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A Model of Posttraumatic Stress Reactions to Sexual Abuse in Females

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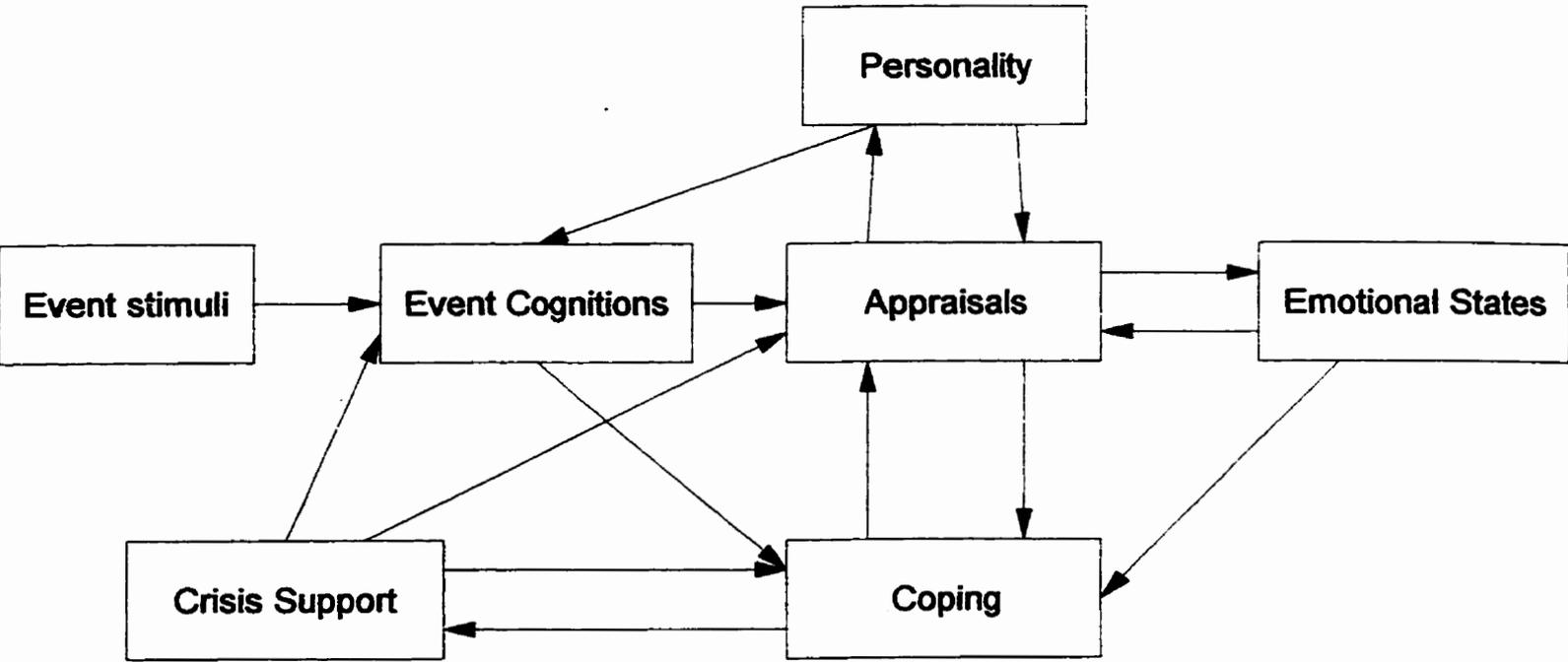
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Abstract

Sexual abuse is identified by the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (4th edition) (DSM-IV, APA, 1994) as a possible precipitator of Posttraumatic Stress Disorder (PTSD). An estimated 50% of sexual abuse survivors will develop PTSD (Kiser, Heston, Millsap, & Pruitt, 1991; O'Neil & Gupta, 1991). Therefore, while exposure to a traumatic stressor such as sexual abuse is necessary in the development of PTSD, it is not sufficient. A number of models have been proposed that attempt to describe the process of coping and symptom development associated with PTSD, and to account for individual differences in this process. One such model is Joseph, Williams, and Yule's (1995) integrative cognitive-behavioural model of response to traumatic stress (see Figure 1).

The present study evaluated Joseph, et al.'s (1995) model when applied to a sample of 122 female sexual abuse survivors from across Ontario, Canada. Participants completed survey packages which included measures for each of the variables presented in Joseph et al.'s (1995) model. The variable Event Stimuli was measured using the Sexual Experiences Survey (Koss & Orso, 1982; see Appendix A). Personality was measured using Neuroticism items of the NEO-PIR (Costa & McCrae, 1992; see Appendix C). Appraisal of the abuse was measured using a modified version of the Attributional Style Questionnaire (Peterson, Semmel, Baeyer, Abramson, Metalsky, & Seligman, 1982; see Appendix D). Coping and Crisis Support were measured using the Coping Responses Inventory (Moos, 1993; see Appendix E) and the Crisis Support Scale (Joseph, Andrews, Williams, & Yule, 1992; see Appendix F), respectively. Symptom outcomes, as indicated by the model variables Event Cognitions and Emotional States, were assessed by specified items of the Trauma Symptom Checklist- 40 (Elliott & Briere, 1991; see Appendix G).

Figure 1. Joseph et al.'s (1995) integrative cognitive-behavioural model of PTSD.



This study makes three main empirical contributions. First, MANOVA results indicate that response to abuse was significantly influenced by ethnicity, age at which abuse first occurred, and the type of mental health services currently being received. Caucasian individuals rated themselves lower on use of problem-focused coping strategies, vulnerability, impulsiveness, and self-blame than individuals of Native American ancestry. Those 15 years of age or less when first abused rated themselves higher on anxiety and lower on social supports while those in older age groups rated themselves in the opposite direction. Individuals currently in counselling or on a waiting list rated themselves lower on anxiety, depression, and vulnerability. Conversely, those currently in support groups rated themselves as higher on depression, anxiety, and vulnerability. Those currently in both counselling and a support group and those receiving no clinical services scored moderately on the three variables.

Second, path analysis indicated that Joseph et al.'s (1995) model did not fit the data $\chi^2 (9) = 24.81, p < .01$ (see Figure 6). When altered on the basis of hypothesized modifications, modification indices generated by the statistical program, and removal of non-significant paths, the model fit the data well $\chi^2 (13) = 13.41, p > .4$ (see Figure 7). As hypothesized, one modification that improved the fit of the model was the addition of a path from characteristics of the abuse to engagement of social support. In the modified model, the sign of the path from crisis support to appraisals indicated that increased levels of crisis support were associated with maladaptive appraisals (i.e., self-blame). This relationship is opposite to that proposed by Joseph et al. (1995), where increased crisis support is proposed to lead to more adaptive appraisals, but is consistent with the second hypothesized modification to the model. When examined as a single construct, coping strategies was not found to significantly influence any other variables in the model.

Finally, relationships between coping, appraisal, neuroticism and symptom subscales were evaluated. Individuals who coped through cognitive avoidance, emotional discharge, acceptance/resignation, and logical analysis following abuse reported more event cognitions, negative emotional states, sexual problems, and somatic complaints. Increased sexual and somatic complaints, negative emotional states, and event cognitions were accompanied by decreased depression, self-consciousness, anxiety, vulnerability, and impulsiveness. In contrast those who engaged in less cognitive avoidance, sought less support from others and engaged in less problem solving behaviours reported fewer sexual or somatic complaints. Reduced symptomatology (i.e., event cognitions, negative emotional states, somatic symptoms) was also associated with increased trait levels of anxiety, depression, and vulnerability and decreased impulsiveness. Implications of the findings for assessment and therapeutic interventions and for future research were explored.

Introduction

Sexual abuse has been identified by the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, fourth edition, (DSM-IV, APA, 1994) as a traumatic stressor which is capable of precipitating Posttraumatic Stress Disorder (PTSD). PTSD is broadly understood as the development of characteristic symptoms following exposure to an extreme stressor which include re-experiencing of the traumatic stressor, avoidance of stimuli associated with the stressor, general numbing of responsiveness, and increased arousal. However, not all individuals who are sexually abused will develop the clinical symptoms associated with PTSD (Kiser, et al., 1991; O'Neil & Gupta, 1991). This suggests that although exposure to a traumatic event such as sexual abuse is, by definition, a necessary etiological factor in the onset of PTSD, a history of sexual abuse is not sufficient.

As a growing number of abuse survivors seek therapeutic services, it becomes increasingly important for mental health professionals to understand the factors which influence response to sexual abuse in order to determine what therapeutic interventions will aid recovery most effectively. Due to this increasing importance, there has been growing interest in the development of models that attempt to identify psychosocial factors that may mediate the effects of sexual abuse and moderate its impact on mental health (e.g., Draucker, 1995; Wyatt, Newcomb, & Notgrass, 1991). The variables evaluated by many models are specific to sexual abuse (e.g., maximum rapes per incident, sexual self-esteem). The specificity of these models to the experience of sexual abuse implies that psychosocial factors which mediate and moderate coping and symptom development following sexual abuse differ from those factors which mediate and moderate coping and symptom development following other traumatic events (e.g.,

natural disasters). There is no conclusive empirical evidence to support this implication. Also, the variables included in abuse specific models do not lend themselves to modification through clinical interventions. For example, number of rapes per abuse incident cannot be modified through clinical interventions and, therefore, is not a useful target for clinical intervention. Further, abuse specific models are unable to explain the mechanisms by which treatments of PTSD achieve their positive effects (e.g., exposure therapy). By examining models based within a broader conceptualization of traumatic stress, the process of coping and symptom development following abuse trauma may be viewed in terms of variables that are more reliable, and that are more applicable to planning clinical interventions.

Joseph, et al.'s (1995) integrative cognitive-behavioural model of response to traumatic stress includes variables that may be reliably measured and lend themselves to modification through clinical intervention (e.g., coping strategies, event appraisals) (see Figure 1). As a model of PTSD which is not specific to a particular type of traumatic event, Joseph et al.'s (1995) model places reactions to sexual abuse within the broader context of stress and coping. Factors included in Joseph et al.'s (1995) model may be valuable to assess, and may be useful to target during therapeutic interventions. For example, cognitive therapists may target event appraisals or event cognitions for therapeutic intervention while behaviourally oriented therapists may target coping skills. Joseph et al.'s (1995) model can also be used to explain the mechanisms by which clinical interventions achieve their effects. For example, the positive effects of exposure therapy have been explained by Joseph et al. (1995) as providing patients with information that allows them to reappraise the meaning of the traumatic event. According to Joseph et al.'s (1995)

model, this reappraisal of the traumatic event may lead to positive therapeutic change through increasing implementation of coping strategies and engagement of crisis support.

Despite its strong empirical underpinnings and apparent clinical utility, due to its newness, Joseph et al.'s (1995) model has not been empirically evaluated as a whole. Those evaluations which have taken place have, to date, been limited to discrete portions of the model, and have been evaluated in reference to only one cohort (i.e., survivors of the Herald of Free Enterprise disaster) (e.g., Joseph, Dalgleish, Thrasher, Yule, Williams, & Hodgkinson, 1996).

