mitchell,Harper, & Dane 1996; Finkelhor, Hotaling, Lewis, & Smith, 1989; Gold, 1986; Gorcey, Santiago, & McCall-Perez, 1986; Heath, Bean, & Feinauer, 1996; Herman, Russell, & Trocki, 1986; Lindberg & Distad, 1985; Styron & Janoff- Bulman, 1997). Female survivors also tend to be more promiscuous (Fromuth, 1986; Styron & Janoff- Bulman, 1997) and report greater relational problems, including decreased marital satisfaction, increased marital disruption, difficulty forming and maintaining intimate relationships, distrust of partner, higher levels of relational conflict and problematic communication with spouses (Bagley & Ramsay 1986; Finkelhor,

Hotaling, Lewis, & Smith, 1989; Hazzard, 1993; Herman, Russell, & Trocki, 1986; Lindberg & Distad, 1985; McNew & Abell, 1995). Female survivors are also found to marry younger, divorce, or separate from their spouses, or never marry at all (Bagley & Ramsay, 1986). Relational difficulties including emotional alienation, feelings of detachment, social withdrawal, isolation and introversion are common to female survivors of child sexual abuse (Lindberg & Distad, 1985; Lundberg-Love, Marmion, Ford, Geffner, & Peacock, 1992; Paden Gelster & Feinauer, 1988).

Finally, three studies were located which investigated the relationship between child sexual abuse and spirituality in adulthood. Pritt (1996) compared 96 Mormon women who had experienced child sexual abuse to 60 Mormon women who had not experienced child sexual abuse on various measures of spirituality. The author demonstrated that the child sexual abuse survivors scored significantly lower on a scale of spiritual well-being, on its subscales and on an inner-core scale. Further, child sexual abuse survivors viewed God as being more wrathful, less kind, more distant and less loving than their non-sexual abuse counterparts. Using a slightly larger sample, the author replicated these findings in a 1998 study.

Krejci, Thompson, Simonich, Crosby, Donaldson, Wonderlich, and Mitchell (2004) compared 71 child sexual abuse survivors to 25 control participants on measures of spiritual wellbeing and psychopathology. The authors concluded that the two groups did not differ on spiritual wellbeing and that spiritual wellbeing did not mitigate the probability of current psychopathology. The authors suggest, however, that the lack of significance may be due to limitations of their research design and/or a lack of diversity of their sample.

Finally, self-esteem was researched. Although not part of the Ryff (1989) model of psychological wellbeing, self-esteem is a "positive" variable that has been consistently found to be negatively related to child sexual abuse (e.g., Waitzman, 1998; Erbes, 2000; Paul, 2001; Whealin & Jackson, 2002; Lemieux, 2004; Van Bruggen, Runtz, & Kadlec, 2006). For example, in addition to studies which demonstrate that adult survivors of child sexual abuse present with compromised self-esteem (Waitzman, 1998; Erbes, 2000; Paul, 2001), other studies have found a similar relationship between child sexual abuse and sexual self-esteem (Van Lemieux, 2004; Bruggen et al., 2006). Another study found that unwanted sexual attention in childhood was related to poorer academic self-esteem, physical appearance self-esteem and global self-esteem in young women (Whealin & Jackson, 2002).

Attachment and Complete Mental Health

Unlike the child sexual abuse literature base, there are an abundance of research projects investigating the relationship between attachment and psychological wellbeing. For example, a search of these two constructs yielded 30 relevant studies. Relative to the research on psychopathology, however, the attachment research base is still significantly skewed toward negative representations of mental health. To illustrate, a search was conducted using the terms "attachment" and "mental health." The title, abstract and descriptive terms for each project were inspected to determine whether the project utilized a positive, negative or both positive and negative (e.g., complete) representation of mental health. Of the 203 results returned, only 103 were both relevant to the search conducted and could be categorized. From this sample of usable search results, 61% referenced negative representations of mental health. 29% of the studies referenced

positive mental health terms, including psychological wellbeing and 10% were complete in that they referenced both positive and negative mental health constructs. Although it is promising that some attachment researchers are simultaneously studying both negative and positive mental health constructs, a final search revealed that no research to date has been conducted investigating the specific impact of attachment on complete mental health. Hence, just as complete definitions of mental health outcome are required within the child sexual abuse research base, so too are they needed within the attachment research base.

Hypotheses

The primary goal of this project was to determine precisely how attachment mediates the relationship between child sexual abuse and mental health in adulthood. The second goal was to expand the child sexual abuse and attachment literature bases by considering the relationship between child sexual abuse and *complete mental health,* as opposed to partial mental health. That is, rather than assessing the relationship between child sexual abuse, attachment and psychopathology alone, the literature bases were to be expanded by an assessment of psychological wellbeing.

From these goals a series of six hypotheses were created. First, it was predicted that there would be a positive relationship between both the severity of the child sexual abuse and long-term psychopathology. An inverse relationship between the severity of child sexual abuse and long-term psychological wellbeing was also predicted.

The next sets of hypotheses were designed to clarify how attachment mediates long-term child sexual abuse outcome. Although conceptualizing attachment categorically, in terms of attachment style, offers a great deal of clinical utility, it is best

to define attachment dimensionally when conducting research as a continuous scale of measurement yields more parsimonious and powerful studies. Accordingly, the remaining hypotheses predicted that both attachment anxiety and avoidance would mediate both the positive relationship between child sexual abuse and adult psychopathology, as well as the inverse relationship between child sexual abuse and adult psychological wellbeing.

In point form, the hypotheses for this study were as follows:

1) The severity of child sexual abuse would be positively related to symptoms of psychopathology in adulthood.
2) The severity of child sexual abuse would be inversely related to "symptoms" of psychological wellbeing in adulthood.
3) The positive relationship between the severity of child sexual abuse and long-term psychopathology would be mediated by adult attachment anxiety.
4) The positive relationship between the severity of child sexual abuse and long-term psychopathology also would be mediated by adult attachment avoidance.
5) The inverse relationship between the severity of child sexual abuse and long-term psychological wellbeing would be mediated by adult attachment anxiety.
6) The inverse relationship between the severity of child sexual abuse and long-term psychological wellbeing also would be mediated by adult attachment avoidance.

CHAPTER TWO

RESEARCH METHODOLOGY

Participants

Men and women university students were recruited from intersession and summer session Introductory Psychology classes at the University of Manitoba. They received two research credits for their voluntary study participation. Participants were limited to those who were fluent in English, as the study's questionnaires were written in English. Participants also had to be 18 years of age or older to give informed consent.

For this study to have sufficient power (0.80) a sample size of 91 child sexual abuse survivors was required (based on a medium effect size, and a multiple regression procedure with five variables; Cohen, 1992). Using a modest estimate of child sexual abuse prevalence (approximately 20%; Abdulrehman & DeLuca, 2001; Unger & De Luca, 2004; MacDonald & De Luca, 2005) a sample size of 450 was proposed as necessary to recruit this number of child sexual abuse survivors. This figure was then rounded up to 500 for good measure.

Unfortunately, a fire in the building where data collection was taking place resulted in a loss of 17% of the scheduled data collection sessions. As such the goal sample size was not reached. Nevertheless, data from a substantial sample of 421 participants was collected.

Procedure

Participants completed a number of questionnaires designed to assess the variables of interest. The questionnaires were administered in large classrooms with an average of nine participants sampled per session. Informed consent was obtained by

having participants read and sign a consent form prior to filling out the questionnaire (Appendix A) and all responses were confidential. Upon completion of the questionnaires participants received a debriefing form that outlined the exact nature of the study, along with the researcher's contact information (Appendix B).

Measures

Demographics questionnaire. Participants completed a basic demographics questionnaire (Appendix C). Example demographic variables found within this questionnaire include age, sex, sexual orientation, relational status, and race.

Attachment. To measure adult attachment anxiety and avoidance, the Experiences in Close Relationship scale (ECR; Brennan, Clark & Shaver, 1998) was administered. This 36-item self-report instrument was designed to measure adult attachment without focusing on a specific partner. Participants were asked to answer a variety of questions using a 7-point scale. Half of the items measured attachment avoidance and the remaining half measured attachment anxiety.

The ECR is a well-established and psychometrically sound measure of adult attachment (Nakao, & Kato, 1994; Conradi, Henk, Gerlsma, van-Duijn, & de-Jonge, 1996; Tonggui, & Kazuo, 1996; Brennan et al., 1998; Tsagarakis, Kafetios, & Stalikas, 2007). For example, Cronbach alphas (α) of .94 and .91 have been reported for both the avoidance and anxiety dimensions respectively (Brennan et al., 1998). Both the anxiety and avoidance dimensions of the ECR have also been validated against other measures of anxiety and avoidance, such as Carver's (1994) scales of avoidance (.90) and worry (.79; Brennan et al., 1998). Although a revised version of the ECR does exist (ECR-R), Fraley, Waller, and Brennan (2000) concluded that the ECR is psychometrically superior to the

ECR-R. This measure may be found in Appendix D. The copyright permission form to use this measure may be found in Appendix K. This permission is for print only. As such, this measure will be excluded from the electronic version of this thesis.

Social support. Given that social support is thought to be an important variable that buffers the relationship between child sexual abuse and adult mental health, it was measured as a control variable. To assess adult social support, the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) was administered. The MSPSS is a 12- item self-report measure used to assess satisfaction with the support provided from three sources: family, friends, and significant others (e.g., partner, physician, clinician). Responses are scored on a 7-point scale from "completely disagree" (1) to "completely agree" (7). MSPSS total scores range from 12-84, with higher scores indicating greater satisfaction with the total support network. Ponizovsky, Grinshpoon, Sasson, and Levav (2004) found internal reliability coefficients (Cronbach alpha) of the MSPSS dimensions ranging from 0.69 for significant other to 0.90 for support from friends. Slightly higher internal reliability coefficients were found by Dahlem, Zimet, and Walker (1991) who reported a Cronbach alpha of .91 for the entire scale, and .90, .94, and .95 for the family, friends and significant other subscales respectively. To investigate the factorial validity of the MSPSS, Dahlem et al., performed a principal components factor analysis. Consistent with other research, three factors were identified which together accounted for 83.9% of the variance. Further, items loaded very strongly on their designated subscales (average loading = .86) and with minimal cross-loading (average cross-loading = .19). This questionnaire can be found in Appendix E. The copyright permission form to use this questionnaire may be found in Appendix L.

Child sexual abuse. To measure child sexual abuse, the Comprehensive Child Maltreatment Scale (CCMS*;* Higgins & McCabe, 2001*)* was administered. While some question the accuracy of using a self-report measure to assess the history of child abuse in adults, it continues to be a standard method to access this information. Fortunately, the research has shown that retrospective recall in adult life of adverse experiences in childhood is sufficiently valid for research purposes (Hardt and Rutter; 2004). The CCMS assesses the history of physical abuse, as well as witnessing violence, psychological maltreatment, neglect, and child sexual abuse. The CCMS produces a total abuse severity score, as well as severity scores for each of the five subtypes of abuse (Higgins & McCabe, 2001). No abuse is indicated by a score of "0" on the abuse scale and those scoring a "1" or greater represent individuals who have experienced childhood abuse. Additionally, the severity of abuse (defined in terms of abuse frequency) is indicated by the degree of deviation of the score from the least severe scale score of "1." For example, low scores (excluding a scale score of "0") indicate that the individual has been exposed to abuse but that the severity was minimal. High scores also indicate the presence of abuse but the severity was extreme. The use of a continuous measure is advantageous because it not only functions as a measure of abuse severity (Higgins & McCabe, 2001), it helps to reduce error (systematic, random and response error; Hulme, 2004).

While the CCMS has not received much attention within the North American research base, initial studies show promising psychometric results (Higgins & McCabe, 2001). For example, Cronbach's alphas ranged from a low of 0.66 for the psychological maltreatment subscale to a high of 0.93 for the total score. Test-retest reliability

coefficients ranged from 0.62 for the neglect subscale and 0.95 on the sexual abuse subscale. Although the coefficients are low for the maltreatment and neglect scales, they are more than sufficient for the total test and the child sexual abuse scale. Concurrent and criterion related validity was assessed comparing the CCMS to the Child Abuse and Trauma Scale. The total scores correlated significantly at 0.86 and the sexual abuse subscales at 0.87. While more research is needed, the ability of the CCMS to continuously measure multiple types of abuse appears to make it an ideal measure for this study. A copy of the CCMS is provided in Appendix E. Copyright permission to print this questionnaire was granted by the Journal of Family Studies and may be found in Appendix M.

Adult psychological wellbeing. To assess the second dependent variable, adult psychological wellbeing, a revised version of Scales of Psychological Well Being (SPWB), was administered (Ryff, 1989; van Dierendonck, 2005). The SPWB was developed by Ryff on the basis of an extensive literature review and as a synthesis of several clinical, mental health and life span developmental theories. The theoretically derived dimensions of psychological wellbeing included within the measure are self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life and personal growth.

The SPWB exists in a variety of formats, ranging from 20 items per subscale to 3 items per subscale. van Dierendonck compared the psychometric quality of the various forms of the SPWB and suggested a new version, consisting of either 6, 7 or 8 items per subscale. These modifications resulted in an increase in the factorial validity and internal consistency of the measure, as well as an increase in its goodness of fit. Finally, van

Dierendonck added ten new spiritual wellbeing items to the measure, bringing the total number of items to 49. The revised version of the SPWB is presented in Appendix F. Copyright permission has been provided by both Dr. Ryff and Pergamon publishers to use items from the original and adapted forms of the SPWB. These permissions are located in Appendices K and L.

Psychopathology. The Symptom Checklist-90-Revised ® (SCL-90-R ®; Derogatis, 1975; 1994) was purchased and administered as the measure of adult psychopathology. This questionnaire is a 90-item self-report symptom inventory designed to measure various symptoms of psychological distress, including somatization, obsessive compulsivity, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The remaining questions are part of a scale entitled "additional items."

In addition to generating a total scale score and total scores for each of the subscales, three "global" indices of distress may be computed. The Global Severity Index (GSI) is the average rating given to all 90-items (range: 0-4). The Positive Symptom Total (PST) is the number of symptoms complained of (e.g., the number of items rated higher than zero; range: 0-90). Finally, the Positive Symptom Distress Index (PSDI) is the average rating given to those symptoms which are complained of (e.g., not rated "0"). In an effort to maximize the variability of scores, the PST, with a range of 0-90, was used as the primary measure of general psychopathology for this project.

The SCL-90R has been demonstrated to have sufficient internal consistency (Derogatis, 1994; 2000). For example, the author of the questionnaire reports alpha

coefficients from 0.77 to 0.90. Test-retest reliability coefficients with a one-week interval between administrations ranged from 0.80 to 0.90.

The dimensional structure of the SCL-90-R ® has been confirmed (Derogatis & Cleary, 1977; 2000) and the convergent/discriminant validity has been demonstrated relative to the Minnesota Multiphasic Personality Inventory (Derogatis, Rickels, & Rock, 1976), the Middlesex Hospital Questionnaire (Bolelоucky & Horvath, 1974), the Hamilton Rating Scale for Depression (Weissman, Scholomskas, Pottenger, Prusoff, & Locke, 1977), and the General Hospital Questionnaire (Koeter, 1992).

Although a good deal of research supports the overall validity of the SCL-90-R®, some criticize the questionnaire (Gotlib, 1984; Payne, 1985). For example, questions remain as to whether the SCL-90-R ® adequately measures anything beyond a single factor of "psychiatric disturbance," or "complaining." Nevertheless, the SCL-90-R® is a succinct, interesting and reliable self-administered symptom check-list which can be very useful in research studies. Whether it is appropriate for screening or diagnostic purposes, however, remains unclear (Payne, 1985). Given the SCL-90-R® is a copyrighted and "live test" it could not be reproduced for the Appendices of this manuscript.

Self-esteem. Although self-esteem was not part of Ryff's (1989) definition of psychological wellbeing it is an important facet of mental health. As such, self-esteem was also assessed as a secondary measure of psychological wellbeing.

To measure self-esteem, the 10-item Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) was administered. The RSE was designed to be a uni-dimensional measure of global self-esteem. Negative items are statements of self-derogation and positive items are statements of self-enhancement (Shahani, Dipboye, & Phillips, 1990).