The primary purpose of this investigation was the examination of Joseph et al.'s (1995) model when applied to a population of female sexual abuse survivors. Path analysis was used to evaluate the overall fit of the model to the data, as well as the strength and direction of interrelationships between model variables. Two modifications to Joseph et al.'s (1995) model, based on the literature regarding sexual abuse and PTSD, were hypothesized.

First, in their discussion of crisis support, Joseph et al. (1995) note the general agreement in the literature that greater availability of social support is predictive of reduced rates of PTSD symptomatology (e.g., Jones & Barlow, 1990; Solomon, 1986). However, some traumatic events, like sexual abuse, can be stigmatizing and elicit shunning or avoidance responses by members of the social support network (Wortman & Lehman, 1985). In addition, due to the stigmatizing nature of sexual abuse, victims may fail to engage social supports, preventing support systems from assisting them in dealing with the trauma. Shunning and avoidance by the support network, and failure to engage the network may be particularly evident where the abuser is known to the survivor as this may result in increased efforts to deny or hide the occurrence of the abuse (Meichenbaum, 1994). Lylyk (1994), noted that 88.8% of perpetrators are known to

their victims. It was, therefore, hypothesized that for female survivors of sexual abuse, increased availability of informal crisis support may not result in the initiation of adaptive coping strategies and event appraisals.

Second, Joseph et al. (1995) indicate that the characteristics of a traumatic event will have a direct effect on only one variable, event cognitions. However, it has been found (e.g., Meichenbaum, 1994; Parrot & Bechhofer, 1991) that some aspects of sexual abuse scenarios influence other variables presented in Joseph et al.'s (1995) model. Specifically, engagement of social support has been linked to amount of force used by the perpetrator. As indicated by Wyatt et al. (1991), increasing levels of force used by a perpetrator is significantly related to increasingly negative reactions of others to the victim when sexual abuse is disclosed. Thus, the addition of a path from event stimuli to crisis support is proposed.

In addition to empirical evaluation of Joseph et al.'s (1995) model, the present study also included an examination of the effects of age, ethnicity, counselling status, and relationship to the perpetrator on the process of coping and symptom development following sexual abuse. Furthermore, the interrelationships between specific coping, event appraisal, and personality subscales and symptom outcome were examined. The primary purpose of these components of the study was to identify differences between groups and in responses to sexual abuse which could be applied to determining how to optimize clinical interventions. .

Literature Review

Although the true prevalence of sexual abuse is unknown, some researchers suggest that a significant proportion of women in today's society have experienced the trauma of sexual abuse (e.g., Ganley, 1981, 1989; Pence & Paymar, 1986). "More than 34 million (American) women have experienced some type of crime during their lifetime, with more than 12 million experiencing a complete rape, and nearly 10 million experiencing serious physical assault" (Hansen & Harway, 1993, p.9). In general medical practice, sex therapy, and institutional psychiatry, it is estimated that 25%, 50%, and 51% of women, respectively, disclose a history of sexual abuse (Craine, Hensen, Colliver, & MacLean, 1988).

Given the prevalence of sexual abuse, sexual abuse survivors may constitute the largest single group of PTSD sufferers (Foa, Steketee, & Rothbaum, 1989). While sexual abuse has been related to a number of clinical problems, including suicidal ideation (e.g., Resnick & Newton, 1992), eating disorders and self-mutilation (Briere & Runtz, 1993), addictive behaviours (Cameron, 1994), poor social adjustment and depression and anxiety (Briere & Runtz, 1993), low self-esteem (Jehu, 1989), and somatization (Gelinas, 1983), the proportion of sexual abuse survivors developing clinical symptoms of PTSD is estimated at only 50% (Kiser et al., 1991). In populations of sexual abuse survivors referred for psychiatric examination, estimated prevalence of PTSD rises to 73% (O'Neil & Gupta, 1991). Thus, although exposure to a traumatic stressor such as sexual abuse is, by definition, necessary in the etiology of PTSD, there exist large unexplained individual differences in the presence, chronicity and severity of PTSD symptomatology following abuse. The evidence would therefore suggest that experiencing sexual abuse is not sufficient to cause PTSD symptomatology.

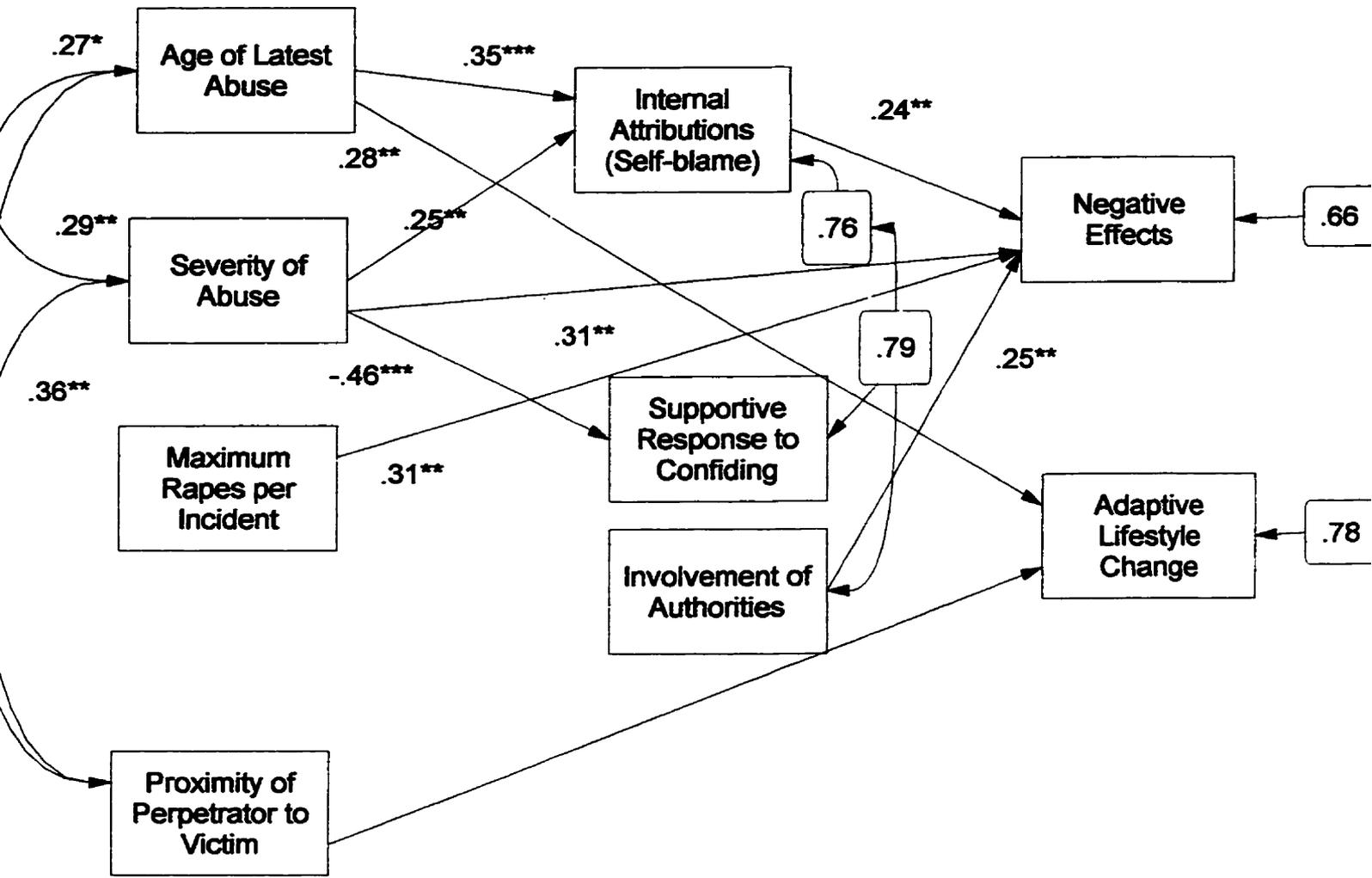
As a growing number of survivors seek therapeutic services to aid in recovery from the trauma of sexual abuse, it becomes increasingly important for mental health professionals to identify factors which contribute to individual differences in reactions to sexual abuse and to determine what therapeutic interventions will be of greatest benefit in aiding recovery (Draucker, 1995). For this reason, there has been growing interest in the development of models that attempt to identify psychosocial factors that may mediate the effects of sexual abuse and moderate its impact on mental health (e.g., Jones & Barlow, 1990; Solomon, 1986; Williams, Joseph, & Yule, 1993).

Models of Response to Sexual Abuse

One model that identifies psychosocial factors that mediate and moderate the impact of sexual abuse on mental health has been proposed by Wyatt et al. (1991) (see Figure 2). A mediator has been defined as being “generated in the encounter, and (it) changes the relationship between the antecedent and the outcome variable” (Folkman & Lazarus, 1988, p.467). For example, coping arises during an encounter and transforms an individual’s original reactions to a situation. Moderators have been defined by Folkman and Lazarus (1988) as “antecedent conditions such as gender, socio-economic status, or personality traits that interact with other conditions in producing an outcome” (p.467).

Wyatt et al. (1991) performed a path analysis to empirically evaluate the interrelationships between moderators and mediators of women’s reactions to sexual abuse. The variables included in the analysis were age of the victim at latest abuse, severity of abuse, maximum rapes per incident, proximity of the perpetrator to the victim (i.e., relationship to the abuser), response to confiding, involvement of authorities, and attribution of blame. As 61% of survivors attributed blame for the abuse to something about themselves (e.g., mode of dress),

Figure 2. Wyatt et al.'s (1991) path model of mediators and moderators of abuse.



Note: * p < .05
 ** p < .01
 *** p < .001

this variable was labeled self-blame. Posttraumatic symptom outcome was measured as a dichotomous variable, either negative effects or adaptive lifestyle change.

The model presented by Wyatt et al. (1991) fit their data well ($\chi^2 (23, n=55) = 13.28, p = .95$ with goodness-of-fit index = .86). Self-blame for the abuse incident was significantly predicted from greater age at the time of most recent abuse and with greater severity of abuse (including multiple assaults and physical force used). Supportive response to confiding was significantly predicted from less severe sexual abuse, while involvement of authorities was not predicted reliably from any variable. Negative effects of abuse were significantly predicted from self-blame, increased involvement of authorities, greater severity of abuse, and a greater number of rapes per abuse incident. Adaptive lifestyle change was predicted from older age at most recent abuse and more distant proximity of the perpetrator to the victim. In all, 39% of variance in negative effects and 22% of the variance in adaptive lifestyle changes were accounted for by variables included as circumstances of the abuse and mediators.

The model presented by Wyatt et al. (1991) has furthered research by providing empirical support of the influence of psychosocial factors on the process of adaptation following sexual abuse. However, due to small sample size ($n = 55$) Wyatt et al. (1991) note that the number of variables evaluated in their model is far fewer than those suggested to influence outcome in the literature on PTSD (e.g., Dutton, 1992; Joseph et al., 1995). In terms of the clinical utility of Wyatt et al.'s (1991) findings, it should be noted that only one of the proposed mediators, self-blame, had a significant direct effect on outcome. The remaining variables are considered circumstances of the abuse incident (i.e., severity of abuse, age at latest abuse, maximum rapes per incident, proximity of perpetrator to victim). As descriptors of aspects of the abuse incident,

these variables cannot be altered through therapeutic intervention. Thus, the model's utility as a framework for planning interventions is limited.

A second model which attempted to identify factors which mediate and moderate the impact of sexual abuse on mental health has been developed by Draucker (1995) (see Figure 3). Draucker's (1995) model is based in part upon Finkelhor and Browne's (1985) model of childhood sexual abuse in which powerlessness, betrayal, stigmatization, and traumatic sexualization are said to influence the impact of sexual abuse on mental health. In Draucker's (1995) model these four variables are included as exogenous, moderator variables. Mediators included in Draucker's (1995) model are derived from Taylor's (1983) theory of cognitive adaptation. Taylor (1983) identified three cognitive tasks which influence coping, the search for meaning, attaining a sense of mastery, and the process of self-enhancement/social comparison. According to Draucker's (1995) model, moderator variables of powerlessness, betrayal, stigmatization, and traumatic experience impact on mental health outcome variables of interpersonal victimization, social introversion, guilt, and sexual self-esteem. This impact is mediated by the search for meaning, attainment of mastery, and self-enhancement/social comparison. In examining the fit of the model $\chi^2(33) = 68.59$ was significant. The adjusted goodness of fit for the model was 0.85. Both of these indices indicate a poor fit of the model to the data. The total coefficient of determination for the model was 0.158, indicating that the model accounted for approximately 16% of the total variance. Due to the poor fit of the model to the data, a revised model was proposed by Draucker (1995) (see Figure 4).

The revised model examined by Draucker (1995) incorporates a number of changes from the original model. These revisions include the elimination of two variables, social comparison and sexual self-esteem. The dependent variable sexual self-esteem was dropped from the model

Figure 3. Draucker's (1995) original causal model of response to abuse.

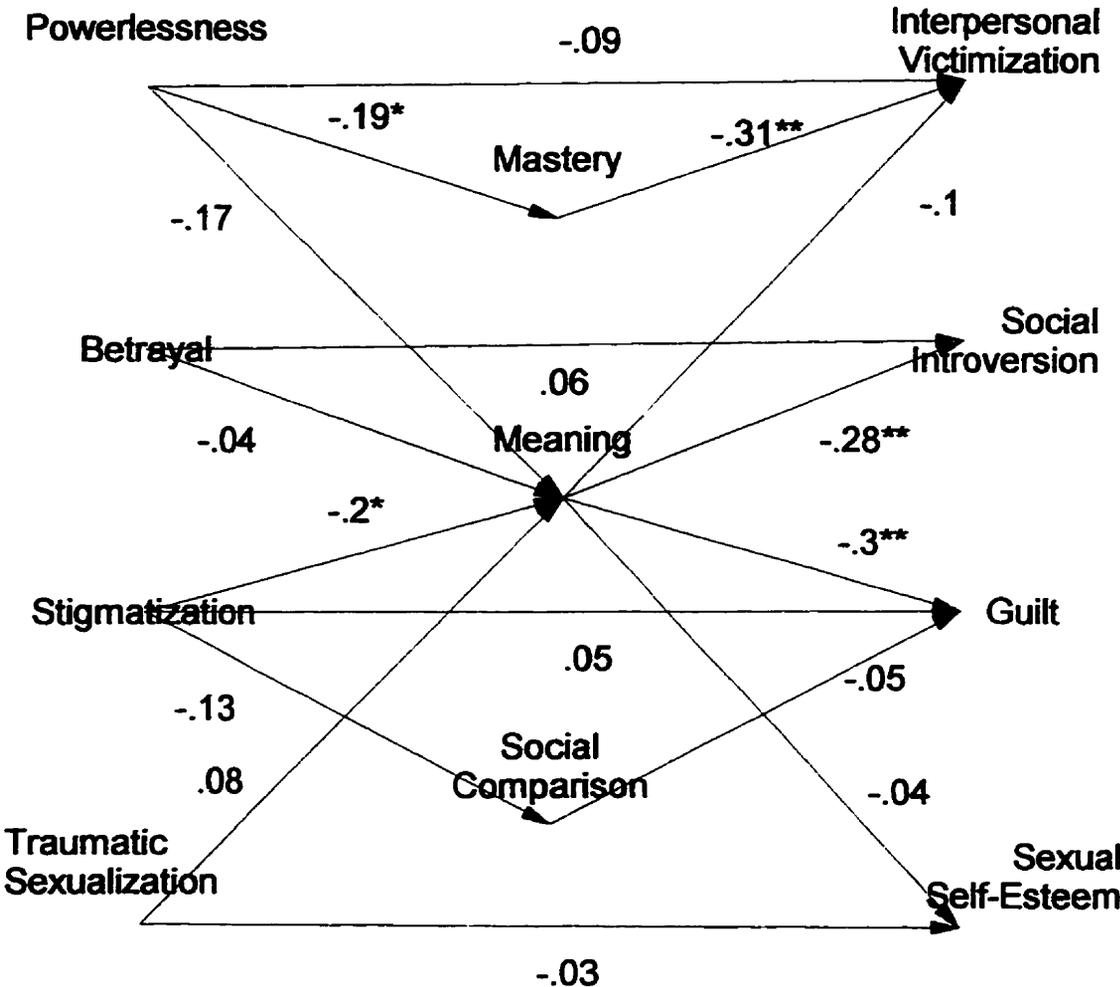
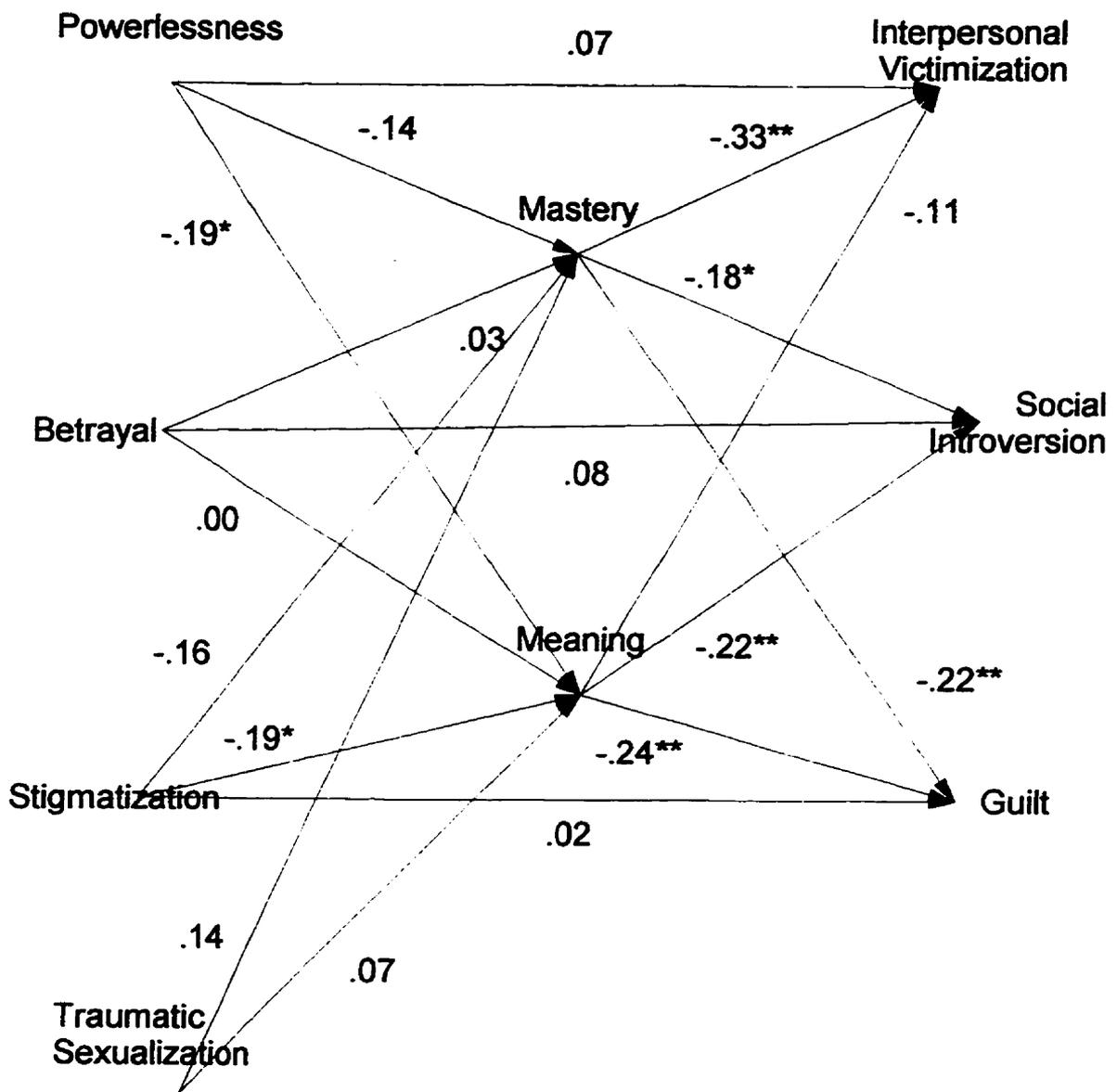


Figure 4. Draucker's (1995) revised causal model of response to abuse.



due to the low alpha coefficient (0.12) calculated for the sample. The mediating variable, social comparison, was dropped from the model as it was not found to relate significantly to any of the moderator or dependent variables evaluated. In examining the original model, Draucker performed her analyses using LISREL 7.0 (Joreskog & Sorbom, 1989). In evaluating models LISREL 7.0 provides modification indices which allow the investigator to determine which non-estimated paths, if included in the model, would maximally improve the fit of the model to the data. Modification indices in Draucker's (1995) analysis resulted in the addition of paths between mastery and all remaining dependent variables (i.e., interpersonal victimization, social introversion, and guilt). Although accomplishment of the mastery task is most closely reflected in the degree of victimization experienced by a sexual abuse survivor, the addition of these paths is supported on a theoretical level by Taylor (1983), who noted that accomplishing cognitive mastery may result in improvement of several areas of functioning. For Draucker's (1995) revised model $X^2(13) = 18.94$, $p = 0.125$, indicating a good fit of the revised model to the data. The adjusted goodness-of-fit (0.91) was only slightly improved in the revised model, but did indicate that the revised model and the data were congruent. The total coefficient of determination for the revised model was 0.146, indicating that the model accounted for approximately 15% of the total variance.

While Draucker's (1995) revised model fit the data, it accounted for only 15% of the total variance. This would indicate that the model is unable to account for a significant proportion of individual variation in response to sexual abuse. In addition, the four independent variables (i.e., powerlessness, betrayal, stigmatization, and traumatic sexualization) and the three cognitive coping tasks (i.e., mastery, meaning, and social comparison) were each assessed using a relatively small number of items (i.e., 3 - 5 items). Alpha coefficients for these variables

ranged from 0.32 to 0.76, indicating modest internal consistency. This poor internal consistency reflects the lack of adequate measures for these variables. Lacking adequate measures, this model cannot act as a reliable guide in assessing important aspects of abuse and coping, targeting clinical interventions, or tracking progress following intervention. In addition, measures available to assess abuse-specific variables in the models of Wyatt et al. (1992) and Draucker (1995) do not possess adequate reliability. Reliability is important to the clinical utility of a variable as it refers to the stability or consistency with which that variable is measured. If a variable cannot be consistently measured, it is unlikely that the variable can be used effectively to predict individual differences in response to sexual abuse or to target interventions.