Although it remains to be seen whether the RSE is in fact a unidimensional measure, or bi-dimensional measure of self-esteem (e.g., Rosenberg, 1965, 1979; Kaplan & Pokorny, 1969; Silbert & Tippett, 1965; Carmines & Zeller, 1974, 1979; McCarthy & Hoge, 1982; Martin, Nunez, Navarro, Grijalvo, Navascues, 2007) it has been validated on several occasions. For example, a significant relationship was found between the RSE and self-reports, nurse reports and peer ratings of depression, anxiety, reputation and other relevant constructs (Rosenberg, 1965). The RES has also served as a standard for convergent validity with an eating disorders survey (Shisslak, Renger, Sharpe, Crago, McKnight, Gray, Bryson, Estes, Parnby, Killen, & Taylor, 1999) and it positively correlated with resilience (Gordon-Rouse, Ingersoll & Orr, 1998) and the Beck Self-Concept Test (Beck, Steer, Epstein, & Brown, 1990). The RES has also discriminated between depressed and non-depressed adolescents (Lewinsohn, Seely, & Gotlib, 1997) and correlated with both internalizing and externalizing domains of psychopathology (Graber, Lewinsohn, Seeley, & Brooks-Gunn, 1997). A two-week test-retest reliability coefficient of .85 was found for the measure (Silbert & Tippet, 1965) and alpha coefficients have consistently ranged above .70 (e.g., Belgrave 1991; Brody & Flor, 1997; de Groot, Auslander, Williams, Sherraden, & Haire-Joshu, 2003; Hamamura, Heine, Paulhus, & 2008; McCarthy & Hoge, 1982; Taylor, Roberts & Jacobson, 1997; Wesley, 2003). A copy of the RSE is provided in Appendix G of this project. The Perseus Book Group has provided copyright permission to include the RSE in this thesis (Appendix N).

CHAPTER THREE

PRELIMINARY ANALYSIS

Missing Data and Outliers

The raw data was visually inspected for bias, or patterns within the missing data. Accordingly, bias was indicated if roughly 15% or more of a participant's data was missing or there was some type of a pattern within the missing data. Where bias was detected the data was simply removed from the sample. This resulted in the deletion of six participants from the sample and brought the total sample size to 415. A group-specific mean replacement procedure was then used to correct for the unbiased missing data. Specifically, the sample was divided into a child sexual abuse group and a no-abuse group and means were computed for the relevant variables within each group. These values were then used in place of the missing data.

Outliers or extreme observations deviating more than 1.5 times the value of the inter-quartile range (Glass & Hopkins, 1996) were identified by creating box-plots for the independent, dependent, and control variables. When an outlier was found the identified participant's data were then inspected for data entry errors and bias. Because there were no data entry errors or apparent patterns about the outliers a trimmed mean procedure was utilized as a correction. That is, all outliers were temporarily removed from the sample and group-specific means were calculated for the relevant variables. The appropriate "trimmed mean" was then used as a replacement score for each of the outlying values (Anscombe, 1960).

Normality, Linearity, Independence, and Homoscedasticity

Next, the four assumptions of regression were tested, beginning with normality. This assumption was assessed by creating skew statistics for each variable and it was satisfied if the statistic ranged between -1.0 to +1.0 (Leech, Caplovitz, Morgan, 2005). This procedure indicated that all variables were normally distributed except for the childhood abuse variables which evidenced a high degree of positive skew. To correct for this skew the abuse variables were simply dichotomized. Specifically, those scoring "1" or greater on the scale were classified as belonging to the child abuse group and those scoring "0" were classified as belonging to the no-abuse group.

Linearity was assessed by creating scatter plots for the attachment and mental health variables (Leech, Caplovitz, Morgan). Given the scatter for the relationships appeared sufficiently tight and in the hypothesized direction the assumption was satisfied.

Durbin-Watson statistics were computed for each variable to explore the independence of errors assumption. The error for each observation was shown to be independent from the error of all other observations by demonstrating that the value of each Durbin-Watson statistic was reasonably equal to "2" (Evans, 2003).

Homoscedasticity, or the assumption that the variance of residuals should be the same for all predicted scores, was tested by creating bivariate residual by prediction scatter plots (Tabachnick & Fidell, 2007). The assumption was satisfied by demonstrating that the scatter for each plot did not become larger (e.g., more spread-out) as a function of the predicted value.

Psychometric Assessment of Measures

Cronbach alpha coefficients (α) were computed for each questionnaire to assess the internal consistency of measurement. A review of these statistics indicates that the internal consistency of measurement for this study was excellent. For example, the alpha coefficients ranged from a low of 0.87 (Rosenberg Self-Esteem scale) to a high of 0.98 (Symptom Checklist-90-R). The coefficients for the subscales ranged from a low of 0.66 (environmental mastery subscale of the Scales of Psychological Well-Being) to a high of 0.93 (child sexual abuse subscale of the Comprehensive Childhood Maltreatment Scale). These statistics are presented in Table 1 to follow. Additional statistics included within this table are means and standard deviations (SD), as well as the range of possible scores and the number of items contained within each scale and subscale (n).

Table 1. Descriptive statistics for the various measures according to scale and subscale

Variable (Scale)	n(*α*)	Range (min-max)	Mean (*SD*)
Attachment (ECR)			
Anxiety	18*(0.91)*	18-126	64.22*(19.34)*
Avoidance	18*(0.90)*	18-126	55.34*(17.27)*
Psychological Wellbeing (SPWB)			
Total	49*(0.92)*	49-294	199.19*(25.37)*
Autonomy	8*(0.67)*	8-48	29.75*(5.10)*
Self-acceptance	6*(0.77)*	6-36	24.37*(4.91)*
Environmental mastery	6*(0.66)*	6-36	23.63*(4.03)*
Positive relationships	6*(0.74)*	6-36	25.41*(4.49)*
Purpose in life	6*(0.79)*	6-36	25.66*(5.38)*
Personal growth	7*(0.71)*	7-42	31.68*(5.40)*
Spirituality	10*(0.81)*	10-60	37.64*(8.43)*
Psychopathology (SCL-90R)			
Total	90*(0.98)*	0-360	78.54*(56.61)*
Positive Symptom Index	90*(0.97)*	0-90	44.88*(23.01)*
Somatization	12*(0.87)*	0-48	9.78*(7.98)*
Obsessive compulsive	10*(0.86)*	0-40	10.87*(7.67)*
Interpersonal sensitivity	9*(0.87)*	0-36	9.01*(6.93)*
Depression	13*(0.89)*	0-52	13.01*(9.90)*
Anxiety	10*(0.87)*	0-40	7.29*(6.72)*
Hostility	6*(0.81)*	0-24	4.71*(4.24)*
Phobic anxiety	7*(0.85)*	0-28	3.91*(4.94)*
Paranoid ideation	6*(0.78)*	0-24	5.81*(4.51)*
Psychoticism	10*(0.81)*	0-40	7.06*(6.43)*
Additional items	7*(0.77)*	0-28	7.01*(5.41)*
Self-Esteem (RSE)			
Total	10*(0.87)*	10-40	29.84*(5.52)*
Child abuse (CCMS)			
Total	57*(0.94)*	0-259	14.99*(16.05)*
Sexual abuse	31*(0.93)*	0-155	1.40*(6.20)*
Physical abuse	9*(0.85)*	0-36	3.07*(4.64)*
Psychological maltreatment	9*(0.86)*	0-36	7.55*(6.13)*
Neglect	6*(0.79)*	0-24	1.65*(3.03)*
Witnessing abuse	2*(0.75)*	0-8	1.38*(1.81)*
Social Support (MSPSS)			
Total	12*(.90)*	0-84	66.75(11.31)
Family	4*(.90)*	0-28	21.80(5.60)
Friends	4*(.90)*	0-28	21.88(4.93)
Significant other	4*(.91)*	0-28	22.33(5.39)

Legend
n: number of items
α: Cronbach alpha
ECR: Experiences in close relationship scale
SCL-90R: Symptom checklist-90 revised
RSE: Rosenberg self-esteem scale
CCMS: Comprehensive childhood maltreatment scale
MSPSS: Multidimensional scales of perceived social support

Precautionary Analysis

Child sexual abuse tends to positively correlate with sexual assault, both in adolescence and adulthood. Additionally, both child sexual abuse and sexual assault are thought to set the occasion for psychopathology in adulthood. As such, a precautionary analysis was conducted to control for the potential confounding influence of sexual assault. To do so, the data was divided into two groups according to the presence or absence of child sexual abuse. Next, reported sexual assault prevalence statistics were calculated for each group. This was done by dividing the number of sexual assault survivors by the total sample size and multiplying that figure by 100. These statistics are presented in Table 2.

Table 2. Prevalence statistics for sexual assault according to group

Variable	Non-CSA Group (n=347) f*(%f)*	CSA Group (n = 68) f*(% f)*
Sexual assault		
No	313*(91)*	50*(74)*
Yes	33*(9)*	18*(26)*

Legend
n: sample size
f: frequency
%f: percent frequency

As was informally predicted, the prevalence of adolescent/adult sexual assault was higher in the child sexual abuse group than the no-abuse group (26% versus 9%). Nevertheless, given the majority of child sexual abuse survivors (74%) did not report adult/adolescent sexual assault, it seems unlikely that this variable will serve to confound the primary analysis.

CHAPTER FOUR

DESCRIPTIVE AND INFERENTIAL ANALYSIS

Descriptive Statistics

Fifty percent of the sample was between the ages of 18 and 19. Twenty five percent of the sample was between the ages of 20 and 21 and the remaining 25% of the sample was 22 years of age and older. Fifty three percent of the participants were women and the remaining 47% were men. Seventy six percent of the participants identified themselves as "single" and the majority (67%) was in their first year of study at the University of Manitoba. Ninety three percent of the sample identified themselves to be heterosexual. Homosexuality was underrepresented with 1% of the sample identifying with this orientation. Forty five percent of the sample was Caucasian and Asians comprised 31% of the sample. Almost half (48%) of the participants were from cities with populations greater than 301,000. Thirty two percent of participants were raised in middle class households with an annual income between $49-60,000. The majority (85%) was raised by both parents. Finally, 12% of the participants reported being sexually assaulted past the age of 14. These and other descriptive statistics are presented in Table 3 to follow.

Table 3. Descriptive statistics (frequency and percent frequency) for a selection of demographic variables

Variable	*f* (n=415)	*%f*
Sex		
Female	223	54
Male	192	46
Age		
18	110	27
19	96	23
20	67	16
21	39	9
22	27	7
>22	76	18
Year in program		
First	277	67
Second	74	18
Third	33	8
Fourth	18	4
Other	13	3
Race		
Aboriginal	16	4
African	28	7
Asian	130	31
Caucasian	188	45
Latino	7	2
Mixed Race	17	4
Other	29	7
Socioeconomic Status		
Less than $10,000	28	7
$10-39,000	85	21
$40-69,000	132	32
$70-99,000	75	18
$100,000 or more	83	20
Missing	12	3
Raised by		
Both parents	353	85
One parent	50	12
Neither parent (e.g., foster parent)	10	2
Missing	2	1
Sexual assault in adolescence/adulthood		
Yes	51	12
No	363	87
Missing	1	1
Sexuality		
Heterosexual	383	92
Lesbian/gay	3	1
Bisexual	15	4
Other	10	2
Missing	4	1
Relational Status		
Single	314	76
Married	30	7
Separated/divorced	4	16
Other	66	1
Missing	1	0

Legend
f: frequency
%f: percent frequency

Finally, means and standard deviations were calculated to illustrate the central tendency and spread of the continuous variables of the study. These statistics were presented in Table 1 on page 49.

Prevalence Statistics

Sixteen percent of the sample was classified as having been sexually abused prior to their 14th birthday. Rather hefty proportions of the sample were classified as having been physically abused (64%), neglected (44%) or the witness of abuse (54%) in childhood. Even more remarkable, psychological maltreatment was found in 93% of the sample. Clearly, using a cut-point of "1" on the CCMS to create the physical abuse, neglect, witnessing abuse and psychological maltreatment groups was insufficient. Fortunately, however, this procedure does appear to have produced a reasonable prevalence statistic for child sexual abuse. Hence the analysis continued as planned. These prevalence statistics for the various forms of childhood abuse are presented in Table 4 to follow**.**

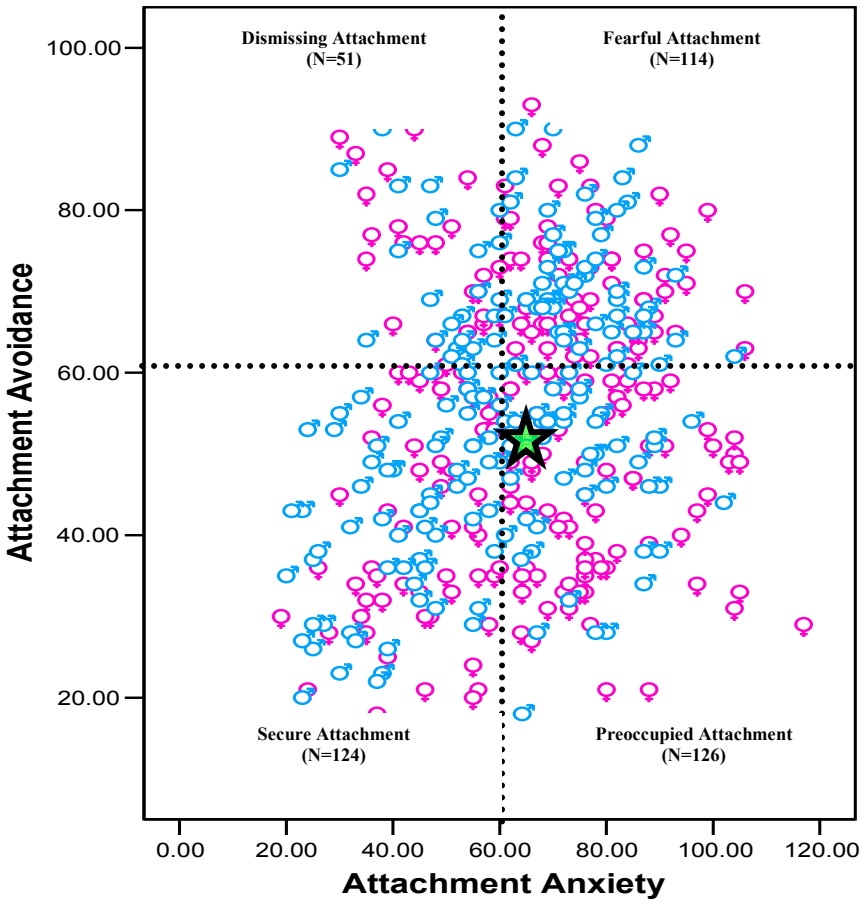
Table 4. Prevalence statistics (frequency and percent frequency) for five types of childhood abuse

Type of abuse *(CCMS)*	*f* (n=415)	%*f*
Child sexual abuse	68	16
Physical abuse	264	67
Neglect	181	44
Psychological abuse	386	93
Witnessing abuse	293	54
Total Abuse	394	94

Legend
n: Sample size
f : Frequency
%f: Percent Frequency
CCMS: Comprehensive Childhood Maltreatment Scale

Prior to calculating prevalence statistics for each of the four attachment styles the relationship between attachment anxiety and avoidance was explored by creating a scatter plot. This plot, sorted by sex, is presented in Figure 1.

Figure 1. Scatter plot of the relationship between attachment anxiety and avoidance sorted by sex



Legend
♀ Women
♂ Men
★ Average coordinates for the entire sample (X_{64}, Y_{55}).

Each point within the scatter plot of Figure 1 represents a unique set of coordinates specifying the precise *location* of each participant within 2-dimensional attachment space. Cutting this space in half at the mid-point of each dimension creates four quadrants, each of which corresponds to one of four attachment styles. For example, quadrant one represents the dismissing attachment and quadrant two represents the fearful attachment. The secure and preoccupied attachments are located in quadrants three and four respectively. Hence, the location of each of the coordinates represents the attachment style for each participant. The data points are sorted by sex and the star represents the mean coordinates for the sample. For example, the average participant is located at the coordinates of X_{64} and $Y_{55,}$ which falls within the preoccupied quadrant, and close to the boundary of the secure quadrant.

Reducing the scales of measurement from continuous to discrete also allows for the computation of prevalence statistics for each of the four attachment styles. These statistics are presented in Figure 2 to follow.

Figure 4. Prevalence statistics for each of the four attachment styles

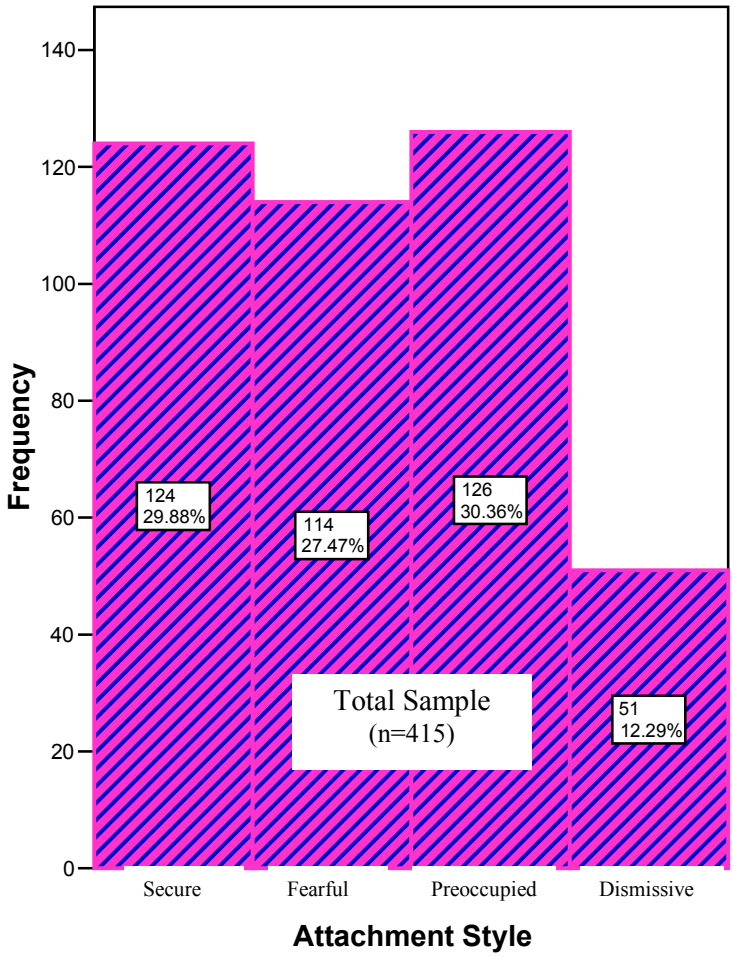


Figure 2 illustrates the distribution of attachment styles with 30% of the participants being classified as secure, 30% as preoccupied and 27% as fearful. The remaining 12% of the participants were classified as having a dismissing attachment. These prevalence statistics were recalculated for each sex and are presented in Figures 3 and 4 to follow.

Figure 3. Attachment style prevalence statistics for women participants

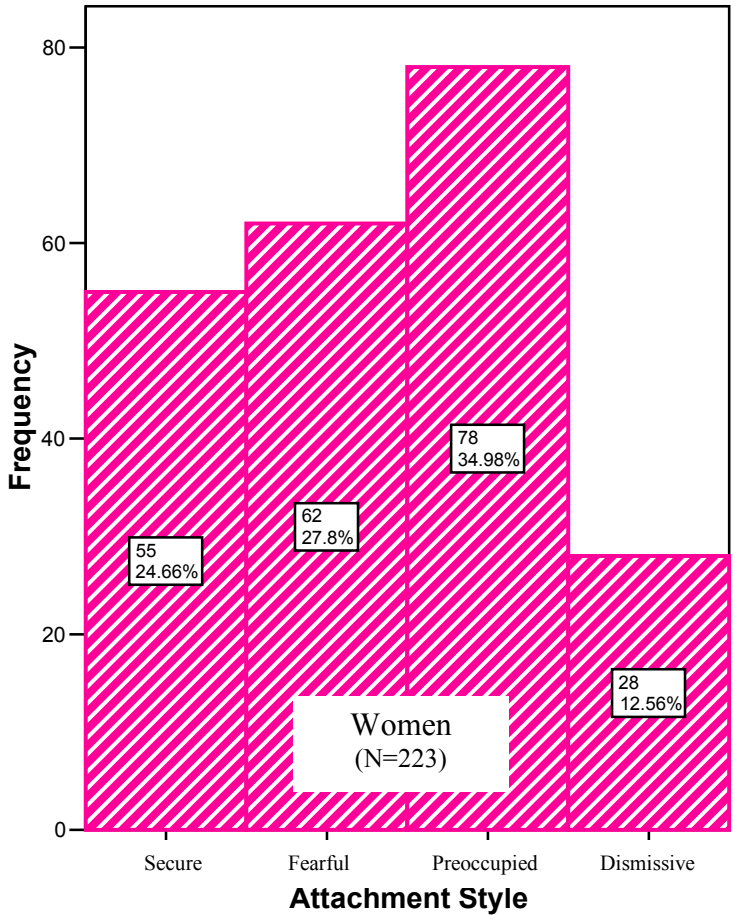
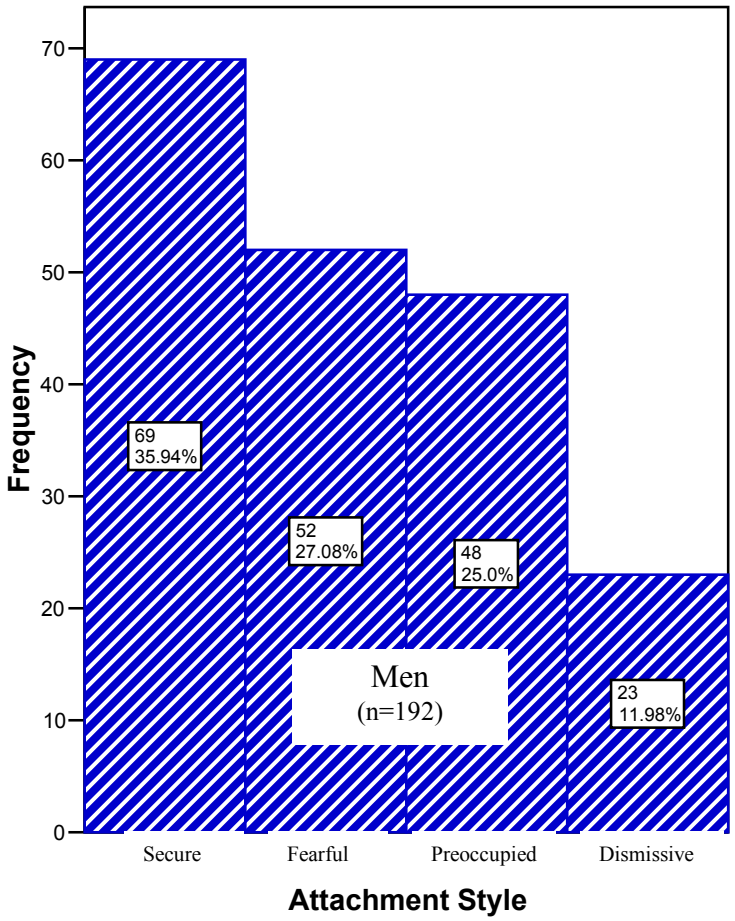


Figure 4. Attachment style prevalence statistics for men participants



Figures 3 and 4 indicate that relatively similar proportions of women and men participants were classified as having a dismissing attachment (13% and 12%). Similarly, roughly equal proportions of the women and men participants were classified as having a fearful attachment (28% and 27%). Finally, more women were classified as having a preoccupied attachment than men (35% versus 25%) and more men were classified as having a secure attachment than women (36% versus 25%).

Reconstituted Hypotheses

All hypotheses had to be modified to accommodate the previous transformation of the sexual abuse variable from continuous, which included a measure of severity, to discrete which omits the severity component. These reconstituted hypotheses are presented in point form below.

1) There would be a positive relationship between child sexual abuse and psychopathology in adulthood. That is, psychopathology would increase as a function of the presence child sexual abuse.
2) There would be a negative relationship between child sexual abuse and the "symptoms" of psychological wellbeing in adulthood. That is, there would be a decrease in psychological wellbeing as a function of the presence of child sexual abuse.
3) The relationship between child sexual abuse and adult psychopathology would be mediated by adult attachment anxiety.
4) The relationship between child sexual abuse and adult psychopathology would be mediated by adult attachment avoidance.

5) The relationship between child sexual abuse and adult psychological wellbeing would be mediated by adult attachment anxiety.
6) The relationship between child sexual abuse and adult psychological wellbeing would be mediated by adult attachment avoidance.

Bivariate Regression

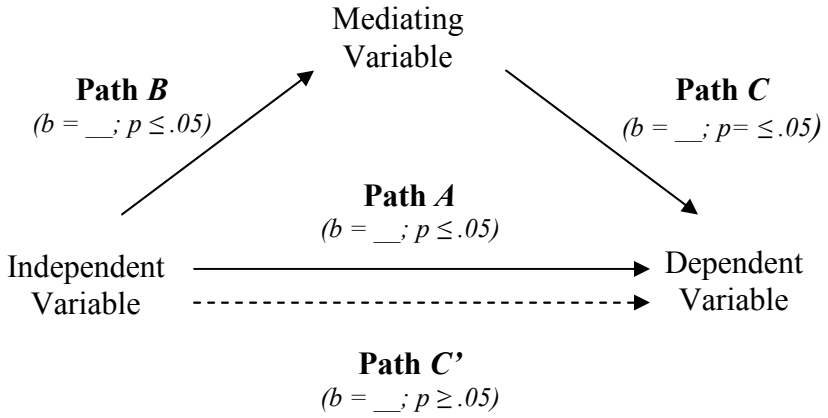
Bivariate point-biserial regressions were performed to test the first two hypotheses. Specifically, the dependent variables of psychopathology, psychological wellbeing, were separately regressed against the dichotomous child sexual abuse variable. The resulting beta-coefficients were then assessed for directionality and statistical significance.

Hypothesis One and Two. Supporting hypothesis one, a significant and positive relationship was found between child sexual abuse and adult psychopathology (b = 10.78; p = .00). Although an inverse relationship was found between child sexual abuse and adult psychological wellbeing (b = -6.62), it was not statistically significant (p =0.06). The analysis was re-run using self-esteem as the psychological wellbeing variable and a bonferoni correction was performed to prevent the inflation of the type-I error rate. Specifically, a total alpha-value of .05 was divided by the two bivariate regressions used to test the second hypothesis. Accordingly, a rounded p-value equal to or less than 0.03 was required for a relationship to be significant. Again, although child sexual abuse was inversely related to self-esteem (b = -1.43), the relationship was not significant (p =.05).

Mediation

A three-step modeling procedure described by Barron and Kenny (1986) was utilized to test the mediation hypotheses. This general procedure is illustrated by the path diagram presented in Figure 5.

Figure 5. Path diagram illustrating the general procedure used to test the mediation hypotheses



The mediation procedure begins by regressing the dependent variable against the independent variable ("path *A*" in Figure 5). To continue to the second step of the mediation procedure the resulting unstandardized beta coefficient must be significant and in the hypothesized direction.

Step two of the regression procedure creates "path *B*" of Figure 5. Specifically, the mediating variable is treated as a dependent variable and it is regressed against the independent variable. If the conditions of significance and directionality are again satisfied, the analysis continues to step three of the modeling procedure where a single multiple regression is performed.

Unlike step two, where the mediator is treated as a dependent variable, step three treats the mediator as a second independent variable. A multiple regression is then performed and the dependent variable is regressed simultaneously against both independent variables. This procedure creates path *C* of Figure 5 which represents the relationship between the mediating variable and the dependent variable when the effect of the independent variable is controlled. It also creates path *C'* which represents the relationship between the independent variable and the dependent variable when the effect of the mediating variable is controlled.

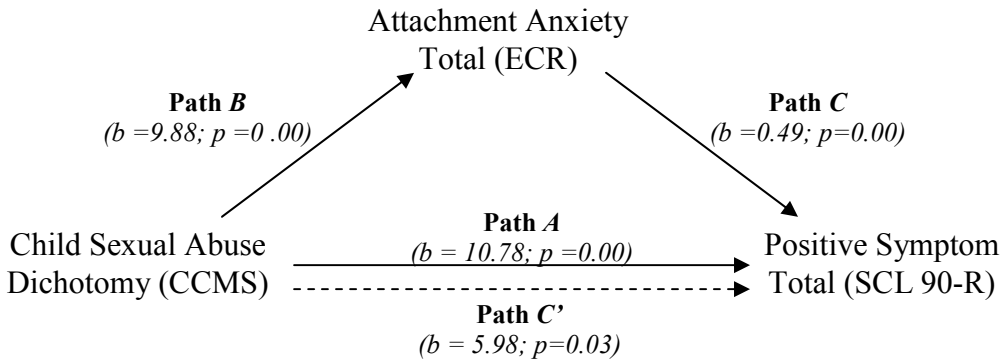
As with paths *A* and *B*, the beta coefficient associated with path *C* must be significant and in the hypothesized direction. If this third condition of mediation is satisfied, the final test of mediation is conducted by comparing path *C'* to path *A*. Specifically, complete mediation is demonstrated if the relationship between the dependent and independent variables is reduced to insignificance when the mediating variable is controlled (indicated by a *p*-value greater than .05). If this condition is not

satisfied but the beta coefficient associated with path *C'* is smaller than it is for path *A*, partial mediation is demonstrated.

Prior to conducting the mediation analysis a bonferonni correction was used to prevent the inflation of type-I error. Accordingly, a family level alpha value of 0.05 was assigned to each mediation analysis and this value was divided by the three steps in the modeling procedure. As such, for a relationship to be significant a rounded p-value of equal to or less than 0.02 was required.

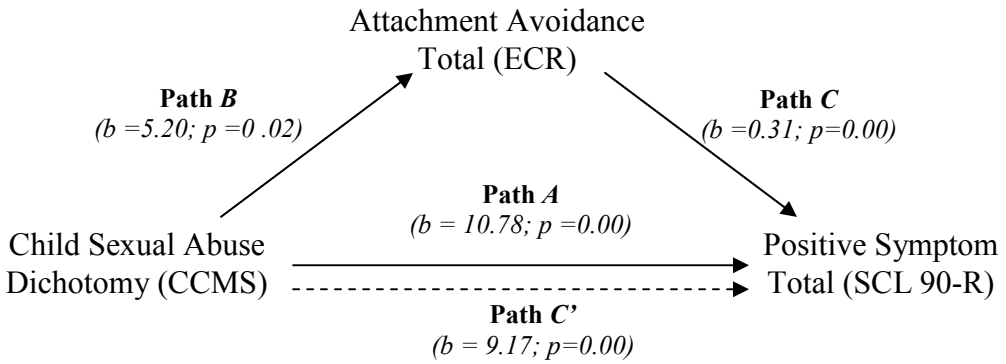
Hypothesis Three. As was previously presented, a positive and significant relationship was found between the child sexual abuse variable and psychopathology (path *A*: $b = 10.78$, $p = 0.00$). Thus, condition one of the mediation procedure was satisfied. Conditions two and three of the procedure were also satisfied. Specifically, a significant and positive relationship was found between child sexual abuse and adult attachment anxiety (path *B*: $b = 9.88$, $p = 0.00$) and between adult attachment anxiety and psychopathology, independent of child sexual abuse (path *C*: $b = 0.49$, $p = 0.00$). Finally, mediation was assessed by inspecting path *C'* ($b = 5.98$, $p = .03$). Specifically, controlling for the adult attachment anxiety variable not only resulted in a reduction in the size of the relationship between child sexual abuse and psychopathology ($\Delta b = 4.80$), the p-value was reduced to insignificance ($p = 0.03$). Hence, adult attachment anxiety completely mediated the relationship between child sexual abuse and adult psychopathology. These findings are presented in the path diagram presented in Figure 5.