Even if reliable measures were available, the clinical utility of the variables presented in Draucker's (1995) model is questionable. Specifically, in presenting the model, no attempt is made to provide explanations for empirical findings regarding effective treatments of posttraumatic reactions. For example, there is evidence for the efficacy of exposure therapy with anxiety disorders (Foa, Rothbaum, Riggs, & Murdock, 1991). Exposure therapy has been described by Martin and Pear (1992) as a therapeutic technique that requires the patient to encounter the actual feared situation either in vivo or in imagination and remain in that situation for long periods of time. Exposure therapy is currently a widely used treatment for PTSD (Keane & Koulpek, 1982; Richards & Rose, 1991). The variables contained within Draucker's (1995) model are not clearly applicable to the explanation of mechanism(s) by which exposure therapy achieves its positive effects.

The models of Wyatt et al. (1991) and Draucker (1995), which evaluate psychosocial factors hypothesized to mediate the effects of sexual abuse and moderate its impact on mental health, are specific to the experience of sexual abuse (e.g., maximum rapes per incident, sexual

self-esteem). The specificity of these models to the experience of sexual abuse would imply that the process of coping following sexual abuse differs from the process of coping following other traumatic events (e.g., natural disasters). While situational factors do account for some of the variance in outcome following sexual abuse this effect is in part mediated by variables such as social support, coping strategies, and appraisals which are believed to play the same mediational roles following all types of trauma (Foy, 1992; Meichenbaum, 1994). There is little empirical evidence to support the view that different types of traumatic experiences will initiate different coping processes.

Also, the variables themselves are not easily applicable to the planning of interventions. Therapeutic interventions cannot alter factors such as involvement of authorities, victim age during the most recent abuse incident, or response of significant others to disclosure. Furthermore, previous models are unable to explain the mechanisms by which treatments of PTSD achieve their positive effects. For example, variables presented in the models of Wyatt et al. (1991) and Draucker (1995) (i.e., meaning, social comparison, attributions) do not lend themselves to the explanation of the positive effects found in the application of exposure therapy. A logical alternative to examining abuse specific models of PTSD is to examine sexual abuse in the context of PTSD models based within a broader conceptualization of stress and coping. By examining PTSD in this manner, the process of coping following sexual abuse may be viewed as the same process of coping following other traumatic events (e.g., natural disasters). In addition, models based within a broader conceptualization of stress and coping include variables which are not specific to a particular type of traumatic event.

Stress and Coping

Stress has been defined as the body's physiological, emotional, behavioural, and cognitive reaction to a stressor (Selye, 1985). A stressor is any situation, demand, or circumstance which requires the body to make an adaptation or adjustment in order to maintain equilibrium (Selye, 1985). Coping has been described by theorists as an attempt to maintain homeostasis or enhance the fit between person and environment (French, Rodgers, & Cobb, 1974), or as an attempt to meet environmental demands to prevent negative consequences (Lazarus & Folkman, 1984). Lazarus and Folkman (1984) define coping as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p.141). This definition implies that coping may consist of a number of adjustments made either simultaneously or sequentially which excludes habitual or automatic adjustments to the requirements of daily living.

The stress-coping response process is often described in terms of Selye's (1985) General Adaptation Syndrome (GAS). According to the GAS theory, when an organism encounters a stressor it responds in three consecutive phases: alarm, resistance, and exhaustion. In the alarm phase, the stressor is recognized and the body prepares physiologically for a response. This preparation results in increased heart rate, blood sugar levels and blood pressure and decreases in the activity of other body systems (e.g., digestion). During this phase an individual's attention is concentrated on the immediate situation and intense feelings of anger and fear may be evoked (Davidson & Baum, 1985). These changes in arousal, attention, perception, and emotion are considered normal and adaptive responses which mobilize the person to resist through either fight or flight responses. Similarly, during traumatic events, physiological responses associated

with Selye's (1985) alarm stage are present including heightened or decreased perception, increased heart rate, rapid breathing, increased perspiration, and heightened muscle tone (e.g., Selye, 1985; Snelgrove, 1992). Emotional reactions typically include intense fear, anxiety, shock, horror, anger, denial, disbelief, helplessness, hopelessness, vulnerability, and isolation (Seligman, Abramson, Semmel, & von Baeyer, 1979; Snelgrove, 1992).

In the resistance phase, the body attempts to return to a state of equilibrium through the implementation of coping strategies. If an individual lacks the resources necessary to overcome a stressor and regain equilibrium, the third phase of response, exhaustion, is reached. When the adaptive resources of an individual are exceeded or depleted, the human system of self-defense becomes overwhelmed and disorganized (Selye, 1985). Having been ineffective in protecting the individual from the threat, components of the ordinary response to stress may persist, as if the danger might return at any moment (Horowitz, 1986). In this state equilibrium is not restored and the body remains continually alert for danger (Herman, 1992). If this is the case, an individual may exhibit symptoms which are characteristic of PTSD, such as an exaggerated startle response to unexpected stimuli, as well as intense reactions to stimuli specific to the stressful event (McFarlane, Weber, & Clark, 1993). Increased arousal persists in both waking and sleeping states, resulting in numerous types of sleep disturbance such as onset insomnia, sensitivity to noise, and frequent night wakings (Shore, Tatum, & Vollmer, 1986). There is also evidence that the intrusive and avoidant phenomenon commonly associated with PTSD may be present, though less extreme, in normal responses to stress (Blank, 1993). When examined in this light, posttraumatic stress reactions may be viewed as a natural outcome of exposure to any stressor which exceeds an individual's coping capacity. In other words, posttraumatic reactions are an extreme within the normal stress-coping continuum.

Models of PTSD

One of the earliest models of posttraumatic stress and coping was proposed by Kilpatrick, Veronen, and Resnick (1979). Kilpatrick et al.'s (1979) model was based on Mowrer's (1947) two-factor learning theory, hypothesizing that both classical and operant conditioning are essential to the development and continuation of fear in response to cues associated with the traumatic event. The avoidance of fear provoking stimuli was thought to be strengthened through negative reinforcement (i.e., fear reduction). Perpetuation and generalization of the fear response were thought to occur as a result of stimulus generalization and higher order conditioning.

Following Kilpatrick et al. (1979), models of PTSD focused on the mediational roles of information processing and cognition. Horowitz (1986), in his information processing model of a normal stress response, proposed that reactions to trauma are mediated by sensory, perceptual, and cognitive processing of the traumatic event. Horowitz (1986) assumed that when an event falls outside normal human experience (e.g., traumatic events), information about that event is held in short-term memory. Posttraumatic stress reactions were conceptualized as the mind's attempt to grasp, organize, process, and integrate overwhelming stimuli. Due to the overwhelming nature of the stimuli presented during traumatic events, it would follow that in order to maintain equilibrium, processing of stimuli must occur in small, discrete portions. This form of processing is reflected in what Horowitz (1986) identified as the mind's compulsive repetition of memories (e.g., flashbacks, nightmares) followed by periods of denial or withdrawal from those memories. Horowitz's (1986) model accounts for the intrusions and avoidance commonly experienced by PTSD sufferers. However, this model assumes that individuals who experience a traumatic event will, at some point, attempt to grasp, organize, process, and integrate the overwhelming stimuli in small chunks, inevitably resulting in re-

experiencing and avoidance. This model also assumes that these attempts will result in re-experiencing and avoidance of stimuli associated with the event. As such, Horowitz's (1986) model cannot account for individual variation in the severity and chronicity of PTSD symptoms, or for those individuals who experience trauma yet do not experience the primary symptoms of PTSD (i.e., re-experiencing the event and avoidance of event related stimuli).

In contrast to Horowitz's (1986) information processing model, cognitive mediator models commonly emphasize the amount of threat perceived by the victim, and the extent to which the experience of trauma influences an individual's beliefs about his/her ability to predict and control events (e.g., Foa, Steketee, & Rothbaum, 1989; Jones & Barlow, 1990). Also emphasized are causal attributions (i.e., who or what do trauma survivors identify as the cause of the traumatic event), and the meaning attributed to the trauma and its outcomes (e.g., Lazarus & Folkman, 1984; Lazarus & Folkman, 1988; Veronen, & Kilpatrick, 1983; Janoff-Bulman, 1985).

For example, Foa et al. (1989) focus their cognitive mediational model on the role of cognitive memory structures. They propose that effective coping following trauma requires that cognitive memory structures be modified through the emotional processing of fear. Structures to be modified include cognitive representations of stimuli from the fear provoking situation (e.g., nightmares, flashbacks), responses to the fear provoking situation, and the meaning assigned to that situation. In order for successful emotional processing to occur, the individual's fear must first be activated through exposure to stimuli associated with the feared situation. Foa et al. (1989) proposed that once this network was activated, the structures to be modified could be refuted, and thereby altered by the introduction of new information which contradict the fear response.

These two-factor, information processing and cognitive mediational models of coping following traumatic events are focused on specific aspects of an individual's response to traumatic stress. The narrowness of this focus restricts the ability of these models to explain individual variation in response to traumatic stress. Current theoretical perspectives utilize more comprehensive models that implicate a wide range of personal, cognitive, social, and environmental factors as mediators and moderators of individual's reactions to trauma. This more comprehensive focus also includes variables that may be of great clinical utility. For example, one comprehensive model of PTSD which could be applied to the study of sexual abuse survivors is the integrative cognitive-behavioural model of adaptation to traumatic stress proposed by Joseph et al. (1995) (see Figure 1).

Joseph, Williams, and Yule's (1995) Model

In their integrative cognitive behavioural model of adaptation to traumatic stressors, Joseph et al. (1995) attribute individual variation to a complex interaction between five components believed to contribute to event cognitions (e.g., nightmares, flashbacks) and negative emotional states following trauma. In total there are seven components to the model. These components include two moderator variables (event stimuli and personality), and five mediator variables (event cognitions, event appraisals, coping strategies, emotional states, and crisis support). The discussion that follows begins with an examination of each component of Joseph et al.'s (1995) model and its relation to existing literature on PTSD and sexual abuse. This will be followed by a description of the interrelationships between variables that have been proposed by Joseph et al. (1995).

Moderator Variables

Event Stimuli. Joseph, et al. (1995) propose that traumatic events present an individual with stimuli that give rise to extreme emotional arousal. A number of investigations have examined the relationship between specific aspects of the sexual abuse event and symptom outcome. For example, Ellis, Atekeson, and Calhoun (1981) found that sexual abuse experiences which were increasingly sudden and forceful, and which involved multiple perpetrators led to increased victim reports of fear, depression, fatigue, and difficulty relating socially to men. In a similar investigation Kilpatrick, Saunders, Amick-McMullen, Best, Veronen, and Resick (1989) found that when sexual abuse involves both physical injury and threat to life, the rate of PTSD diagnosis was 78.6% (N = 391), as compared to 50% across all sexual abuse scenarios. Similarly, Meichenbaum (1994) and Neumann, Gallers, and Foy (1989) found that increased number of exposures to sexual abuse and increased number of perpetrators were positively related to increases in PTSD symptomatology. It appears then, that there is sufficient evidence for the inclusion of event stimuli as a modifier of the process of coping and symptom development following sexual abuse.