Figure 6. Path analysis diagram indicating the relationships between child sexual abuse, adult psychopathology, and adult attachment anxiety



Hypothesis Four. All three conditions of mediation were again satisfied by the analysis of hypothesis four. In addition to demonstrating a significant and positive relationship between child sexual abuse and psychopathology (path *A*: $b = 10.78$, $p = 0.00$), a significant and positive relationship was found between child sexual abuse and adult attachment avoidance (path *B*: $b = 5.20$, $p = 0.02$). Finally, adult attachment avoidance was found to significantly predict psychopathology independent of child sexual abuse (path *C:* $b = .31$, $p = 0.00$). To assess mediation path *C'* ($b = 9.17$, $p = 0.00$) was compared to path *A*. Although controlling attachment avoidance did result in a reduction in the size of the relationship between child sexual abuse and psychopathology ($\Delta b = 1.61$), the relationship continued to be significant ($p = .00$). Hence, adult attachment avoidance *partially* mediated the relationship between child sexual abuse and adult psychopathology. These findings are presented in Figure 7.

Figure 7. Path analysis diagram indicating the relationships between child sexual abuse, adult psychopathology, and adult attachment avoidance



Hypotheses Five and Six. Child sexual abuse was not significantly related to either of the psychological wellbeing variables. Hence the first condition of mediation was not satisfied and the analyses were concluded.

CHAPTER FIVE

POST-HOC ANALYSIS

Given a medium effect was predicted for the relationship between child sexual abuse and both wellbeing and psychopathology, it is curious that significant relationships were not found between child sexual abuse and psychological wellbeing. Additionally, further scrutiny of the data reveals that the relationship between child sexual abuse and adult psychopathology is very small. For example, child sexual abuse accounts for only 3% of the variability of the psychopathology variable *($r = 0.18$; $_{Adj}R^2 = 0.03$)*. These statistics, along with beta and significance values are provided in Table 5 to follow. Although not significant, the same statistics are presented for the relationship between child sexual abuse and both the psychological wellbeing and self-esteem variables.

Table 5. Bivariate regression statistics assessing the relationships between child sexual abuse and the various mental health variables

Model	Variable (Scale)	B	p	r	$_{Adj}R^2$
1	DV: Psychopathology (SCL-90R) IV: Child sexual abuse (CCMS)	10.78	0.00	0.18	0.03
2	DV: Psychological wellbeing (SPWB) IV: Child sexual abuse (CCMS)	-6.62	0.06	0.09	0.01
3	DV: Self-Esteem (RSE) IV: Child sexual abuse (CCMS)	-1.43	0.05	0.10	0.01

Legend
B: beta-weight
p: level of significance
r: correlation coefficient
$_{Adj}R^2$: Adjusted effect size
DV: Dependent variable
IV: Independent variable

Clearly, the relationships presented in Table 5 are not large. Indeed, according to Cohen (1988; 1992) correlations ranging in size from 0.10 to .23 are small. Correlations between 0.24-.36 are medium in size and large correlations are 0.37 or greater. Hence, all of the relationships demonstrated within Table 5 are quite small. Additionally, although the relationships between child sexual abuse and the wellbeing variables were not significant, child sexual abuse accounted for a comparable amount of the variation in the wellbeing variables as it did psychopathology (1% versus 3%).

One potential source of this apparent error may be that the child sexual abuse group was not exposed to severe enough forms of child sexual abuse and hence the full impact of child sexual abuse on adult mental health may have been muted. To explore this possibility sexual abuse severity was controlled by utilizing more stringent definitions of child sexual abuse.

Accordingly, the child sexual abuse variable was constrained to include only those participants exposed to intrafamilial sexual abuse (e.g., incest) and the bivariate regressions were then rerun. This procedure resulted in a reduction of the size of the child sexual abuse group from 68 to 17 and minimally increased the size of the three ${}_{Adj}R^2$ values. For example, child sexual abuse now accounts for 4% (${}_{Adj}R^2 = 0.04$) of the psychopathology variable, 3% (${}_{Adj}R^2 = 0.03$) of the psychological wellbeing variable and 2% (${}_{Adj}R^2{}_3 = 0.02$) of the self-esteem variable. These ${}_{Adj}R^2$ values along with the associated unstandardized beta values and p-values are presented in Table 6 to follow.

Table 6. Bivariate statistics for the relationship between child sexual abuse and the mental health variables when the definition of child sexual abuse is constrained

Criterion(n)	Model	Variable (Scale)	B	p	$_{Adj}R^2$
Incest only(17)	1	DV: Psychopathology (SCL-90R) IV: Child sexual abuse (CCMS)	19.96	0.00	0.04
	2	DV: Psychological wellbeing (SPWB) IV: Child sexual abuse (CCMS)	-19.78	0.00	0.03
	3	DV: Self-Esteem (RSE) IV: Child sexual abuse (CCMS)	-3.68	0.00	0.02
CCMS ≥ 5(25)	1	DV: Psychopathology (SCL-90R) IV: Child sexual abuse (CCMS)	16.02	0.01	0.03
	2	DV: Psychological wellbeing (SPWB) IV: Child sexual abuse (CCMS)	-2.02	0.71	0.00
	3	DV: Self-Esteem (RSE) IV: Child sexual abuse (CCMS)	-1.66	0.14	0.01
CCMS ≥ 10(22)	1	DV: Psychopathology (SCL-90R) IV: Child sexual abuse (CCMS)	14.92	0.01	0.02
	2	DV: Psychological wellbeing (SPWB) IV: Child sexual abuse (CCMS)	-4.77	0.94	0.00
	3	DV: Self-Esteem (RSE) IV: Child sexual abuse (CCMS)	-2.49	0.07	0.01

Legend
n: sample size
B: beta-weight
p: level of significance
$_{Adj}R^2$: Adjusted effect size
DV: Dependent variable
IV: Independent variable
SCL-90R: Symptom checklist-90 revised
CCMS: Comprehensive childhood maltreatment scale
SPWB: Scales of Psychological wellbeing
RSE: Rosenberg self-esteem scale

Given this procedure resulted in only a minimal increase in the size of the effect between child sexual abuse and the complete factors of mental health, additional constraining procedures were employed by using more stringent cutpoints for sexual abuse. Using a cutpoint of five resulted in a reduction in the size of the child sexual abuse sample from 68 to 25 and it failed to increase any of the ${}_{Adj}R^2$ values. For example, the child sexual abuse variable accounted for none of the variation in the psychological wellbeing variable (${}_{Adj}R^2$=0.00) and only 1% (${}_{Adj}R^2$= 0.01) and 3% (${}_{Adj}R^2$= 0.03) of the variation in the self-esteem and psychopathology variables respectively. These statistics were presented in Table 6 on the previous page.

The size of the child sexual abuse sample was further reduced from 68 to 22 when the abuse variable was constrained using a cutpoint of 10. This procedure also failed to increase the size of the relationship between the dependent and independent variables. For example, child sexual abuse did not account for any of the variation of the psychological wellbeing variable (${}_{Adj}R^2$= 0.00), and it only accounted for 1% (${}_{Adj}R^2$= 0.01) and 2% (${}_{Adj}R^2$= 0.02) of the variation of self-esteem and psychopathology variables respectively. These statistics were also presented in Table 6.

Given the size of the relationships between child sexual abuse and the factors of complete mental health were not substantially increased by the constraining procedures, the data was explored to assess why substantial relationships between the dependent and independent variables were not found. The sample was divided according to the presence of child sexual abuse, using the original cutpoint, and the two groups were compared on a variety of demographic variables. These resulting statistics are provided in Table 7 with the mode indicated by a bolded font.

Table 7. Frequency and percent frequency statistics for the child sexual abuse group and the no abuse group on a number of demographic variables, as well as attachment style

Variable	Child Sexual Abuse (n = 68)		No Abuse (n = 347)	
	f	*%f*	*f*	*%f*
Age				
18	17	**25**	93	**27**
19	12	18	84	**24**
20	11	16	56	16
21	4	6	35	10
22	6	9	21	6
>22	18	**27**	58	17
Marital Status				
Single	50	**74**	264	**76**
Married	8	12	22	6
Separated	2	3	2	.60
Other	8	12	58	17
Missing	0	0	1	.30
Year in Program				
1	48	**71**	229	**66**
2	10	15	64	18
3	2	3	31	9
4	5	7	13	4
Other	3	4	10	3
Living Arrangements				
Parents	29	**43**	203	**59**
Alone	11	16	21	6
Friends/family	18	27	68	20
Spouse/partner	5	7	27	8
Residence	5	7	28	8
Family of origin income				
<10,000	12	18	16	5
10-39,000	12	18	73	21
40-69,000	26	**39**	106	**31**
70-99,000	11	16	64	18
>100,000	6	9	77	22
Missing	1	2	11	3
Race				
Aboriginal	6	9	10	3
African	8	12	20	6
Asian	24	**35**	106	31
Caucasian	26	**38**	162	**47**
Latino	2	3	5	1
Mixed	1	2	16	5
Other	1	2	28	8

Legend
n: sample size
f: frequency
%f: percent frequency

A review of the statistics in Table 7 indicates that the two groups are similar in terms of modal response for all variables except the age and race variables. With respect to age, both groups are bimodally distributed, however, the majority of participants within the child sexual abuse group are either 18 years old (25%), or older than 22 (27%) and the majority of participants within the no-abuse group are either 18 (27%) or 19 years of age (24%). This difference is slight however, and hence age is not likely a source of the error for this project.

Thirty five percent of the child sexual abuse group was Asian and 38% was Caucasian. Although a large portion of the no-abuse group also identified as Asian (31%), almost half (47%) of the group was Caucasian (47%). This difference in the distribution of race is not large, however it may have confounded the studies findings. To investigate this possibility further the sample was divided according to race and means and standard deviations were computed for both groups on the child sexual abuse and outcome variables. These statistics are presented in Table 8 to follow.

Table 8. Mean and standard deviation statistics for the child sexual abuse dichotomy variable and the various outcome variables, divided by race

Variable	Non-Asian (n = 285)		Asian (n = 130)	
	Mean	SD	Mean	SD
Attachment Avoidance (ECR)	54.33	18.01	57.61	15.34
Attachment Anxiety (ECR)	62.56	20.02	67.88	17.28
CSA Dichotomy	0.15	0.36	0.18	0.39
Psychological wellbeing (SPWB total)	208.06	26.43	197.40	25.57
Psychopathology (PST Index)	33.68	20.75	40.66	25.52
Self Esteem (RSE)	31.92	5.41	29.10	5.02

Legend
SD: Standard deviation
n: Sample size
ECR: Experiences in close relationships scale
CSA: child sexual abuse
SPWB: Scales of psychological wellbeing
PST: Positive symptom total
RSE: Rosenberg Self-Esteem scale

A review of the statistics in Table 8 indicates that although there are differences between the Asian group and the non-Asian group on the selected variables, these differences are quite small. Hence, race too may be ruled-out as a confound variable.

Given social support is a buffer against mental illness, an overabundance of social support within the child sexual abuse group may have confounded the analysis. To investigate this possibility the child sexual abuse group and non-abuse group were compared on the social support variable. Means and standard deviations are provided for both groups in Table 9 to come.

Table 9. Means and standard deviations for both the child sexual abuse group and the no abuse group on the social support variable

Variable	Child Sexual Abuse (n = 68)		No-Abuse (n = 347)	
	Mean	SD	Mean	SD
Social Support (MSPSS)				
Family	20.37	6.22	22.08	5.43
Friends	21.60	5.02	21.93	4.92
Significant other	22.51	5.09	22.30	5.45

Legend
n: sample size
SD: standard deviation
MSPSS: Multidimensional scale of perceived social support

According to the statistics presented in Table 9, the differences between the child sexual abuse group and the no abuse group on the family, friend and significant other social support variables are negligible. Hence, social support is ruled-out as a source of error for this project.

The data were further scrutinized to see whether the distributions of attachment style for this study are representative of either the general population as a whole, or of the child sexual abuse population. Specifically, the prevalence statistics for each attachment style was visually compared to normative statistics for the entire population (Bartholomew and Horowitz, 1991) and for the child sexual abuse population (Alexander, 1993; Alexander, 1998). These statistics are provided in Table 10 to follow.

Table 10. Percent frequency statistics for each of the attachment styles according to sample.

Sample	Variable	%*f*
Whole sample (n = 415)	Attachment	
	Secure	30
	Fearful	27
	Preoccupied	30
	Dismissing	12
No-abuse group (n =347)	Attachment	
	Secure	32
	Fearful	25
	Preoccupied	30
	Dismissing	12
Child sexual abuse group (n = 68)	Attachment	
	Secure	18
	Fearful	38
	Preoccupied	31
	Dismissing	13
Normative Group 1 (n = 617) (Boatwright, Lopez, Sauer, VanDerWege & Huber, 2011)	Attachment	
	Secure	55
	Fearful	16
	Preoccupied	9
	Dismissing	20
Normative Group 2 (n = 112) (Alexander, 1993)	Attachment	
	Secure	14
	Fearful	58
	Preoccupied	13
	Dismissing	16
Normative Group 3 (n =92) (Alexander, 1998)	Attachment	
	Secure	9
	Fearful	60
	Preoccupied	21
	Dismissing	11

Legend
n: sample size
%*f:* percent frequency

A review of the prevalence statistics reveals that this study's whole sample deviated considerably from Boatwright, Lopez, Sauer, VanDerWege & Huber's (2011) normative sample of 617 workers in a retail organization. For example, where 55% of participants of the normative sample were classified as having a secure attachment, only 30% of this sample was classified as the same. Twenty seven percent of the whole sample was classified as having a fearful attachment. This is contrasted with 16% of the Boatrwight et al's sample. Similarly, whereas 30% of this sample had a preoccupied attachment, only 9% of the normative sample was given this classification. Finally, relatively fewer participants in this sample were classified with a dismissing attachment style, relative to the normative group (e.g., 12% versus 20% respectively).

Distributional differences are also shown between the no-abuse group of this study and the normative sample. For example, where 55% of participants of the Boatwright et al's sample were classified as having a secure attachment, only 32% of the no-abuse group was securely attached. Twenty five percent of the no-abuse group was classified as having a fearful attachment and this is contrasted with 16% of the normative sample. Similarly, whereas 30% of the no-abuse group had a preoccupied attachment, only 9% of the former sample was given a classification of the same. Finally, minor differences were found between this sample and the normative sample in the classification of the dismissing attachment (e.g., 12% versus 20%).

Finally, differences were found between the child sexual abuse group and the two normative samples of child sexual abuse provided by Alexander (1993; 1998). For example, a greater proportion of the child sexual abuse group was securely attached relative to the comparison samples, although the differences are small (e.g., 18% versus

14% and 9%). More substantially, fewer participants within the child sexual abuse group are classified as being fearfully attached than would be expected based on the normative samples (e.g., 38% versus 58% and 60%). Minor differences are found between the child sexual abuse group and the two normative samples on the classification of the preoccupied attachment style (e.g., 30% versus 13% and 21%). Finally, the child sexual abuse group is fairly similar to the normative samples with respect to the dismissing attachment style (13% versus 16% and 11%).

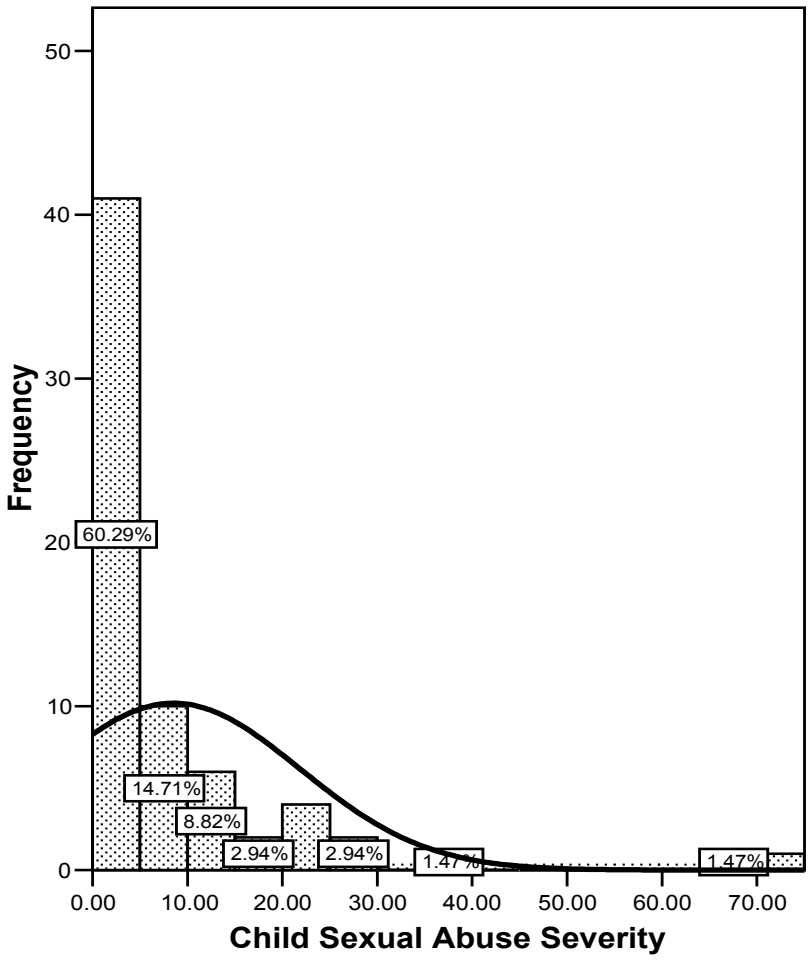
A final possibility that was explored to account for why this study failed to find substantial relationships between the independent and dependent variables is measurement error. Because the $_{Adj}R^2$ values for all three relationships between child sexual abuse and the dependent variables were small and roughly equal, if measurement error is an issue it most likely occurred with the measurement of child sexual abuse and not with the measurement of the dependent variables. Additionally, although the reliability analysis revealed that the CCMS is internally consistent, reliability does not necessitate validity. Hence, the *accuracy* of measurement was explored further.

Excluding the prevalence of child sexual abuse, the CCMS yielded prevalence statistics ranging from a low of 44% for childhood neglect to a high of 93% for psychological maltreatment. Additionally, ninety four percent of the sample reported experiencing at least one of the five types of childhood abuse. Given childhood maltreatment is thought to be the most prevalent form of abuse with one third of the American population experiencing minimal forms of maltreatment, and 10%-15% experiencing the most severe and chronic forms of maltreatment (Hart, Brassard, Binggeli, & Davidson, 2002) it is almost certain that using a cut-point of "1" on the

CCMS resulted in an overestimation of the prevalence of childhood abuse. That is, the CCMS appears to have questionable *specificity*, or the ability to correctly identify people who have *not* been abused. Alternatively stated, the CCMS appears to have produced a large number of *false positive* errors, incorrectly classifying people who have not been abused as having been abused.

The 16% child sexual abuse prevalence statistic generated by the CCMS appears to be quite reasonable when compared to what was expected (e.g., between 1-36%). However, given the whole of the CCMS appears to lack sufficient specificity, it is likely the child sexual abuse scale also produced a substantial number of false positive errors. To investigate this possibility further, frequency statistics were computed for each of the severity attributes of the child sexual abuse subscale. The rationale behind this analysis was that if the CCMS did produce a substantial number of false positive errors, an inordinate number of the child sexual abuse survivors would score in the very low range on the total severity score. These frequency statistics are presented as a histogram in Figure 8. A normal curve has been plotted to demonstrate what the distribution should look like if it were normally distributed.

Figure 8. Histogram of child sexual abuse severity scores plotted against a normal curve.



As Figure 8 shows approximately 75% of the child sexual abuse sample scored at or below a score of 10 on the CCMS child sexual abuse scale. Sixty three percent of the sample scored at or below a scale score of 5. Finally, 41% of the sample scored at or below a score of 2. Not only does this distribution suggest that the CCMS was an inadequate measure of the true variability of sexual abuse severity, a large proportion of the participants were likely incorrectly identified as child sexual abuse survivors. This of course does not mean that all of the low scoring participants are misclassified survivors. However, it is more than likely that a large proportion of them were misclassified. Hence, and as with the other CCMS scales, the child sexual abuse scale appears to have highly questionable specificity.

Given a substantial portion of the child sexual abuse group are likely misclassified non-survivors, the prevalence of child sexual abuse is actually lower than the reported 16%. Although the exact false positive error rate is unknown, the greater the error rate is, the more likely the child sexual abuse subscale of the CCMS also lacked sufficient *sensitivity,* or the ability to correctly identify survivors of child sexual abuse. That is, if the false positive errors could be accounted for, the prevalence of child sexual abuse for this sample would be much lower than 16% and the lower the prevalence statistic is, the more likely it is an *under representation* of the actual child sexual abuse prevalence rate. To explore this possibility further the prevalence of child sexual abuse was recalculated based on sex. These figures are presented in Table 11.

Table 11. Frequency, percent frequency and prevalence of child sexual abuse according to sex.

	Child Sexual Abuse Group (n = 68)		
Sex	*f*	*%f*	Prevalence (%)
Women	40	59	10
Men	28	41	7

Legend
n: sample size
f: frequency
%*f:* percent frequency

At face value, the prevalence statistic for men child sexual abuse survivors appears to be quite reasonable. For example, where a 1-15% prevalence statistic was expected based on previous research, 7% of the sample were identified as men child sexual abuse survivors. Nevertheless, if the false positive errors could be accounted for this sex-specific prevalence statistic would likely be much lower than 7%. Hence, it remains possible that the child sexual abuse subscale of the CCMS lacked sufficient sensitivity to accurately identify men child sexual abuse survivors.

Although it is uncertain whether the CCMS lacked sufficient sensitivity to identify men survivors of child sexual abuse, it is quite likely that it did lack sufficient sensitivity to identify women child sexual abuse survivors. For example, where a 15-36% prevalence statistic was expected based on past research, Table 11 shows that only 10% of the sample was identified as women child sexual abuse survivors. Taken together, the child sexual abuse scale of the CCMS appears to have made a substantial number of false negative errors, incorrectly identifying actual survivors of child sexual abuse as non-survivors. Whether these errors are sex-specific, limited to women alone, remains to be seen.

CHAPTER SIX

EXPLORATORY ANALYSIS

Although this study failed to satisfy its primary objective of clarifying the attachment-mediation literature, an attempt was made to update the attachment research base by exploring the relationship between adult attachment and complete mental health. To begin, a correlation matrix was created for the two attachment variables and all three mental health variables. Prior to analyzing the data, a bonferoni correction was utilized to control for type-I error by distributing a total 0.05 alpha value across 10 correlations. This resulted in a rounded alpha value equal to or less than 0.01 being required for a correlation to be significant. The matrix of correlations (*r)* and corresponding *p*-values are presented in Table 12.

Table 12. Correlation matrix for the attachment anxiety, attachment avoidance, psychological wellbeing, psychopathology and self-esteem variables

Variable	Wellbeing Total	PST Index	Self-Esteem Total	Attachment Anxiety	Attachment Avoidance
Wellbeing Total					
Pearson Correlation (*r)*	1	-	-	-	-
p-value (2-tailed)	NA				
PST Index					
Pearson Correlation (*r)*	-.38	1	-	-	-
p-value (2-tailed)	.00	NA			
Self-Esteem Total					
Pearson Correlation (*r)*	.64	-.51	1	-	-
p-value (2-tailed)	.00	.00	NA		
Attachment Anxiety					
Pearson Correlation (*r)*	-.41	.44	-.43	1	-
p -value (2-tailed)	.00	.00	.00	NA	
Attachment Avoidance					
Pearson Correlation (*r)*	-.33	.25	-.27	.22	1
p -value (2-tailed)	.00	.00	.00	.00	NA

Legend
PST: Positive symptom total
r: correlation
p-value: level of significant
NA: not applicable

The correlations in Table 12 support a number of assumptions made by this project. For example, a significant and positive relationship was found between the attachment anxiety and attachment avoidance variables (r =.22; p =.00). Hence, they are related constructs. However, because these variables are not perfectly correlated they are also separate constructs. Similarly, a significant and inverse relationship was found between adult psychopathology and both adult psychological wellbeing (r =-.38, p =.00) and self-esteem (r = -.51, p =.00). Hence, psychopathology is related to but different from psychological wellbeing and self-esteem. Finally, the strongest relationship within Table 12 is between self-esteem and psychological wellbeing (r = .64, p =.00), indicating that self-esteem is an important factor of psychological wellbeing.

These results also support a fundamental assumption of the mediation hypotheses. Specifically, for adult attachment to mediate the relationship between child sexual abuse and complete mental health a statistically significant relationship must exist between adult attachment and complete mental health. Accordingly, Table 12 indicates that attachment anxiety is significantly related to psychopathology (r =.44, p =.00), and both psychological wellbeing (r = -.43, p = .00) and self-esteem (r =-.41, p =.00). Statistically significant relationships are also found between the adult attachment avoidance and complete mental health variables, however, these relationships are somewhat smaller than they are for attachment anxiety. For example, the correlations between attachment avoidance and psychopathology, psychological wellbeing and self-esteem are .25 (p =.00), -.33 (p=.00) and -.27 (p =.00) respectively. Recalling Cohen's classifications (1988; 1992), all attachment-outcome correlations are large, with the exception of the attachment avoidance correlations, which are medium in size.

Next, the three mental health variables were simultaneously regressed against both attachment variables. This was done to assess the size of the effect of both attachment variables on the mental health variables. Additionally, this multiple regression procedure allowed for the assessment of the effect of each of the attachment variables on the mental health variables, while simultaneously controlling for the effect of the other attachment variable.

This procedure generated three models, each of which is represented by two unstandardized beta coefficients, and two *p*-values. A bonferoni correction was again utilized to control for type-I error by distributing a total 0.05 alpha value across the six significance tests. Hence, for an attachment variable to significantly predict a mental health variable a rounded *p*-value equal to or less than 0.01 was required. These statistics, along with multiple correlations (*R*), and a statistic of effect size ($_{Adj}R^2$) are presented in Table 13.

Table 13. Multiple regression statistics for the relationships between both the attachment anxiety and avoidance variables and the mental health variables

Model	Variables	*B*	*p*	*R*	$_{Adj}R^2$
1	DV: Psychopathology (PST; SCL-90-R)			.47	.21
	IV_1: Attachment anxiety (ECR)	.42	.00		
	IV_2: Attachment avoidance (ECR)	.22	.00		
2	DV: Psychological wellbeing (SPWB total)			.48	.23
	IV_1: Attachment anxiety (ECR)	-.49	.00		
	IV_2: Attachment avoidance (ECR)	-.39	.00		
3	DV: Self-esteem (RSE total)			.47	.22
	IV_1: Attachment anxiety (ECR)	-.11	.00		
	IV_2: Attachment avoidance (ECR)	-.06	.00		

Legend
B: Beta-weight
p: Level of significance
R: Multiple correlation
$AdjR^2$: Adjusted effect size
DV: dependent variable
IV: Independent variable
PST: Positive symptom total
SCL-90: Symptom checklist-90
ECR: Experiences in close relationship scale
RSE: Rosenberg self-esteem scale

Several observations can be made from Table 13. First, the unstandardized beta coefficients for the relationships between the attachment anxiety and avoidance variables and the psychopathology variable are significant and in the appropriate direction ($b_{anxiety}$=.42, p = .00; $b_{avoidance}$=.22, p= .00). This is also true for the relationship between the attachment anxiety and avoidance variables and both the psychological wellbeing ($b_{anxiety}$=-.49, p = .00; $b_{avoidance}$=-.39, p = .00) and self-esteem variables ($b_{anxiety}$=-.11, p=.00; $b_{avoidance}$=-.061, p = .00).

All three multiple correlations presented in Table 13 are also quite large, ranging from R=.47 for the relationships between the attachment variables and both the self-esteem and psychopathology variables, to R= .48 for the relationship between the attachment and psychological wellbeing variable. Additionally, Table 13 indicates that attachment accounts for a total of 22% of the variation of the psychopathology variable (e.g., $_{Adj}R^2$= .22), 23% of the psychological wellbeing variable ($_{Adj}R^2$=.23) and 22% of the self-esteem variable ($_{Adj}R^2$=.22). The average of these proportions indicates that 22% of the variation of complete mental health outcome is accounted for by adult attachment.

To bolster these findings the analysis was re-run while controlling for a variety of potential confounding factors. The control variables entered into the modeling procedure were variables thought to potentially influence complete mental health in adulthood. They were socioeconomic status in childhood (income) and social isolation of the family of origin variables. The occurrence of sexual assault in adolescence and/or adulthood variable, and the current social support from family, friends and significant other variables were also selected as possibly important controls. The results of this analysis are presented in Table 14.

Table 14. Multiple regression statistics for the relationships between both attachment variables and the mental health variables while controlling for several control variables.

Model	Variables	*b*	*p*	*R*	$_{Adj}R^2$
1	DV: Psychopathology (PST; SCL-90-R)			.49	.23
	IV_1: Attachment anxiety (ECR)	.42	.00		
	IV_2: Attachment avoidance (ECR)	.21	.00		
	CV_1: Family income	-.51	.55		
	CV_2: Family social isolation	2.56	.03		
	CV_3: Sexual assault	1.18	.70		
	CV_4: Family social support (MSPSS)	-.50	.02		
	CV_5: Friend social support (MSPSS)	.01	.99		
	CV_6: Significant other social support (MSPSS)	.15	.55		
2	DV: Psychological wellbeing (SPWB total)			.59	.33
	IV_1: Attachment anxiety (ECR)	-.49	.01		
	IV_2: Attachment avoidance (ECR)	-.44	.00		
	CV_1: Family income	-1.40	.13		
	CV_2: Family social isolation	-2.77	.03		
	CV_3: Sexual assault	5.44	.11		
	CV_4: Family social support (MSPSS)	.54	.02		
	CV_5: Friend social support (MSPSS)	1.0	.00		
	CV_6: Significant other social support (MSPSS)	.63	.02		
3	DV: Self-esteem (RSE total)			.50	.24
	IV_1: Attachment anxiety (ECR)	-.20	.00		
	IV_2: Attachment avoidance (ECR)	-.10	.00		
	CV_1: Family income	.10	.64		
	CV_2: Family social isolation	-.08	.79		
	CV_3: Sexual assault	-.03	.97		
	CV_4: Family social support (MSPSS)	.11	.03		
	CV_5: Friend social support (MSPSS)	.18	.00		
	CV_6: Significant other social support (MSPSS)	-.06	.34		

Legend
B: Beta-weight
p: Level of significance
R: Multiple correlation
AdjR^2: Adjusted effect size
DV: Dependent variable
IV: Independent variable
CV: Control variable
PST: Positive symptom total
SCL-90: Symptom checklist-90
ECR: Experiences in close relationship scale
RSE: Rosenberg self-esteem scale
MSPSS: Multidimensional scales of perceived social support

The first observation made from Table 14 is that the addition of the third variables into the analysis did not reduce any of the beta coefficients for the attachment variables to a level of non-significance. Hence, the relationship between the attachment variables and the complete mental health variables does not appear to be spurious, or due to the effects of the identified third variables. The relationships could, of course, be accounted for by the effects of the one or more unidentified third variables, however.

Comparing the multiple correlations from Table 13 and 14 also reveals that adding the third variables into the models substantially increases the size of only one of the three multiple correlations (e.g., model 2). Specifically, the multiple correlation between the attachment and psychological wellbeing variables increases from.48 to .59 when the third variables are added into the model. Adding these variables into the other regressions increases the multiple correlation from .47 to .49 for model one and from .47 to .50 for model three. This indicates that the vast majority of the variation in both the self-esteem and the psychopathology variables is accounted for by the attachment variables, and not the third variables.

Table 14 also shows that the family social support variable is significantly related to psychopathology (e.g., b = -.05, p = .02), psychological wellbeing (b =.54, p = .02) and self-esteem (b = .11, p = .03). The friend social support variable is a significant predictor of both the psychological wellbeing (b = 1.0, p = .00) and self-esteem variables (b = 1.8, p = .00), but not the psychopathology variable (b = .01, p = .99). Finally, the significant other social support variable significantly predicts the psychological wellbeing variable (b = .63, p = .02) but not the psychopathology (b = .15, p = .55) and self-esteem variables (b = -.06, p = .34).