Personality. A variety of personality variables have been posited as modifiers of vulnerability/susceptibility to PTSD symptomatology following sexual assault. These variables include neuroticism, mastery, competence, fatalism, and helplessness (e.g., Dean & Ensel, 1982; Wheaton, 1982). Though Joseph et al.'s (1995) model includes the variable 'personality' as a single construct one aspect of personality, neuroticism, is of particular interest due to its impact on an individual's response to stress.

Measures of chronic anxiety, depression, nervousness, moodiness, hostility, vulnerability, self-consciousness, and hypochondriasis all converge on this general personality factor, which is most generally described as a continuum from emotional stability to emotional instability.

Neuroticism has been defined as the predisposition to experience negative affective states such as anxiety, anger, depression, and other cognitive and behavioural manifestations of emotional instability (McCrae & Costa, 1989). Costa and McCrae (1992) expanded on this definition by stating that neuroticism "includes more than susceptibility to psychological distress...men and women high in neuroticism are also prone to have irrational ideas, to be less able to control their impulses, and to cope more poorly than others with stress" (p.14). Bolger (1990) confirmed that neuroticism is an index of vulnerability to stress. Given that individuals high in neuroticism cope more poorly with stress, and given that PTSD is an extreme on the continuum of normal reactions to stress (Selye, 1985), it would follow that neuroticism may moderate an individual's vulnerability/susceptibility to PTSD symptomatology following sexual assault

Mediator Variables

Event Cognitions. While numerous treatment studies have examined event cognitions (i.e., flashbacks, nightmares) as an outcome variable, little experimental literature has been generated about the role of event cognitions as an aspect of cognitive processing of traumatic information. As previously described by Horowitz (1986), traumatic events must be processed in small and discrete portions that allow the individual to maintain equilibrium. Processing of event stimuli as event cognitions is generally thought to take the form of intrusive thoughts, emotions, and behaviours (Herman, 1992; Joseph et al., 1995). These intrusions are said to occur with all the vividness and emotional force of the original event including sounds, sights, smells, tastes, and tactile experiences (Janoff-Bulman, 1985). Thus, event cognitions mediate coping and

symptom development through their role in processing of trauma related stimuli.

In accordance with the view espoused by Horowitz (1986), Joseph et al . (1995) propose that “a traumatic event presents an individual with stimuli which, as perceived at the time, gives rise to extreme emotional arousal but which cannot be immediately processed” (p.517). Due to their salience to the individual and to the difficulties presented by easy assimilation, the iconic/sensory representations of event stimuli are held in immediate memory. These iconic representations, or ‘event cognitions’, provide the basis for re-experiencing phenomenon or intrusive recollections of the traumatic event (i.e., flashbacks, intrusive thoughts, nightmares) which are a core feature of PTSD.

Event Appraisals. Lazarus and Folkman (1984) differentiate between two levels of event appraisals. Primary appraisals involve an assessment of the stressor where as secondary appraisals involve an estimation of personal resources available in which to deal with the stressor. As stated by Joseph et al. (1995) in their discussion of appraisal factors, “One important aspect of appraisal is causal attribution” (p.520). In the present study, primary appraisals of the event, specifically the individual’s appraisals of cause regarding the event, will be examined.

According to attribution theory people have a basic need to explain events, particularly events which are unusual, unexpected, or unwanted (Weiner, 1985). An individual can be said to attribute the cause of an event to either external or internal factors. Persons who attribute the cause of an event to external factors believe that their experiences and the outcomes of those experiences are due to chance or the actions of others, rather than their own actions or abilities. Persons who attribute the cause of an event to internal factors believe that their experiences occur in response to their own actions. The actions of others towards them are, therefore, contingent upon their own characteristics or actions.

In reference to PTSD, research indicates that more internal, global, and stable causal attributions of traumatic events are associated with more depressive, anxious and intrusive symptomatology up to two years following that event (Joseph, Brewin, Yule, & Williams, 1991, 1993). More specifically, in examining the development of PTSD symptoms following sexual abuse, Wyatt et al. (1991) found that 65% (n = 55) of female abuse survivors made internal attributions about the abuse event. The relationship between internal locus of control and negative outcome was significant ($r = 0.24$, $p < 0.01$). It would follow that internal, stable, and global event attribution/appraisals will impact on the coping process to produce greater levels of PTSD symptomatology.

Coping Strategies. Coping response tendencies have been implicated in the development, maintenance, and exacerbation of a variety of emotional and medical disorders (Billings & Moos, 1984; Folkman & Lazarus, 1986, 1988). While the mechanisms through which coping strategies operate have not been clearly defined, few would deny their importance in reducing anxiety and subjective distress following exposure to traumatic events (e.g., Bowker, 1983; Folkman & Lazarus, 1986, 1988).

When examining coping strategies, investigators typically differentiate between problem-focused or “approach” coping (e.g., channelling resources toward solving the problem) and emotion-focused or “avoidant” coping (e.g., denial, regulating emotions) (e.g., Folkman & Lazarus 1985; Moos, 1993). Research indicates that individuals who do not use problem-focused or “approach” coping strategies are more likely to experience psychological problems. This effect occurs regardless of the extent to which emotion-focused “avoidance” coping strategies are used (Rosenberg, Peterson & Hayes, 1987). A number of investigators have found that greater reliance on emotion-focused coping strategies and distracting techniques were associated

with more severe PTSD symptomatology (e.g., Solomon, Mikulincer, & Flum, 1988; Cohen, & Roth, 1987; Nezu & Carnevale, 1987).

Emotional States. Theorists who propose that processing of event stimuli occurs in discrete phases have drawn attention to the multiple emotional states experienced following trauma. Although fear and anxiety have been emphasized by some theorists (e.g., Foa et al., 1989), PTSD is not synonymous with these emotions. A much broader range of negative emotions is likely to be felt by survivors, including grief, horror, shock, vulnerability, rage, anger, shame, and guilt (Snelgrove, 1992). It has been hypothesized that traumatic and stigmatizing events such as sexual abuse are particularly likely to elicit emotions of shame and guilt (Snelgrove, 1992).

As with other aspects of traumatic stress, the emotional states which result from trauma are considered to be outside the range of ordinary emotional experience. Furthermore, due to their overwhelming nature, these emotional states are likely to deplete an individual's capacity to bear feelings (Herman, 1992), resulting in exhaustion and posttraumatic reaction (Selye, 1985). This investigation will focus on emotional states experienced during and immediately following the traumatic event. However, it should be noted that the emotional states which result from the experience of trauma are not only experienced during and immediately following the traumatic event, but also after the event as they continue to be elicited as the survivor re-experiences the trauma as event cognitions. Thus, posttraumatic reactions are probably maintained over time.

Crisis Support. In accordance with Joseph, Andrews, Williams and Yule (1992), the term 'social support' will be considered synonymous with the term 'crisis support'. The role of social support in protecting and maintaining physical and psychological health has been well

established across a variety of studies (e.g., Alloway & Bebbington, 1987; Cohen & Wills, 1985; Thoits, 1982). However the specific mechanisms that account for the effects of social support on stress remain poorly understood. One of the reasons for confusion about the mechanisms linking stressors, social support, and outcomes has been a lack of contextual specificity (Coyne, 1976). Studies which examine the moderating effects of social support assess stressful life events rather than situationally defined stressors. Prior research has also focused on tests of main or stress-buffering effects of social support, rather than the formulation of specific causal links (Quittner, Glueckauf, & Jackson, 1990). While prior research indicates that social support is a moderator of an individual's response to life event stress (e.g., Cohen & Wills, 1985), as a form of coping assistance engaged following a specific situational stressor social support may act as a mediator, not a moderator. Empirical investigations of social support, as a form of coping assistance engaged following a specific event, indicate that social support is a mediator arising from the event, not that of a pre-existing moderator (e.g., Quittner, et al. 1990).

The role of social support as a mediator of the coping process following sexual abuse has been best described using Lin and Ensel's (1984) support deterioration model. According to this model some traumatic events, such as sexual abuse, elicit shunning or avoidance by members of the social support network (Barrera, 1988). In addition to avoidance and shunning, traumatic and stigmatizing events such as sexual assault might lead members of a survivors social support network to respond in ways that are not conducive to recovery (Wortman & Lehman, 1985). These reactions of the social support networks of sexual abuse survivors are not necessarily intentional. Members of a survivor's social support network are affected by the survivor's trauma, whether or not they are cognizant of the actual event, due to the fact that usual patterns of interaction are significantly altered (Remer & Elliot, 1988). For example, if a woman who is

usually out-going is raped while at a party, a normal response to this traumatic event would be to avoid stimuli associated with the event. This could involve avoidance of the house at which the rape occurred, avoidance of similar 'party situations', and avoidance of individuals who attended the party. These avoidant responses would alter usual patterns of interaction with the support network and imply the withdrawal of previously available supports.

Solomon and Smith (1994) note that as the number of supports available in an individual's existing social support network increases, the probability of individual members of the support network withdrawing their support following trauma increases. In support of this statement, Green (1994) found that women who have a large number of available social supports did most poorly in coping with a traumatic experience. Poor coping was found to be the result of the withdrawal of previously available supports.

The reduced availability of social support to abuse survivors is not necessarily due to withdrawal of social support by members of the social support network. While a victim of sexual abuse may have an extensive number of friends, relatives, or others in her social network, if the victim is not willing to draw upon this social network (i.e., through disclosure of the abuse), this support would not be engaged. Whether due to withdrawal of support by the members of a support network or refusal of a victim to engage supports, the loss of social support may result in increased incidence of psychological distress.

Variable Interrelationships

Based upon an extensive review of the literature Joseph, et al.'s (1995) integrative cognitive-behavioural model of response to traumatic stress proposes the existence of a complex pattern of interrelationships between model variables. The starting point of this model is the experiencing of a traumatic event that presents the individual with event stimuli/event

characteristics. Due to the salience of the event, these stimuli are held in immediate memory as event cognitions (e.g., intrusive thoughts, flashbacks, nightmares). As stated by Joseph et al. (1995) “ Traumatic cognitions, images, sounds, smells, and tactile experiences will idiosyncratically reflect the individual’s prior experiences and the specific components of an event that presented the individual with the greatest subjective threat” (p.517). Event cognitions are, therefore, moderated by personality variables (i.e., neuroticism) and/or representations of prior experiences, and event stimuli. Event cognitions are then influenced by further cognitive activity called event appraisals. Appraisals are distinguished from event cognitions as being thoughts about the information depicted in event cognitions. The appraisal of event cognitions is believed to be influenced by prior experiences/personality. The occurrence of event cognitions and appraisals are proposed to elicit strong emotional states which are themselves subject to further cognitive appraisals. All of these factors (cognitions, appraisals, and emotional states) are said to activate attempts to cope. One important element of coping identified by Joseph et al. (1995) is crisis support. Joseph et al.'s (1995) model indicates that social support can influence attributions, coping, and emotional states both directly and through interaction with appraisals.