Also indicated in Table 14, the income of the family of origin is not significantly related to the psychopathology (b = -.51, p = .55), psychological wellbeing (b =-1.40, p = .13) or self-esteem (b = .10, p = .64) variables. Similarly, the sexual assault variable is not significantly related to the psychopathology (b = 1.18, p = .70), psychological wellbeing b = 5.44, p = .11), or self-esteem variables (b = -.03, p = .97). Lastly, the social isolation of the family of origin variable is significantly related to both the psychopathology (b = 2.56, p = .03) and psychological wellbeing (b = -2.77, p = .03) variables, but not the self-esteem variable (b = -.08, p = .79).

CHAPTER SEVEN

DISCUSSION

The first objective of this project was to clarify the current research ambiguities by using a precise and maximally comprehensive definition of attachment. That is, the foremost goal of this project was to generate "user-friendly" mediation findings that could be easily translated into an application for the treatment of child sexual abuse. To achieve this goal, attachment was measured dimensionally, rather than discretely. This is because dimensional measurement is more precise, and categorical conclusions can always be deduced from dimensional findings. Additionally, the Brennan, Clark, and Shaver (1998) model of attachment was selected because it is associated with a measure that has excellent psychometric properties.

The secondary goal of this project was to offset the "negative skew" of the child sexual abuse research base by providing a holistic or complete definition of mental health. The general trend within this research area, and indeed within clinical psychology as a whole, is to define mental health as the absence of psychopathology, without consideration for "positive" factors of mental health such as psychological wellbeing and self-esteem. Unfortunately, this not only results in an incomplete understanding of mental health, it disregards the World Health Organization's definition of health established over half a century ago, and it promotes incomplete models of psychotherapy that are focused strictly on symptom reduction.

Reflecting these two goals, this study hypothesized that both adult attachment anxiety and attachment avoidance would mediate the relationship between child sexual abuse and complete mental health in adulthood. More specifically, both dimensions of

attachment were expected to mediate the positive relationship between child sexual abuse and psychopathology *and* the negative relationship between child sexual abuse and psychological wellbeing (including self-esteem).

Review and Interpretation of Primary Findings

Child sexual abuse was found to be related to adult psychopathology. Unfortunately, however, the negative relationships found between child sexual abuse and both adult psychological wellbeing and self-esteem were not substantial. Additionally, and as was hypothesized, the relationship between child sexual abuse and adult psychopathology was found to be completely mediated by adult attachment anxiety and partially mediated by adult attachment avoidance.

Although the statistical analyses were promising, the relationship between child sexual abuse and psychopathology was so small that the clinical utility of these findings are minimal.

It is curious that substantial relationships were not found between child sexual abuse and the factors of complete mental health, including self-esteem. Although there are very few "positive" projects within the child sexual abuse literature base, the research does suggest that child sexual abuse can have an often profound negative impact on mental health. As such, a substantial review was undertaken to explore why child sexual abuse was not meaningfully related to complete mental health.

First it was hypothesized that the definition of child sexual abuse was too liberal, or overly inclusive. If so, this may have confused the relationship between the independent and dependent variables of study. To explore this possibility further, more stringent definitions of child sexual abuse were employed. Unfortunately, constraining

the definition of child sexual abuse did not increase the size of the relationships between child sexual abuse and the constructs of complete mental health.

Another possible reason why this study failed to find substantial support for the main effect hypotheses is that some uncontrolled third variable confounded, or interfered with the analysis. Constructs such as living arrangements, marital status, year in program, childhood socioeconomic status, race and social support were all ruled-out as potential confounds. Although race was ruled-out as a potential confound due to a lack of differences between Asian and non-Asian participants on numerous variables of study, this decision is only valid if Asian participants gave accurate self-reports. Given Asian individuals are socialized to "save face," more so than non-Asian individuals, it is likely that Asian participants reacted to the sexually explicit subject matter of the study and their self-reports were not entirely valid. Similarly, a large portion of the Asian student population may have "selected out" of the study for the same reasons, also compromising the validity of the findings. As such, the race variable remains a potentially significant confound to the study.

Likely substantial relationships between child sexual abuse and the factors of complete mental health were not found because the sample may not have been representative of the distribution of attachment styles found within the general population as a whole, or within the population of child sexual abuse survivors. That is, given child sexual abuse, attachment style and mental health are thought to correlate, a failure to sufficiently capture the true distribution of the attachment styles may have interfered with the ability of the study to capture the true relationship between child sexual abuse and complete mental health in adulthood.

To assess this possibility further the attachment style prevalence statistics generated for this study were compared to three normative samples (Alexander, 1993; 1998; Boatwright, Lopez, Sauer, VanDerwege & Huber, 2011). The results of these comparisons revealed that the whole sample was *more insecure*, the no-abuse group was *less secure,* and the child sexual abuse group was *less insecure* than would be expected based on these normative groups.

Unfortunately, other differences between the normative samples and this sample prevent ruling-*in* the conclusion that these differences in the distribution of attachment style are the primary source of error for this study. For example, the Alexander samples were of women incest survivors from the community and the Boatwright et al. sample was of retail employees. Nevertheless, it remains possible that this study failed to capture the true distribution of attachment styles within the general population and/or within the population of child sexual abuse survivors. This failure may account for why this study was unable to detect substantial relationships between child sexual abuse and the complete mental health variables.

Similarly, it is possible that measurement error precluded the sampling of a group of participants that was sufficiently representative of the child sexual abuse population, and/or the non-abuse population. For example, if the scale used to measure child sexual abuse was not valid, it may have misclassified either survivors of child sexual abuse and/or non-survivors. This misclassification could have then confounded the analysis of relationship between sexual abuse and mental health.

Although the "gold standard" in the assessment of validity would have been to compare the sexual abuse subscale of the Comprehensive Childhood Maltreatment Scale

(CCMS) to another, well-validated measure of child sexual abuse (e.g., concurrent validity), the CCMS was the only measure of abuse employed by this study. Hence, the accuracy of classification, or validity, had to be assessed indirectly.

Although the CCMS appeared to generate a reasonable child sexual abuse prevalence statistic, the high degree of skew found within the variable suggests that the measure committed a number of false-positive errors, incorrectly identifying non-abused participants as survivors of child sexual abuse. Alternatively stated, the post hoc analysis suggests that the child sexual abuse scale of the CCMS lacks sufficient specificity. The analysis also called into question the sensitivity of the scale. Specifically, if the false positive errors of the CCMS could be accounted for, the prevalence of child sexual abuse would be much lower than what was reported and the lower this statistic becomes, the more likely the CCMS committed a number of false-negative errors. A post-hoc inspection of the sex-based prevalence statistics for child sexual abuse supports this hypothesis for women and possibly men participants.

The questionable ability of the CCMS to correctly identify female, and possibly males child sexual abuse survivors may be an anomalous finding. However, it is also possible that the highly explicit language of the subscale caused reactivity within the child sexual abuse survivors. Specifically, the sexually explicit language of the questionnaire may have caused the survivors to become defensive, and to deny their abuse experiences as a way to modulate the distress induced by the questionnaire. Indeed, several participants informed the researcher that they found answering the sexual abuse questions to be quite stressful, even though they were not abused in childhood.

Additionally, and as was already mentioned, it is unclear if the apparent false-negative error rate for this project is sex-specific, or limited to women alone. If it were sex-specific, one possible interpretation is that sex socialization caused women participants to be more sensitive to the language of the questionnaire, and hence, more reactive. Future research is required to assess this possibility.

Numerous factors beyond measurement error may have interfered with the ability of the study to accurately represent the independent, dependent and/or mediating variables. For example, because the title of the project was not withheld from participants during sign-up for the study, selection bias may have resulted in that a large portion of the population of student child sexual abuse survivors may have not chosen to participate in this study. Additionally, the hypotheses of the study can be inferred from the project title. As such, the transparency of the study may have caused some type of reactivity in the participants and this may have set the occasion for inaccurate responding. The study also utilized a university sample. Although university samples are helpful to research methodologies requiring a large number of participants, it is debatable whether they are sufficiently representative of the general population. Further complicating matters, this study sampled from the intersession and summer session of the university year, and it is possible that these students were significantly different from students enrolled in the regular year. For example, not only are these individuals likely to be more motivated than regular sessions students toward academic success, they may also be unhealthier than regular session students because they did not take a summer holiday. Additionally, a fire in the building where the data were being collected resulted in a loss of numerous data collection sessions and participant sign-ups. This loss of participant data also may have

compromised the degree to which the sample was representative of the student population on any or all of the measured variables.

Finally, it is possible that the results of the analyses are an accurate representation of reality. That is, perhaps there is simply no relationship between child sexual abuse and long-term psychological wellbeing and self-esteem. Similarly, maybe the true size of the relationship between child sexual abuse and long-term psychopathology is actually quite small. Although this is the most parsimonious of interpretations, the research documenting the often large relationship between child sexual abuse and psychopathology suggests that this possibility is not very probable. A meta-analysis of all the child sexual abuse studies to clarify the prevalence and impact of child sexual abuse on adult mental health would be helpful.

Review and Interpretation of Secondary Findings

It is most unfortunate that this study was unable to show a substantial relationship between child sexual abuse and complete mental health. However, exploring the relationship between adult attachment and complete mental health was determined to be an important activity and hence, an exploratory analysis was undertaken.

Accordingly, this analysis found support for numerous assumptions made by this project. For example, attachment anxiety and avoidance were shown to be related but ultimately separate constructs, as were psychopathology and both positive mental health variables. Additionally, a very large relationship was found between psychological wellbeing and self-esteem, suggesting that self-esteem is an important factor of psychological wellbeing.

A large relationship was also found between adult attachment and complete mental health. In fact, nearly one quarter of the variation of complete mental health was accounted for by adult attachment. Bolstering these findings, the relationship between adult attachment and complete mental health remained significant when a number of potential confounding factors, such as social support, and sexual assault in adulthood were controlled.

The relationships between attachment avoidance and the factors of complete mental health were also shown to be consistently smaller than the relationship between the same mental health factors and attachment anxiety. This is likely because attachment avoidance is both an antagonist to and a buffer against complete mental illness. That is, attachment avoidance both sets the occasion for and defends against mental illness. These opposing functions of attachment avoidance likely then "cancel each other out," hence minimizing the relationship between attachment avoidance and the factors of complete mental health, relative to attachment anxiety.

Because attachment anxiety and attachment avoidance were found to significantly predict complete mental health, it can be concluded that those who scored low on both attachment variables were the most completely healthy of the participants sampled. Those who scored high on both variables were the most completely unhealthy.

Relating these deductions to the definitions of attachment provided in Chapter One, it is concluded that those participants with a secure attachment (e.g., low attachment anxiety and low attachment avoidance) were the most healthy (defined as low psychopathology and high psychological wellbeing and self-esteem) and those with a fearful attachment (e.g., high attachment anxiety and high attachment avoidance) were

the most unhealthy (defined as high psychopathology and low psychological wellbeing and self-esteem). Finally, those with either a preoccupied or dismissing attachment (e.g., those with discordant attachment anxiety and attachment avoidance scores) were more unhealthy than those with a secure attachment but healthier than those with a fearful attachment. Additionally, given attachment anxiety was consistently shown to be more strongly related to complete mental illness than was attachment avoidance, it can be concluded that those with a preoccupied attachment (e.g., high attachment anxiety and low attachment avoidance) were unhealthier than those with a dismissing attachment (e.g., low attachment anxiety and high attachment avoidance) but healthier than those with a fearful attachment. Taken together and more parsimoniously, the data suggest that the risk for complete mental illness varies across attachment style with attachment security representing lowest risk, followed by the dismissing attachment, then the preoccupied attachment and finally, the fearful attachment, which is associated with greatest risk.

Given it is questionable whether the participants sampled in this study are representative of the general population, these direct and deductive research findings must be interpreted with care. For example, although it is almost certain that there is a relationship between attachment and complete mental health, it is unclear the degree to which the size of the relationship found in this sample generalizes to the population as a whole. Additionally, even though theory would suggest that the relationship found between adult attachment and complete mental health is causal, the correlational methodology of the study precludes generating conclusions of the same.

Review and Interpretation of Anomalous Findings

Several anomalous findings appeared in the data. For example, the prevalence of homosexuality (1%) in this sample appeared to be low. One possible reason why homosexuality may have been underrepresented is that the participants in this sample were quite young and hence, they may have yet to fully realize their sexual orientation. An inordinate proportion of the sample was also Asian. As such, it is possible that cultural differences in the social acceptability of homosexuality may have resulted in fewer Asian participants being willing to report being homosexual and this may have constricted the prevalence statistic.

It is also peculiar that sexual assault in adulthood was not found to be significantly related to the complete mental health variables. Given sexual assault is known to set the occasion for psychopathology, this finding is likely an error. In addition to the previously discussed possibility that the sample of this study was not representative of the general population, measurement error may have also accounted for this apparent anomaly. For example, the question used to identify sexual assault survivors was intended to be used as a screening tool only and hence, it may have lacked the definitional precision required to be a fully accurate measure of sexual assault. It is also possible that university students, especially motivated ones who want to press ahead by taking summer and inter-session courses, make up the group of victims of sexual assault who are coping very well, and are hence not reflective of the general population.

As would be expected, the majority of the social support variables were significantly related to the factors of complete mental health. However, adding these variables into the multiple regressions between attachment and the factors of complete

mental health substantially increased the size of the effect for only one of the three models. Of course it is possible that this represents some type of error. Or it is possible that relative to attachment, social support is a redundant variable. That is, if attachment mediates or partially mediates the relationships between social support and the factors of complete mental health, including social support into the analysis would not substantially add to the model because its impact on mental health would be accounted for by attachment.

Limitations of Study

The most substantial setback of this study is that it failed to find support for its hypotheses. Hence, all potential sources of error contributing to this failure are limitations of the project and should be corrected by future research. For example, the study utilized a questionnaire-based methodology and this form of data collection is less than ideal. The ideal methodology would have been to administer questionnaires in conjunction with a clinical interview. However, the size of the sample required for this study to achieve sufficient power precluded this from being a realistic research methodology.

This project also sampled university undergraduate students as a representation of the general population of adults. Although this type of sampling is not uncommon for large-scale research projects, it is also not ideal because university students are young and in a period of life transition. Similarly, intersession and summer session students were sampled as opposed to regular session students and this too may have resulted in a sample that was not fully representative of university students or of the general population as a whole. A large portion of the data collection sessions were lost to fire.

Although it is very fortunate that no human life was lost, the fire did change the composition of the sample and hence, remains a limitation of the study.

Additionally, this study utilized only one measure of child sexual abuse. Given serious questions about the validity of this measure were raised, failing to include a second measure of child sexual abuse is an especially unfortunate limitation of this study. Had an additional measure been included, this scale would have served not only as a safety-net for the study, it would have allowed for a more precise assessment of validity.

Given it is doubtful that the sample of this study is representative of the general population, the attachment-mental health results are important but they suffer from limited generalizability. Additionally, because this project utilized a correlational methodology, definitive statements of causality cannot be made. Hence, the final limitations of the study are that the exploratory analysis has limited external and internal validity.

Strengths of Study

There is little consensus within the child sexual abuse literature base as to how to operationally define attachment. This is especially problematic because it compromises the clinical utility of research findings. Although this project was unable to achieve its primary objective and clarify the mediation research base, it did demonstrate that fluid movement between the styles and dimensions of attachment is possible, which is a major asset of the study.

This project was founded on the assumption that mental health should be defined as a composite of both the absence of psychopathology and the presence of psychological wellbeing. As was demonstrated by this study, this is because psychological wellbeing

and psychopathology are *separate* phenomena, not simply opposing valances of a unitary mental health construct. Given the profession of clinical psychology is generally skewed toward negative models of mental health, finding support for this "complete" model of mental health is an especially important strength of this study.

Although this project did not achieve its intended objectives, it did show that adult attachment accounted for an inordinate proportion of the variability in complete mental health. Because the attachment literature base is also skewed toward negative models of mental health, and given no project to date had assessed the relationship between attachment and complete mental health, this contribution to the literature is very important.

As will be discussed, this project also generated several directions for future research. For example, the post-hoc analysis suggests that the validity of the CCMS needs to be scrutinized further. The study is also associated with clinical implications pointing toward the importance of the therapeutic relationship. Specifically, if the attachment relationship is indeed a significant predictor of complete mental health in adulthood, then using the attachment relationship between therapist and client to restructure attachment may be an excellent way to affect complete mental health change. As such, this study is not only a catalyst for future research, it achieved its goal of being clinically useful.

Finally, even though the CCMS appears to have questionable validity, the internal consistency of measurement for the overall project was excellent. Additionally, this study sampled *both* men and women. Given the vast majority of child sexual abuse-attachment

research has sampled only women, this is an especially important methodological strength of study.

Future Research Directions

The failure of this study to show that adult attachment functions as a mediator of the relationship between child sexual abuse and complete mental health is not necessarily because attachment is not a mediator. Instead, it appears error interfered with the ability of the study to sufficiently capture the true relationships between child sexual abuse and the factors of complete mental health. As such, the original research questions posed by this project are still valid and worth asking, although future researchers are encouraged to be mindful of the major limitations of the study and to correct for them.

Following are some specific suggestions to consider in future research on the topic of attachment-child sexual abuse. Researchers should take care when defining attachment because failing to use a consistent and comprehensive definition restricts the clinical usefulness of research findings. Additionally, sampling from the general population as opposed to the university population is preferable as it will enhance the external validity of future projects. Future researchers are encouraged to utilize interview-based methodologies so as to avoid the difficulties associated with questionnaire-based methodologies, such as impression management. Interview methodologies are also more precise and will thus enhance both the specificity and sensitivity of measurement. Additionally, given child sexual abuse is a very sensitive topic matter; clinical interviews will help to contain reactivity and buffer against the possibility of participants being re-traumatized by the experience of having to recall traumatic events. Qualitative analysis of interview and observational data will also provide researchers with the rich source of

phenomenological data needed to expound on the relationship between child sexual abuse, attachment, and complete mental health. This methodology will also provide information that is not accessible by questionnaires. For example, qualitative research will allow researchers to assess context, dynamic processes, and how participants are interpreting the phenomena being studied. The selection of longitudinal over cross-sectional methodologies will also be advantageous. Longitudinal designs have the potential to capture the development and changing nature of attachment, and may also help in the determination of cause and effect relationships. Finally, given ethnicity may have confounded the analysis of study, future researchers need to ensure a representative sample with respect to same. Additionally, given ethnicity is a cultural entity and race is a biological entity, future researchers must be clear about what variable they are actually measuring. Researchers should be clear that race does not necessarily correlate with culture, nor ethnicity. Assessing the level of acculturation, or the process of individuals from other cultures assuming the attitudes and values of the predominant culture, will help clarify the true ethnic background of participants, and help discriminate between their race and ethnicity.

Although it cannot be concluded that the Comprehensive Childhood Maltreatment Scales (CCMS) is an invalid measure of child sexual abuse, this study did call the accuracy of this measure into question. Hence, future research is required to assess the validity of the CCMS. Additionally, the results suggest that future research should investigate whether or not the sensitivity of the CCMS is dependent on sex.

The strong positive relationship between the Scales of Psychological Wellbeing (SPWB) and self-esteem also suggests that the SPWB could be improved by updating its

operational definition to include a measure of self-esteem. Future research will be required to assess this possibility.

Finally, the large relationship found between adult attachment and complete mental health suggests that attachment may be a particularly important target of therapeutic change. That is, given attachment accounts for such a large proportion of the variance in complete mental health, using the therapeutic relationship to restructure attachment could be an especially effective way to bring about complete mental health change. Future researchers are encouraged to assess the viability of this proposal.

Clinical Implications

The greatest disadvantage of research projects that are incomplete in their definitions of mental health is that they inadvertently promote incomplete models of psychotherapy. By demonstrating that psychological wellbeing is *not* simply the opposite of psychopathology, this study encourages clinicians to target total deficits in complete mental health and not just symptoms of illness.

Given we live in an age where clinical psychology is more and more restricted by managed care practices, and symptom-focused treatments are the norm, the implication that clinical psychologists target complete mental health is very important. Of course, one argument for symptom-focused psychotherapy is that it is less costly than holistic treatment paradigms. However, this is only true in the short-term. Specifically, by failing to appreciate that the absence of psychopathology does not necessitate the presence of psychological wellbeing, therapy may be terminated prematurely, prior to the development of psychological wellbeing. This failure to ensure complete mental health at

termination should then result in an increased risk for relapse when future stressors are encountered and hence increase the need for future psychotherapy (which is costly).

The current ethos of clinical psychology is not only symptom-focused, cognitive behavioural treatments tend to be valued over and above other psychotherapeutic orientations. Although the importance of cognitive behavioural theory and practice is not negated by the results of this study, they do suggest that relational approaches to psychotherapy (e.g., psychodynamic and client centred therapy) are also important. Specifically, given a substantial proportion of complete mental health was accounted for by adult attachment, the results of this study suggest that changing attachment through the therapeutic relationship may be a particularly effective way to affect complete mental health change. Indeed, this implication suggests that one reason why the therapeutic alliance is the best predictor of treatment outcome (Holmes, 1995), irrespective to therapeutic orientation, is that the alliance may correct for deficiencies in the attachment system. These corrections then may set the occasion for complete changes in personality, affect-regulation, cognitive-information processing and other indicators of mental health. As was mentioned, future research is required to assess this possibility.

Concluding Comments

This study is a timely and clinically relevant project. Although it was hampered by many limitations which interfered with its ability to find support for the hypotheses proposed, the results are quite interesting and will hopefully both inform the literature and be a catalyst for future research.

Appendix A

Consent Form

Research Project Title: Attachment Anxiety and Avoidance as Mediators of the Relationship between Child Abuse and Complete Mental Health in Adulthood.
Researcher: Chantal L. MacDonald M.A
Research Advisor: Rayleen V. De Luca, Ph.D. C. Psych.

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

You have signed up online to participate in a research study conducted by Chantal MacDonald M.A., a Ph.D. student from the Psychology department. To contact Chantal, you may leave a message at the Psychological Service Centre [redacted], or you may email her at [redacted]. To contact her Research Supervisor, Dr. Rayleen De Luca, a professor at the University of Manitoba, you may leave a message at [redacted], or you may email her at [redacted]

You will be asked to complete a set of seven questionnaires that will help us to understand if "attachment" or the way we relate to other people mediates, or influences the relationship between child abuse and mental health in adulthood. Typically, mental health is defined as the absence of mental illness. This project proposes a more *complete* definition of mental health, however, in that mental health is defined as not only the absence of mental illness, but also the presence of factors of psychological wellbeing (e.g., having a sense of meaning and purpose in life; having a sense of mastery over your environment etc). Further, although the title of this project implies that various forms of child abuse will be measured (e.g., child sexual abuse, child physical abuse, emotional abuse and neglect), the primary type of abuse of interest to this project is child sexual abuse. Given sexual abuse is often related to other types of abuse, such as emotional and physical abuse, these additional forms of abuse will be measured for exploratory purposes. You also will be asked to complete questionnaires measuring social support and self-esteem. As with physical and emotional abuse, these phenomena will be measured for exploratory purposes. In total, the questionnaire contains 273 items.

The entire questionnaire should take no more than 45 minutes to complete and you will receive two (2) research participation credits for your voluntary participation. Finally, your participation in this study is completely voluntary and you are free to end your participation for any reason, without loss of course credit. If you submit an incomplete questionnaire, although you will not lose course credit, your information will not be used in the analysis of the study.

Please note that this is a very sensitive research project as you will be asked a variety of questions, some of which are quite explicit, concerning abusive sexual, physical and psychological experiences in childhood. Given the sensitivity of this information and the seriousness of child abuse, your safety and confidentiality is of

utmost importance to us. Concerning your safety, if participation in this study elicits negative memories or any other adverse consequences, a variety of resource/support telephone numbers will be provided to you on the debrief form that you will receive prior to exiting the room. Concerning confidentiality, we ask that you place no identifying information on your IBM bubble sheet. Instead, you will be identified by a participant number only, which will be provided to you on your debriefing form. We will have no record of your name in relation to your participant number. If you wish to have your data removed from the study, you will have one month following your participation to make this request. To request that your data be removed, simply email Chantal MacDonald at the previously listed email address and indicate your request, along with your participant number, which will be listed on the top of your debriefing form. Chantal will confirm your request and inform you when the data is removed. IBM answer forms also will be kept in a locked office. Only Chantal MacDonald, her research supervisor, Dr. DeLuca, and two additional doctoral students supervised by Dr. DeLuca have access to this room and only Chantal MacDonald and her research supervisor are permitted access to the data. Finally, only group results (e.g., means) will be used and reported and all questionnaires will be destroyed by means of shredding once the project is complete in 2009. The results of this study may be referred to in presentations at psychological conferences, in a Ph.D. dissertation paper, and/or journal articles.

The Psychology/Sociology Research Ethics Board (P/SREB) of the University of Manitoba has approved this study. If you have any concerns about the way in which the study is conducted, you may contact the faculty advisor of this project, Dr. Rayleen De Luca at [redacted], or the Human Ethics Secretariat at [redacted], or email: [redacted]

Your signature below indicates that you are 18 years of age or older and have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

_____ Date: _____

Chantal MacDonald M.A

Printed Name: _____ Date: _____

Signature: _____

Student number: _____

If you wish to receive a summary of the study's results, please provide your email or mailing address. If not, do not provide your address:

_____

Appendix B

Debriefing Form

This project looks at exploring the relationships between child sexual abuse, attachment (e.g., how we relate to other people), and complete mental health (e.g., defined as both the absence of psychopathology/mental illness and the presence of psychological wellbeing) in adulthood. It is predicted that the presence and severity of child sexual abuse will be positively related to psychopathology (mental illness) in adulthood, and negatively related to psychological wellbeing, also in adulthood. That is, adult psychopathology is expected to increase and psychological wellbeing is expected to decrease with exposure to child sexual abuse. Further, the more severe the abuse, the more the risk is for survivors of child sexual abuse to be psychologically unhealthy. These relationships between child sexual abuse and both psychopathology and psychological wellbeing are also expected to be influenced, or mediated by "attachment," or the way we relate to other people. Attachment is an evolutionary adaptive and biologically based bond that develops between an infant and his or her caregiver, roughly within the first few years of life. As infants grow, the attachment relationship is internalized and comes to guide behaviour, as well as serve as the foundation for personality. Although the attachment figure of interest shifts from parents to romantic partners with age, adult attachment is similar to childhood attachment and also influences both behaviour and personality. Further, although attachment is relatively stable across time, it is capable of changing in response to changes in the environment, such as exposure to trauma. As such this study also proposes that the relationships between child sexual abuse and adult psychopathology and psychological wellbeing will be mediated by the factors thought to underlie adult attachment, namely attachment anxiety and attachment avoidance. That is, it is expected that the relationship between child sexual abuse and mental health doesn't actually exist. Instead, the relationship only appears because child sexual abuse negatively influences attachment and then attachment negatively influences mental health.

Even though this study contains sensitive content matter, your participation in this project will help refine our clinical understanding of how to therapeutically influence the mental health of child sexual abuse survivors. Specifically, positive research findings would indicate that one way by which clinicians may help to improve the mental health of survivors of child sexual abuse is to target the reduction of both attachment anxiety and attachment avoidance.

Child abuse is a very sensitive issue. As such, this study may have evoked memories or feelings that may affect you negatively. If this is so, we strongly encourage you to seek resources available to you to help you work through these issues including family, friends, religious leaders, mentors… If your negative feelings persist, then talking to a trained counselor may be helpful. The Klinic Crisis Line [redacted] is a 24-hour confidential service with trained volunteers. Students of the University of Manitoba can also access free counseling services at the Student Counseling and Career Centre [redacted]. Other resources that may be useful and are available in Winnipeg include the Elizabeth Hill Counseling Centre [redacted] and the Interfaith Marriage and Family Institute [redacted].

Child abuse is a serious legal offence. It is our ethical obligation to encourage students who have been abused to report these offences to the proper authorities. Further, if you suspect a known abuser is harming other children, we strongly encourage you to report this to the proper authorities as well. You may report incidents of abuse, or suspected abuse to your local law enforcement office or Winnipeg Child and Family Services [redacted].

If, for any reason, you wish to withdraw your data from this study, or have any concerns or questions, please leave a message for Chantal MacDonald at [redacted], or you may email her at [redacted]. If you wish to have your data removed from the study, you will have one month following your participation to make this request. To request that your data be removed, simply email Chantal MacDonald at the previously listed email address. Indicate your request, along with your participant number, which will be listed on the top of your debriefing form. Chantal will confirm your request and inform you when the data is removed. Thank you very much for your participation in this study.

Appendix C

Demographic Questionnaire

The following information relates to demographic information and it is collected for statistical purposes only. Please record all answers on your bubble sheet, in PENCIL

1. (A1) What is your age?
    1) 18
    2) 19
    3) 20
    4) 21
    5) 22
    6) Older than 22
2. (A2) Sex:
    1) Female
    2) Male
3. (A3) Marital Status:
    1) Single
    2) Married or living as married
    3) Separated or divorced
    4) Other
4. (A4) Year in program at university:
    1) 1
    2) 2
    3) 3
    4) 4
    5) Other
5. (A5) Living arrangements:
    1) With parent(s)
    2) Alone
    3) With friends, roommates or other family
    4) With spouse or partner
    5) Residence
6. (A6) Number of children in your family, including yourself, even if you don't live with them now:
    1) One
    2) Two
    3) Three
    4) Four
    5) Five or more

7. (A7) In your family, you are
    1) The only child
    2) The youngest child
    3) In the middle
    4) The oldest child
8. (A8) Please indicate your sexual orientation
    1) Heterosexual
    2) Gay/lesbian
    3) Bisexual
    4) Other
9. (A9) Estimated yearly family income when you were 18 years and younger:
    1) <$10,000/year
    2) $10-39,000/year
    3) $40-69,000/year
    4) $70-99,000/year
    5) >$100,000/year
10. (A10) Indicate the level of education completed by your father
    1) Less than High School
    2) High school graduate to some college or university
    3) College diploma
    4) University degree
    5) Graduate school
11. (A11) Indicate the level of education completed by your mother:
    1) Less than High School
    2) High school graduate to some college or university
    3) College diploma
    4) University degree
    5) Graduate school
12. (A12) Indicate the number of parents (genetic parents, or those who adopted you from birth) that consistently lived with you while you were 18 years of age and younger:
    1) Both parents
    2) 1 parent
    3) Neither parents (raised by foster parent(s), or other guardian(s))
13. (A13) Did you at anytime when you were 18 years of age or younger, live with a stepfather?
    1) Yes
    2) No
14. (A14) What is the average grade you have received on tests and assignments completed during your time at the university to date
    1) A- to A to-A+
    2) B- to B to B+
    3) C- to C to C+
    4) D
    5) F

15. (A15)Estimated size of the town or city you lived in the longest when you were 18 years of age or younger
    1) Farm or town of 10,000 people or less
    2) 11-50,000 people
    3) 51-150,000 people
    4) 151-300,000 people
    5) More than 301,000 people
16. (A16) Estimate the level of social activity of your family when you were 18 years of age or younger:
    1) Very outgoing socially
    2) Somewhat outgoing socially
    3) Not very outgoing socially
    4) Somewhat isolated socially
    5) Very isolated socially
17. (A17) What is your predominant race?
    1) Aboriginal
    2) African
    3) Asian
    4) Caucasian
    5) Latino
    6) Pacific Islander
    7) Mixed Race
    8) Other
18. (A18) I consider myself to be
    1) Spiritual, but not religious
    2) Religious
    3) Agnostic
    4) Atheist
    5) Other
19. (A19) Have you ever been sexually assaulted between the ages of 14 to the present?
    1) No
    2) Yes

Appendix D

Experiences in Close Relationships Scale

The following statements concern how you feel in romantic relationships. We are interested in how you generally experience close relationships, not just in what is happening in current relationships. Respond to each statement on your bubble sheet by filling in the number that corresponds with how much you agree or disagree with it.