As presented by Joseph et al. (1995) an individual exposed to trauma will undergo repetitive cycles of intrusions and appraisals associated with emotional reappraisals and coping. The result of these repetitive cycles is the occurrence of more intrusions (i.e., event cognitions) and appraisals. Thus, the process of adaptation following trauma occurs over time.

Despite its strong empirical underpinnings and apparent clinical utility, while discrete portions of Joseph, et al.'s (1995) model have been empirically examined, no attempt has been made to empirically evaluate the model as a whole. In addition, those evaluations of discrete portions of the model that have taken place have been limited to only one sample (i.e., survivors

of the Herald of Free Enterprise disaster) (e.g., Joseph, Dalglish, Thrasher, Yule, Williams, & Hodgkinson, 1995).

The Present Study

The present investigation evaluated Joseph et al.'s (1995) model as a whole, using path analysis to evaluate the interrelationships between model variables. This study goes beyond the sample used in the conception of the model to extended its generalizability through application to a sample of female sexual abuse survivors. The ability of the model to account for individual variation in response to sexual abuse was examine though indices of goodness of fit generated by the statistical software package LISREL 7.0 (Joreskog & Sorbom, 1988). While Joseph et al. (1995) posit relationships between model variables, the literature on female survivors of sexual abuse contradicts two of these relationships. Therefore, in adding to the development of theory regarding response and PTSD symptom development following sexual abuse, this study goes beyond Joseph et al.'s (1995) model by hypothesizing two alterations to the model.

First, it was hypothesized that for female survivors of sexual assault, increased availability of crisis support (i.e., social support following crisis) may not result in initiation of adaptive coping strategies and event appraisals. In their discussion of crisis support, Joseph et al. (1995) note the general agreement in the literature that greater availability of crisis support is predictive of reduced rates of PTSD symptomatology (e.g., Jones & Barlow, 1990; Solomon, 1986). Therefore, Joseph et al.'s (1995) model indicates that increased crisis support will result in the initiation of more adaptive coping strategies and appraisals. However, some traumatic events, such as sexual abuse can be stigmatizing and elicit shunning or avoidance responses by members of the support network (Wortman & Lehman, 1985). Therefore, as the number of supports accessed increases, the greater the likelihood that some or all of these support may react

negatively. The second hypothesized modification to Joseph et al.'s (1995) model was the addition of a path from event stimuli to crisis support. Joseph et al. (1995) indicate that the characteristics of a traumatic event will have a direct effect on only one variable, event cognitions. However, some aspects of sexual abuse scenarios are believed to have a direct influence on other variables presented in the model. One event characteristic which has been linked to engagement of social support is amount of force used by the perpetrator. As indicated by Wyatt, Newcomb, and Notgrass (1991), increasing level of force used by a perpetrator was significantly related to increasingly negative reactions of others to the disclosure of abuse.

A second goal of this study was to examine the relationships between subscales of model variables. The importance of examining relationships between subscales was based on the potential clinical utility of identifying specific coping strategies, event appraisals, and neuroticism subtypes which are related to both positive and negative symptom outcomes. For example, in determining what therapeutic interventions will be of greatest benefit to a particular client, it is not enough to state that adaptive coping has a positive relationship with reduced PTSD symptomatology (a relationship which could be identified through path analysis). In order to be clinically useful in targeting interventions, specific coping strategies which relate to both positive and negative symptom outcomes must be identified. Once identified, the presence of these coping strategies within a client's response repertoire could be examined. For example, if it were found that coping through cognitive avoidance is associated with increased symptomatology, and if a particular client were found to engage in high levels of cognitive avoidance, clinical interventions may be able to reduce symptomatology through reducing the individual's use of cognitive avoidance. In this way it would be possible for mental health professionals to identify those coping strategies which are hindering an individual's recovery.

Similarly, it is important to identify those coping strategies whose use is associated with reduced symptomatology. For example if it were found that emotional expression is associated with reduced symptomatology, clinical interventions could focus upon encouraging and eliciting emotional expression from those clients who do not already use this coping strategy..

Identification of specific aspects of neuroticism, and forms of event appraisals which relate to positive and negative symptom outcomes could be applied to the formulation of clinical interventions in a similar fashion.

Method

Participants

The selection of participants involved contacting practitioners working with survivors of sexual abuse from across the province of Ontario. A list of potential practitioners was supplied by the Ontario Women's Directorate. In order to ensure that the number of respondents is adequate to the statistical analyses being performed , a total of 1150 survey packages were mailed to crisis centres whose staff members agreed to request voluntary client participation at the counsellors' discretion. The resulting sample consisted of 122 female survivors of sexual abuse from across the province of Ontario, Canada. Participants ranged in age from 15 to 57 years with a mean value of 31.4 years. Seventy-nine respondents (64.75%) were Caucasian, while 39 (32.1%) were of Native American ancestry. Of the remaining 5 respondents, 3 were of African decent and 2 reported Oriental ancestry. Education level of respondents ranged from completion of grade 8 to completion of a university degree. While the mean number of years of education completed was 11, the majority of respondents (53.2%) had completed at least one year of university. At the time of response the majority of respondents were single (41.3%),

while 36 (29.5%) were married, 20 (16.4%) were divorced, 8 (6.6%) were in common-law relationships, 6 (4.9%) were separated, and 2 (1.6%) were widowed.

Instruments

Event Stimuli. The Sexual Experience Survey (SES) (Koss & Orso, 1982) is "designed to reflect various degrees of sexual aggression and victimization..." (Koss & Gidycz, 1985, pp. 422). As stated by Meichenbaum (1994), the SES assesses not only type of molestation or sexual assault, but the type of coercion or force used during an assault. The SES contains 13 items revised in 1985 to increase clarity and reflect greater degrees of sexual aggression and victimization (see Appendix A). The 13 items are presented in yes-no format, and are worded to portray female victimization and male aggression. As this study focused on female victims of sexual abuse, this format was deemed appropriate. Typical of items is the following: "In reference to the abuse episode(s) have you ever: had sexual intercourse when you didn't want to because a man threatened to use some degree of physical force to make you?". Internal consistency of the items (Cronbach's alpha) was 0.74 (women) and 0.89 (men). Test-retest item agreement is 93%.

Several additional items were administered to gather information about specific aspects of the abuse scenario. Content of these items included the degree of relationship between the abuse survivor and her abuser (e.g., parent, non-family member, stranger, sibling), location of the abuser, number of abuse episodes, length of abuse episodes, age of the victim when the most recent abuse occurred, number of rapes per incident, time elapsed prior to seeking counselling, type of mental health services being received, and presence of suicidal ideation and attempts (see Appendix B).

Path analysis requires that variables be rated on a scale which allows for a range of scores. As the extent of force, coercion, and victimization increases with each SES item, participants received a single score on the SES which is the sum of the item numbers of each positive response made. High scores on the SES indicate higher degrees of victimization, coercion, and force, while low scores reflect reduced degrees of victimization, coercion, and force. Additional items were coded so that high scores indicate a close relationship between victim and abuser, a greater number of abuse episodes perpetrated over a greater length of time, a greater number of rapes per abuse scenario, reduced age at the time of the most recent abuse, and increased time elapsed prior to counselling.

Neurotic Personality. Participant levels of neuroticism were determined using those items specified for the neuroticism scale of the NEO Personality Inventory (NEO-PI), Form S (see Appendix C) (Costa & McCrae, 1992). The neuroticism factor is measured by the NEO-PI across six sub-scales of eight items each. These sub-scales include anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability. Alpha coefficients for each of these sub-scales with the overall neuroticism factor are 0.78, 0.75, 0.81, 0.68, 0.70, and 0.77 respectively (Costa & McCrae, 1992). Self-report measures on the neuroticism scale are significantly correlated with peer ratings on the same factor ($r = 0.54$, $p < 0.05$) (McCrae & Costa, 1989). Test-retest reliability for neuroticism is 0.87 (McCrae & Costa, 1983).

Items of the neuroticism scale present the participant with a statement (e.g., "I am an even tempered person"). Participants respond to each item by indicating the extent to which they agree with that item. Possible responses to each item include: strongly agree, agree, neutral, disagree, and strongly disagree. Scoring of each item ranges from 0 to 4 with a score of 4 indicating a high level of neuroticism while a score of 0 indicates a low level of neuroticism.

Individual items were summed to produce a score for each subscale, as well as an overall neuroticism scale score. The maximum score obtainable on the neuroticism scale is 192 with higher scores reflecting higher levels of neuroticism.

Event Appraisal. The term 'event appraisal' is often used synonymously with the term 'event attribution'. Assessment of event appraisals of causality regularly involves use of the Attributional Style Questionnaire (ASQ)(Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982). The ASQ is a self-report measure of patterns of explanatory style (Peterson & Seligman, 1984), which is the tendency to select certain causal explanations for good and bad events. It has been found that an individual will attribute causality differently to good and bad events (Peterson & Seligman, 1982). Mean internal consistency (Cronbach's alpha) of ASQ scales of Locus, Stability, and Globality are moderate, ranging from 0.44 to 0.69. Due to the low internal consistency of these scales, ASQ results are usually summed to produce a single score for good events and a single score for bad events. This combination of items into a composite score bolsters internal consistency to 0.75 and 0.71 for good and bad events, respectively. Test-retest reliability of the ASQ indicates that attributional style for both good and bad events is a stable aspect of functioning over a period of 4 to 5 weeks (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982). The construct validity of the ASQ has also been demonstrated in relation to the spontaneous generation of attributions and to theoretical symptomatology of depression (Peterson et al., 1982; Seligman, Abramson, Semmel, & von Baeyer, 1979).

As no formal assessment of attributional style in relation to sexual abuse/assault is yet available, the present study used the same questions as Peterson et al. (1982). However, rather than stating these questions with regards to Peterson et al.'s 12 hypothetical events, respondents

were asked to respond to the questions in regards their own sexual assault/abuse experience. Each of the 4 questions were asked both retrospectively (to what/whom did the respondent attribute the cause of the assault/abuse at the time it occurred) and in the present tense (to what/whom does the respondent attribute the cause of the assault/abuse at the present time). This format allowed for examination of the effects of attributional style within the two time frames as well as any changes in attributional style that occurred. Questions were answered on a 7-point Likert-type scale with meanings ascribed to the rating scale reflecting the content of individual items. Scores were summed to produce three subscales (internality, stability, and globality) as well as an overall appraisal score. Scoring of the items was in the directions of increasing internality, stability, and globality. The maximum score on each of these three subscales was 14. The maximum score attainable on the scale as a whole was 56. A high score on event appraisal indicates an external, stable, and global appraisal of the traumatic event (see Appendix D).

Coping Strategies. Coping strategies were measured using the Coping Responses Inventory (CRI) adult form (Moos, 1993), a 48 item scale that measures eight different types of coping responses to stressful life circumstances. These responses are measured by eight scales, each composed of six items: logical analysis (LA), positive reappraisal (PR), seeking guidance and support (SG), problem solving (PS), cognitive avoidance (CA), acceptance or resignation (AR), seeking alternative rewards (SR), and emotional discharge (ED). Positive reappraisal refers to the assignment of positive connotations to an event. Positive reappraisal should not be confused with event appraisal, which refers to the assignment of cause to either internal or external factors. Participants responded to each item on a 4-point scale ranging from 0 = not at all to 4 = fairly often. For the purposes of the present study, two items were been added to the

CRI to determine respondents' use of alcohol and/or drugs or promiscuity as means of coping following assault (see Appendix E).

Internal consistency of the eight CRI scales for female respondents (Cronbach's alpha) range from .58 to .71. Scales are only minimally correlated with social desirability (average absolute $r = .13$ for the eight scales). Internal consistencies of the scales are moderate. Minimization of item redundancies has resulted in grouping clusters of relatively independent coping responses on each scale. In addition, because only one or two coping responses may be able to alleviate stress, other responses within the same category may not be implemented. This would set an upper limit on scale internal consistencies. Coping indices were also found to be relatively stable after a 12-month time lapse (average r over the eight scales = .43) (Moos, 1993).

The eight categories of coping responses evaluated by the CRI reflect both the focus and method of coping. In general, "approach" or problem-focused coping and reflects cognitive and behavioural efforts to master or resolve an issue. In contrast, "avoidance" or emotion-focused coping reflects cognitive and behavioural attempts to avoid thinking about a stressor and its implications or to manage the emotion associated with the stressor. After coping subscale scores have been computed, an approach coping score was computed by summing the scores from logical analysis, positive reappraisal, problem solving and seeking guidance and support subscales. Similarly, an avoidance coping score was computed by summing scores from scales of cognitive avoidance, acceptance or resignation, seeking alternative rewards, and emotional discharge subscales. The maximum possible raw score for approach coping is 120 while the maximum possible raw score for avoidant coping is 80. As approach and avoidance scores are based upon differing numbers of items, a single score for each participant was determined using the following formula:

(raw score on approach coping scale/120) - (raw score on avoidant coping/80)

Negative scores indicate a tendency towards avoidance coping while a positive score is indicative of a tendency towards approach coping.

Crisis Support. Assessment of available crisis support utilized the respondent-based Crisis Support Scale (CSS) of Joseph, et al. (1992) (see Appendix F). The CSS contains several questions concerning (a) the availability of others, (b) contact with other survivors, (c) confiding in others, (d) emotional support, (e) practical support, (f) negative response, and (g) satisfaction with support. Each item is asked twice, being completed retrospectively for the period immediately following the trauma as well as for the present. The scale instructs participants to think of those family members, friends, and others that they had turned to for help, advice, or support following the traumatic event, and to then rate each of the support questions on a seven point Likert-type scale from 'never' (1) to 'always' (7). Wording of some items was altered to reflect sexual abuse and assault (e.g., rather than asking about "the disaster" items asked about "the abuse/assault"). Apart from items measuring negative response to disclosure, the higher the rating the greater the support.

A Time 1 crisis support score was obtained by summing items 1, 3, 5, 7, 9, and 11 (reversed). Similarly, a Time 2 crisis support score was obtained by summing items 2, 4, 6, 8, 10, and 12 (reversed). High scores on Time 1 and Time 2 indicate high levels of available crisis support while low scores reflect low levels of crisis support.

In examining the internal consistency of the CSS, Joseph, et al. (1992) found a Cronbach's alpha for Time 1 of 0.67. In a more recent study of internal consistency, Joseph (1991) found a Cronbach's alpha for Time 2 of 0.80. It should be noted that in this more recent study a larger number of subjects (N = 35) was used.

PTSD Symptom Outcome. Extent and patterns of symptomatology were determined using the Traumatic Symptom Checklist-40 (TSC-40) (see Appendix G) (Elliott & Briere, 1991). The TSC-40 was designed to be a brief, abuse-oriented instrument of reasonable reliability and validity to be used in clinical research as a measure of traumatic impact. Each TSC-40 item asks the respondent to rate the frequency (never = 0 to often = 3) with which she has experienced a specific symptom. Maximal endorsement of all items results in a ceiling raw score of 160, indicating the presence of all symptoms. Items may be summed to produce a total score and six symptom subscales (anxiety, depression, dissociation, sexual problems, sleep disturbance, and the sexual abuse trauma index). Data suggest that TSC-40 subscales and total score discriminate well between abused and non-abused samples, with abuse survivors typically scoring higher than 70% of non-abused peers (Briere & Runtz, 1993). Internal consistency of the six subscales demonstrate adequate reliability, ranging from .59 to .77 with the average subscale alpha = .69. The total score was also shown to be highly reliable ($\alpha = .90$) (Elliott & Briere, 1991). Appropriate TSC-40 items were used to evaluate the occurrence of event cognitions and emotional states during the two month period which followed the most severe abuse episode.

Event Cognitions. As referred to in the model presented by Joseph, et al. (1995), event cognitions “often in imaginal form provide the basis for re-experiencing phenomenon or intrusive recollections of the trauma which are sometimes full and realistic enough to be experienced as if the event were really happening again” (p.517). These cognitive experiences may include flashback, nightmares, and ruminations (Meichenbaum, 1994). Though it has been suggested that intrusions characterized by flashbacks be differentiated from ruminative behaviour (Joseph et al., 1995) there is, as yet, no evidence to support this distinction. The extent to which participants experience these phenomenon was evaluated by items 7, 13, 14, 31, 38 and

39 of the TSC-40. Each item is rated on a 4 point Likert-type scale with 0 = never having experienced the phenomenon to 3 = having experienced the phenomenon often. A single score was obtained by summing responses across these items. The maximum obtainable raw score is 24. High scores on this scale indicate that flashbacks, nightmares, ruminations, and other forms of re-experiencing are a common occurrence while low scores indicate that these symptoms occur infrequently or never.

Emotional States. A number of emotional states are associated with PTSD following sexual assault. These states include feelings of isolation/loneliness, anxiety, sadness, fear, inferiority, and guilt. The extent to which participants experience these emotional states following trauma was evaluated by TSC-40 items 6 and 12, 10 and 34, 15 and 20, 21 and 27, 26 and 33, and 37, respectively. Each item was rated on a 4 point Likert-type scale with 0 = never having experienced the phenomenon to 3 = having experienced the phenomenon often. A single score was obtained by summing responses across these items, with a maximum possible summed score of 44. High scores on this scale indicate that a variety of negative emotional states occurred quite often following the traumatic event while low scores indicate that these emotional states were less varied and not a common occurrence.

Procedure

Forty-three agencies providing counselling services to sexual abuse survivors from across Ontario were contacted with an introductory letter requesting their assistance in identifying participants for this dissertation (see Appendix H). This letter provided the agency with a rationale for the study, a statement of the study's purpose, and a description of the role they would be asked to fulfil in soliciting participants if they agreed to participate. This letter was followed via telephone contact to determine the willingness of agency service providers to act as

subject pool co-ordinators in this study and to answer any questions or concerns regarding the study. A total of 32 agencies agreed to participate in the study. In agreeing to participate in this study, practitioner's were asked to distribute survey packages to sexually abused female clients. Due to the possible psychological effects associated with participation in this study, those practitioners involved in the study were asked to agree to provide psychological debriefing to clients who become upset at any time during or following completion of the survey package.

Of the 11 agencies who did not agree to participate, two stated that their contact with sexual abuse survivors was too limited to allow identification of clients for participation, five stated that agency policies did not allow for referral of clients for research purposes, and four stated that they were reluctant to become involved in this research project due to difficulties resulting from involvement in similar research projects in the past.

Agencies amenable to participation in the study were asked to specify the number of clients they felt they would be able to enlist as participants in the study over a six month period. The requested number of packages of survey materials were mailed to each agency. Participant survey packages included the following materials: (1) a cover letter explaining the purpose of the study, the requirements of participation, the voluntary and confidential nature of participation, expected turn around time for completion of the survey material, information on how to request general study results, and availability of counselling services should they feel psychological distress at any time during or following completion of the survey package (see Appendix H); (2) all instructions and materials relevant to: (a) the Sexual Experiences Survey (Koss & Orso, 1982), (b) the Crisis Support Scale (Joseph, et al., 1992), (c) the NEO-PI neuroticism scale (McCrae & Costa, 1992), (d) Coping Responses Inventory - Adult Form (Moos, 1993), (f)

Traumatic Symptom Checklist-40 (Elliot & Briere, 1991), (g) all additional items included in Appendix B; and (3) a stamped, self-addressed envelope.

Data were gathered from participants over a period of six months (May 1996 - December 1996). Subject pool co-ordinators were re-contacted by telephone to determine the status of their surveys and participation in August, 1996. A total of 146 survey packages (12.7%) were returned. This low rate of return is not unexpected given the topic matter covered in the survey package, the comprehensiveness of the survey package, and the potential for varying levels of motivation across the practitioners involved. Of the returned surveys, nine were incomplete, four were completed by males, two were blank, and five were not legible. The remaining 126 (10.95%) were scored and entered into an SPSS file for analysis. In accordance with current ethical guidelines, all raw data will be stored for a minimum of seven years.

Results

Prior to analysis, all data were examined for accuracy of data entry, missing values, and the assumptions of multivariate analysis. No missing values were indicated. Pairwise linearity was checked using bivariate scatterplots between all pairs of variables contained within Joseph et al.'s (1995) model and was found to be satisfactory. Skewness and Kurtosis of model variables were not significantly different from zero, indicating acceptable levels of normality. Three cases (38, 47, & 53) were univariate outliers, as indicated by extreme z-scores on coping, event cognitions, and event cognitions and the TSC-40, respectively. Using Mahalanobis distance with $p < .001$, case number 15 was identified as a multivariate outlier. A dummy variable was created in the data set which coded each of the four outliers as 1 and all remaining cases as 0. By splitting the data file along this dummy variable and selecting for cases where the dummy variable equalled 0, all four outliers were excluded from further analysis. After exclusion of outliers, 122 cases remained in the analysis. Mean scores of the sample on each of the psychometric tests used are presented in Table 1. As stated by Raykov (1994), in using Structural Equation Modelling (SEM) methods, sample size must be at least five times greater than the number of free model parameters being estimated. This sample size is therefore, adequate for testing Joseph et al.'s (1995) model in which there are 11 parameters to be estimated.

As a part of the preliminary analyses, factor analysis was performed on the 40 items of the TSC-40. Factor analysis is a statistical technique applied to a single set of variables where the researcher is interested in discovering which variables within that set form coherent subsets that are reliably independent. Variables that are correlated with one another but largely independent of other subsets of variables are combined into factors. Factors are thought to reflect underlying

Table 1. Mean scores on psychometric tests.

Psychometric Test	Mean Score	Standard Deviation
Coping Response Inventory		
Emotion Focused Coping	62.71	5.86
Problem Focused Coping	45.12	8.76
Attributional Style Questionnaire (Self-Blame)	14.62	4.08
Sexual Experiences Survey	8.22	2.80
Crisis Support Scale	13.77	8.77
NEO-PI Neuroticism Scale	48.41	10.58
Trauma Symptom Checklist-40	73.27	21.88
Event Cognitions	14.73	4.62
Emotional States	23.76	7.03

processes that have created the correlations among variables. Factor analysis was performed to determine whether this sample produced similar factors to those found in a clinical sample by Briere and Runtz (1989) and in a non-clinical sample by Elliott and Briere (1990) (see Table 2). This investigation of the factor structure of the TSC-40 was deemed appropriate due to unique composition of the sample. Given the large proportion (31.7%) of individuals with Native American ancestry in the sample, it could not be presumed that the properties of the scale presented in Table 2, which are based upon analysis of Caucasian samples, would be supported. Results of factor analysis were also examined to determine whether there is statistical support for the two outcome variables contained within Joseph et al.'s (1995) model, which are derived from this scale (i.e., Event Cognitions and Emotional States).