1 2 3 4 5 6 7
Strongly Disagree Neutral Strongly agree

20. (B1) I prefer not to show a partner how I feel deep down.
21. (B2) I worry about being abandoned.
22. (B3) I am very comfortable being close to romantic partners.
23. (B4) I worry a lot about my relationships
24. (B5) Just when my partner starts to get close to me, I find myself pulling away.
25. (B6) I worry that romantic partners won't care about me as much as I care about them.
26. (B7) I get uncomfortable when a romantic partner wants to be very close.
27. (B8) I worry a fair amount about losing my partner.
28. (B9) I don't feel comfortable opening up to romantic partners.
29. (B10) I often wish that my partner's feelings for me were as strong as my feelings for him/her.
30. (B11) I want to get close to my partner, but I keep pulling back
31. (B12) I often want to merge completely with romantic partners, and this sometimes scares them away.
32. (B13) I am nervous when partners get too close to me.
33. (B14) I worry about being alone.
34. (B15) I feel uncomfortable sharing my private thoughts and feelings with my partner.
35. (B16) My desire to be very close sometimes scares people away.
36. (B17) I try to avoid getting too close to my partner.
37. (B18) I need a lot of reassurances that I am loved by my partner.
38. (B19) I find it relatively easy to get close to my partner.
39. (B20) Sometimes I feel that I force my partners to show more feeling, more commitment.
40. (B21) I find it difficult to allow myself to depend on romantic partners.
41. (B22) I do not often worry about being abandoned.
42. (B23) I prefer not to be close to romantic partners.
43. (B24) If I can't get my partner to show interest in me, I get upset or angry.
44. (B25) I tell my partner just about everything.
45. (B26) I find that my partner(s) don't want to get as close as I would like.
46. (B27) I usually discuss my problems and concerns with my partner.
47. (B28) When I'm not involved in a relationship, I feel somewhat anxious and insecure
48. (B29) I feel uncomfortable depending on romantic partners.
49. (B30) I get frustrated when my partner is not around as much as I would like.

1 2 3 4 5 6 7
Strongly Disagree Neutral Strongly agree

50. (B31) I don't mind asking romantic partners for comfort, advice, or help.
51. (B32) I get frustrated if romantic partners are not available when I need them.
52. (B33) It helps to turn to my romantic partner in times of need.
53. (B34) When romantic partners disapprove of me, I feel really bad about myself.
54. (B35) I turn to my partner for many things, including comfort and reassurance.
55. (B36) I resent it when my partner spends time away from me.

Appendix E

Multidimensional Scale of Perceived Social Support

We are interested in how you feel about the following statements. Read each statement carefully. On the answer sheet provided, please indicate how you feel about each statement, according to the following scale:

1 2 3 4 5 6 7
Strongly Disagree Neutral Strongly agree

56. (C1) There is a special person who is around when I am in need of them.
57. (C2) There is a special person with whom I can share my joys and sorrows.
58. (C3) My family really tries to help me.
59. (C4) I get the emotional help and support I need from my family.
60. (C5) I have a special person who is a real source of comfort to me.
61. (C6) My friends really try to help me.
62. (C7) I can count on my friends when things go wrong.
63. (C8) I can talk about my problems with my family.
64. (C9) I have friends with whom I can share my joys and sorrows.
65. (C10) There is a special person in my life who cares about my feelings.
66. (C11) My family is willing to help me make decisions.
67. (C12) I can talk about my problems with my friends.

Appendix F

Comprehensive Childhood Maltreatment Scale

Before the age of 13, how frequently did you experience any of the following behaviours? Please rate the frequency with which the behaviours were directed toward you by your biological/adoptive mother, your biological/adoptive father, and other adults or older adolescents. Please use the following scoring key to answer the following:

1 = never or almost never
2 = occasionally
3 = sometimes
4 = frequently
5 = very frequently

68. (D1a) Your ***mother*** physically punished you for wrongdoing (e.g., smacking, grabbing, shaking)
69. (D1b) Your ***father*** physically punished for you wrongdoing (e.g., smacking, grabbing, shaking)
70. (D1c) Another ***adolescent and/or adult*** physically punished you for wrongdoing (e.g., smacking, grabbing, shaking)

71. (D2a) Your ***mother*** used other types of violence with you (e.g. hitting, punching, kicking)
72. (D2b) Your ***father*** used other types of violence with you (e.g. hitting, punching, kicking)
73. (D2c) Another ***adolescent and/or adult*** used other types of violence with you (e.g. hitting, punching, kicking)

74. (D3a.) Your ***mother*** severely hurt you (requiring medical attention)
75. (D3b) Your ***father*** severely hurt you (requiring medical attention) by
76. (D3c) Another ***adolescent and/or adult*** severely hurt you (requiring medical attention)

77. (D4) How frequently do you believe you witnessed any of the behaviours listed above directed towards others in the family?

78. (D5a) Your ***mother*** yelled at you
79. (D5b) Your ***father*** yelled at you
80. (D5c) Another ***adolescent and/or adult*** yelled at you

1 = never or almost never
2 = occasionally
3 = sometimes
4 = frequently
5 = very frequently

1. (D6a) Your ***mother*** ridiculed you, embarrassed you, and/or used sarcasm with you (made you feel guilty, silly, or ashamed)
2. (D6b) Your ***father*** ridiculed you, embarrassed you, used sarcasm with you (made you feel guilty, silly, or ashamed)
3. (D6c) Another ***adolescent and/or adult*** ridiculed you, embarrassed you, used sarcasm with you (made you feel guilty, silly, or ashamed)

4. (D7a) Your ***mother*** provoked you, made you afraid, and/or used cruelty with you
5. (D7b) Your ***father*** provoked you, made you afraid, and/or used cruelty with you
6. (D7c) Another ***adolescent and/or adult*** provoked you, made you afraid, and/or used cruelty with you

7. (D8) How frequently do you believe you witnessed any of the behaviours listed above directed towards others in the family (Questions 77-5)?

8. (D9a) Your ***mother*** did not give you regular meals or baths, clean clothes, or needed medical attention
9. (D9b) Your ***father*** did not given you regular meals or baths, clean clothes, or needed medical attention

10. (D10a) Your ***mother*** shut you in a room alone for an extended period of time
11. (D10b) Your ***father*** shut you in a room alone for an extended period of time

12. (D11a) Your ***mother*** ignored your requests for attention and/or did not speak to you for an extended period of time
13. (D11b) Your ***father*** ignored your requests for attention and/or did not speak to you for an extended period of time

Many people report having had childhood sexual experiences with other children or with older people. The following questions relate only to sexual activities with older people. These 'older people' include someone who at the time was either an adolescent (at least 5 years older than you); or an adult (18 years of age or older). Before you turned 13, did an older person engage in any of the following types of sexual activity with you? On your answer sheet please answer the following questions according to the following scale

1 = never or almost never
2 = once
3 = twice
4 = 3 – 6 times
5 = 7 – 20 times
6 = more than 20 times

14. (D12a) Your ***mother*** requested that you do something sexual
15. (D12b) Your ***father*** requested that you do something sexual
16. (D12c) Another ***adolescent and/or adult*** requested that you do something sexual

17. (D13a) Your ***mother*** forced you to watch others having sex
18. (D13b) Your ***father*** forced you to watch others having sex
19. (D13c) Another ***adolescent and/or adult*** forced your to watch others having sex

20. (D14a) Your ***father*** showed your his erect penis
21. (D14b) Another ***adolescent and/or adult*** showed your his erect penis

22. (D15a) Your ***mother*** touched your penis/vagina, or breasts
23. (D15b) Your ***father*** touched your penis/vagina, or breasts
24. (D15c) Another ***adolescent and/or adult*** touched your penis/vagina, or breasts

25. (D16a) Your ***mother*** made you touch her vagina and/or breasts
26. (D16b) Your ***father*** made you touch his penis
27. (D16c) Another ***adolescent and/or adult*** made you touch her vagina/breasts and/or his penis

28. (D17a) Your ***mother*** put her mouth on your penis or vagina
29. (D17b) Your ***father*** put his mouth on your penis or vagina
30. (D17c) Another ***adolescent and/or adult*** put his/her mouth on your penis or vagina

31. (D18a) Your ***mother*** made your put your mouth on her vagina
32. (D18b) Your ***father*** made you put your mouth on his penis
33. (D18c) Another ***adolescent and/or adult*** made me put my mouth on his penis and/or her vagina

1 = never or almost never
2 = once
3 = twice
4 = 3 – 6 times
5 = 7 – 20 times
6 = more than 20 times

34. (D19a) Your ***father*** put his penis in your vagina or anus
35. (D19b) Another ***adolescent and/or adult*** put his penis in your vagina or anus

36. (D20a) Your ***mother*** put a finger in your vagina or anus
37. (D20b) Your ***father*** put a finger in your vagina or anus
38. (D20c) Another ***adolescent and/or adult*** put a finger in your vagina or anus

39. (D21a) Your ***mother*** put another object in your vagina or anus
40. (D21b) Your ***father*** put another object in your vagina or anus
41. (D21c) Your ***adolescent and/or adult*** put another object in your vagina or anus

42. (D22a) Your ***mother*** made you put your penis inside a vagina or anus (record as **ONE**, for never, if you are female)
43. (D22b) Your ***father*** made you put your penis inside a vagina or anus (record as **ONE** for never if you are female)
44. (D22c) Another ***adolescent and/or adult*** made you put your penis inside a vagina or anus (record as **ONE** for never if you are female)

Appendix G

Scales of Psychological Wellbeing

The following statements refer to different aspects of psychological wellbeing. Please read each statement and rate, on your answer sheet, the degree to which you agree or disagree with the statement according to the following scale:

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Slightly agree
5 = Moderately agree
6 = Strongly agree

45. (E1) I can turn to a spiritual dimension within myself for guidance
46. (E2) I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people
47. (E3) In general, I feel I am in charge of the situation in which I live
48. (E4)In general, I feel that I continue to learn more about myself as time goes by.
49. (E5) I often feel lonely because I have few close friends with whom to share my concerns
50. (E6)I feel good when I think of what I've done in the past and what I hope to do in the future
51. (E7)When I look at the story of my life, I am pleased with how things have turned out.
52. (E8) I have an inner strength
53. (E9) I tend to worry about what other people think of me.
54. (E10) The demands of everyday life often get me down
55. (E11) I don't want to try new ways of doing things—my life is fine the way it is.
56. (E12) I don't have many people who want to listen when I need to talk.
57. (E13) I have a sense of direction and purpose in life.
58. (E14) In general, I feel confident and positive about myself.
59. (E15) I have experienced my own strength in times of struggle.
60. (E16) I tend to be influenced by people with strong opinions
61. (E17) I am quite good at managing the many responsibilities of my daily life.
62. (E18) I think it is important to have new experiences that challenge how you think about yourself and the world.
63. (E19) I feel like I get a lot out of my friendships.
64. (E20) I don't have a good sense of what it is I'm trying to accomplish in life. myself that I would change.
65. (E21)Given the opportunity, there are many things about myself that I would change.
66. (E22) I have a sense of harmony or inner peace.
67. (E23) I have confidence in my opinions even if they are contrary to the general consensus.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Slightly agree
5 = Moderately agree
6 = Strongly agree

68. (E24) If I were unhappy with my living situation, I would take effective steps to change it.
69. (E25)When I think about it, I haven't really improved much as a person over the years.
70. (E26) It seems to me that most other people have more friends than I do.
71. (E27) I enjoy making plans for the future and working to make them a reality.
72. (E28) I like most aspects of my personality.
73. (E29) My innerness or an inner resource helps me deal with uncertainty in life.
74. (E30) It's difficult for me to voice my own opinions on controversial matters.
75. (E31) I have difficulty arranging my life in a way that is satisfying to me.
76. (E32) I have the sense that I have developed a lot as a person over time.
77. (E33) I have not experienced many warm and trusting relationships with others.
78. (E34) I am an active person in carrying out the plans I set for myself.
79. (E35) In many ways, I feel disappointed about my achievements in life.
80. (E36) I rely on an inner strength in hard times.
1. (E37) I often change my mind about decisions if my friends or family disagree.
2. (E38) I have been able to build a home and a lifestyle for myself that is much to my liking.
3. (E39) For me, life has been a continuous process of learning, changing, and growth.
4. (E40) I know that I can trust my friends, and they know they can trust me.
5. (E41)I have a personally meaningful relationship with God or a higher power.
6. (E42) My aims in life have been more a source of satisfaction than frustration to me.
7. (E43) For the most part, I am proud of who I am and the life I lead.
8. (E44) I experience a spiritual dimension that gives me strength and love.
9. (E45) I am concerned about how other people evaluate the choices I have made in my life.
10. (E46) I gave up trying to make big improvements or changes in my life a long time ago.
11. (E47) Frequently meditating or praying gives me a sense of inner peace.
12. (E48) I judge myself by what I think is important, not by the values of what others think is important.
13. (E49) I get personal strength and support from my God or a higher power.

Appendix H

Rosenberg Self-Esteem Scale

Instructions: Below is a list of statements dealing with your general feelings about yourself. Rate each statement according to how it describes you, using the following scale. Fill in your response on the IBM bubble sheet provided to you.

1 = Strongly Disagree
2 = Disagree
3 = Agree
4 = Strongly Agree

24. (G1) On the whole, I am satisfied with myself.
25. (G2) At times, I think I am no good at all.
26. (G3) I feel that I have a number of good qualities.
27. (G4) I am able to do things as well as most other people
28. (G5) I feel I do not have much to be proud of.
29. (G6) I certainly feel useless at times.
30. (G7) I feel that I'm a person of worth, at least on an equal plane with others.
31. (G8) I wish I could have more respect for myself.
32. (G9) All in all, I am inclined to feel that I am a failure.
33. (G10) I take a positive attitude toward myself.

Appendix I

MHS
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Publishers and Developers of Professional Assessment Materials
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November 25, 2008

To Whom it May Concern,

This letter is to confirm that Chantal Lise MacDonald has been approved by Multi-Health Systems, Inc. (MHS) to purchase and use the Symptom Checklist-90-Revised (SCL-90-R®) for her graduate studies at the University of Manitoba.

Chantal has also met our Qualifications, which are in accordance with the ethical and professional standards of the Canadian Psychological Association and the Standards for Education and Psychological Testing, to administer this instrument.

Thank you,

Betty Mangos
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Appendix J

APPROVAL CERTIFICATE

14 November 2008

TO: **Chantal Lise MacDonald** (Advisor R. De Luca)
Principal Investigator

FROM: **Bruce Tefft, Chair**
Psychology/Sociology Research Ethics Board (PSREB)

Re: **Protocol** [redacted]
"Adult Attachment Anxiety and Avoidance as Mediators of the Relationship between Child Sexual Abuse and Complete Mental Health in Adulthood"

Please be advised that your above-referenced protocol, as revised, has received human ethics approval by the **Psychology/Sociology Research Ethics Board**, which is organized and operates according to the Tri-Council Policy Statement**.** This approval has been issued based on your agreement with the change(s) to your original protocol required by the PSREB. It is the researcher's responsibility to comply with any copyright requirements. This approval is valid for one year only.

Any significant changes of the protocol and/or informed consent form should be reported to the Human Ethics Secretariat in advance of implementation of such changes.

Please note:

- if you have funds pending human ethics approval, the auditor requires that you submit a copy of this Approval Certificate to Kathryn Bartmanovich, Research Grants & Contract Services (fax [redacted] **including the Sponsor name, before your account can be opened.**

- if you have received multi-year funding for this research, responsibility lies with you to apply for and obtain Renewal Approval at the expiry of the initial one-year approval; otherwise the account will be locked.

The Research Ethics Board requests a final report for your study (available at: http://umanitoba.ca/research/ors/ethics/ors_ethics_human_REB_forms_guidelines.html**) in order to be in compliance with Tri-Council Guidelines.**

Appendix K

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Please reply to confirm whether or not you will grant permission for me to include the above-mentioned work(s) in my thesis. If permission is granted, I request a formal letter stating the same, to include in a appendix of my thesis.

Thank you very much for your consideration of this request.

Chantal L. MacDonald M.A.
University of Manitoba

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Appendix N

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(Ryff's Scales of Psychological Well-Being)

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Appendix O

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