Table 2. TSC-40 subscales identified by Briere and Runtz (1989; clinical sample) and Elliott and Briere (1990; non-clinical sample) including content and internal consistencies.

Subscale	Clinical Sample Alpha	Non-Clinical Sample Alpha	TSC-40 Item Numbers
Anxiety	.72	.66	1, 4, 10, 16, 21, 27, 32, 34, 39
Depression	.72	.70	2, 3, 9, 15, 19, 20, 26, 33, 37
Dissociation	.75	.64	7, 14, 16, 25, 31, 38
PSAT-h	.72	.59	5, 7, 13, 21, 25, 29, 31
Sexual Problems		.73	5, 9, 11, 17, 23, 20, 35, 40
Sleep Disturbance	.66	.77	2, 8, 13, 19, 22, 28

Note: PSAT-h refers to the Post-Sexual Abuse Trauma-hypothesis subscale.

Using Horn's Parallel Analysis (Longman, Cota, Holden, & Fekken, 1989), three factors were extracted which explained 42.3% of the variance. Correlations between the factors ranged from .19 to .27. These low correlations would indicate that there is less than 10% overlap in variance among the three factors. Thus, the factors can be said to be independent and orthogonal rotation, in which factors are uncorrelated, is justified. Orthogonal (Varimax) rotation was also retained for conceptual simplicity and ease of description. Loadings of variables on factors, communalities, and percentages of variance are shown in Table 3. Variables are ordered and grouped by size of loading to facilitate interpretation. In accordance with the cut-off values proposed by Comrey (1973), factor loadings less than .45 (20% of variance) are replaced by zeros. Interpretative labels which reflect item content are suggested for each factor in italics.

In contrasting the composition of the subscales identified by Briere and Runtz (1989) and Elliott and Briere (1990) to those identified in the present study, comparison of Table 2 to Table 4, which presents item content of subscales identified in the present investigation, is warranted. In comparing Table 2 and Table 3, it appears that while the Factor 2, Somatic Complaints, in Table 4 contains all but one item from the Sleep Disturbances subscale identified in Table 2, additional items reflecting headaches, stomach problems, loneliness, and low sex drive differentiate the two subscales. The first factor identified in this study, Cognitive-Emotional Symptoms, does not bear any resemblance to the subscales identified by Briere and Runtz (1989) and Elliott and Briere (1990). Factor 3, Sexual Problems, whose item content includes sexual overactivity, confusion about sexual feelings, having sex which is not enjoyed, and having bad thoughts and/or feelings during sex, dissatisfaction with one's sex life, and having unwanted sexual feelings is highly similar to the Sexual Problems subscale identified by Elliott and Briere (1990).

In examining the composition of the three factors to the proposed composition of Joseph et al.'s (1995) outcome variables Event Cognitions and Emotional States, it was found that all except one of the proposed test items load onto Factor 1. While the remaining test item (i.e., Flashbacks) did load highly onto Factor 1 (0.428), this loading was not large enough to meet the criteria of 20% variance accounted for. Given this finding, it would seem appropriate to combine Event Cognitions and Emotional States into a single outcome variable. However, due to the theoretical importance of Event Cognitions and Emotional States to Joseph et al.'s (1995) model, and to the possibility that testing the model may uncover that the two variables share differing

Table 3. Factor Loadings, Communalities, and Percent of Variance of TSC-40 Factors.

Item	Factor 1	Factor 2	Factor 3	h ²
Feelings of Unreality**	.803	.000	.000	.661
Tension*	.732	.000	.000	.625
Desire to Self-Harm*	.712	.000	.000	.531
Feelings of Inferiority*	.710	.000	.000	.534
Having Trouble Breathing	.680	.000	.000	.500
Feeling of not being in one' s body**	.640	.000	.000	.413
Interpersonal Difficulties	.594	.000	.000	.490
Spacing Out**	.593	.000	.000	.360
Uncontrollable Crying*	.588	.000	.000	.460
Nightmares**	.590	.000	.000	.427
Dizziness	.580	.000	.000	.540
Feelings of Guilt*	.570	.000	.000	.323
Poor Anger Control	.513	.000	.000	.296
Passing Out	.465	.000	.000	.300
Memory Problems	.460	.000	.000	.265
Sadness*	.494	.000	.000	.479
Feelings of Isolation*	.454	.000	.000	.399
Anxiety Attacks*	.450	.000	.000	.360
Flashbacks**	.000	.000	.000	.250
Insomnia	.000	.792	.000	.675
Tiredness	.000	.720	.000	.565
Restless Sleep	.000	.684	.000	.470
Low Sex Drive	.000	.665	.000	.514
Night Wakings	.000	.647	.000	.496
Offset Insomnia	.000	.601	.000	.418
Headaches	.000	.566	.000	.508
Stomach Problems	.000	.538	.000	.386
Loneliness	.000	.495	.000	.357
Unenjoyable Sex	.000	.000	.710	.527
Sexual Problems	.000	.000	.700	.597
Bad Thoughts/Feelings during Sex	.000	.000	.660	.503
Dissatisfaction with Sex Life	.000	.000	.655	.540
Sexual Overactivity	.000	.000	.588	.347
Confusion about Sexual Feelings	.000	.000	.510	.334
Unwanted Sexual Feelings	.000	.000	.470	.345
Weight Loss	.000	.000	.000	.147
Fear of Men	.000	.000	.000	.180
Fear of Women	.000	.000	.000	.253
Unnecessary/Frequent Washing	.000	.000	.000	.238
Desire to Harm Others	.000	.000	.000	.301
Percent of Variance	26.1	10.4	5.7	

Note: Asterisks indicates items from Emotional States* and Event Cognitions**. Factor 1: *Cognitive-Emotional Symptoms*, Factor 2: *Somatic Symptoms*, Factor 3: *Sexual Problems*.

Table 4. TSC-40 subscales (factors) identified in the present study with internal consistencies and item content.

Subscale	Alpha	TSC-40 Item Numbers
Cognitive Emotional Symptoms	.74	6, 10, 13, 14, 15, 16, 18, 20, 24, 25, 26, 30, 31, 33, 34, 37, 38, 39
Somatic Complaints	.71	1, 2, 4, 8, 9, 12, 19, 22, 28
Sexual Problems	.73	5, 11, 17, 23, 29, 35, 40

degrees and directions of relationships with other model variables, these two variables were retained within the path analysis of the model.

The remainder of the data analyses were performed in four stages. During the first stage of analysis descriptive statistics were examined in order to provide a description of the sample and of the assault/abuse experienced by members of that sample. In the second stage of analysis multivariate analysis of variance (MANOVA) was used to examine mean levels of performance on event cognitions, neuroticism, event appraisals, crisis support, coping, and symptom outcome as a function of ethnicity, age at first abuse incident, therapeutic status, relationship to the perpetrator, time spent in counselling, and time elapsed prior to the first disclosure of the abuse. Symptom outcome included examination of performance on Event Cognitions, Emotional States, and the two factors identified through factor analysis (i.e., Somatic Complaints and Sexual Problems) which did not subsume these two model variables. The third stage of analysis used path analysis to examine the model proposed by Joseph et al. (1995) (see Figure 1). Using Lisrel 7.0 (Joreskog & Sorbom, 1988) this portion of the analyses included examination of beta weights as well as the overall fit of the model. The final stage of the analyses examined

collateral interests (refer to p. 32) through evaluation of interrelationships between sets of variable subscales. Variables whose subscales were examined in this manner include coping strategies, event appraisals, neuroticism, and symptom outcome. Again, symptom outcome was examined in terms of performance on scales of Event Cognitions, Emotional States, Sexual Problems, and Somatic Complaints. Subscales of each variables were examined in relation to subscales of each other variable.

Stage 1

During the first stage of analyses, descriptive statistics were examined in order to provide a description of the sample (e.g., current age, ethnicity, level of education, marital status), and the abuse (e.g., age at first abuse, number of abuse incidents, maximum rapes per incident, relationship to and gender of the abuser, time before disclosure, reaction of authorities, current counselling status, and presence of suicidal ideation/attempts and previous psychiatric contacts). The sample ranged in age from 15 to 57 years with a mean value of 31.4 years. Seventy-nine respondents (64.8%) stated that they were Caucasian, while 39 (32%) were of Native American ancestry. Of the remaining 5 respondents, 3 were of African decent and 2 reported Oriental ancestry. Education level of respondents ranged from completion of grade 8 to completion of a university degree. While the mean number of years of education completed was 11, the majority of respondents (53.2%) had completed at least one year of university. At the time of response the majority of respondents were single (41.3%), while 36 (29.5%) were married, 20 (16.4%) were divorced, 8 (6.6%) were in common-law relationships, 6 (4.9%) were separated, and 2 (1.6%) were widowed.

In describing the abuse/assault, age at which the first abuse incident occurred was reported to range from 1 to 33 years of age. The mean age at first abuse incident was 9.2 years of age and the median was 8 years of age. In accordance with Bancroft (1990), all further analyses which use age at first abuse as a grouping variable will differentiate pre-pubescent and pubescent individuals (less than 15 years of age) from those who are considered sexually mature (15 years of age and older). Due to the wide range in ages in this second group, those over the age of 15 at the time of the first abuse were further divided into 10 year intervals (e.g., 15 to 25 years, 25 to 35 years, etc). The sexual abuse/assault involved more than 50 incidents in 37 cases (30.3%), and from 1 to 10 separate incidents in 32 cases (26.2%). Nineteen individuals stated that the abuse had involved 10 to 25 incidents. Of the remaining cases, 16 (13.1%) individuals reported that the abuse had occurred only once and 16 (13.1%) individuals were uncertain as to the number of abuse incidents involved. In most cases (56.9%) the maximum number of rapes per abuse incident was one, while 11 cases (9.0%) each reported a maximum of two rapes per incident or from 5 to 10 rapes per incident.

In the majority of cases, the abuser was a parent or sibling, accounting for 51 cases (41.8%) and 23 cases (18.9%), respectively. The abuser was identified as a spouse/partner in 19 cases (15.6%), and as a non-family member in 14 cases (11.5%). Of the remaining 16 cases, 6 (4.9%) identified their abuser as an aunt, uncle, grandparent, or cousin. The remaining 10 cases (8.2 %) stated that their abuser was a stranger. Those who reported abuse by a sibling, parent, or spouse were not significantly different in performance on model variables (i.e., coping, crisis support, neuroticism, appraisal, event cognitions, emotional states) ($p > .05$). Analyses for which use relationship to the abuser is used as a grouping variable will combine these three levels of

relationship to the abuser into a single group 'immediate family member'. In addition, no significant differences were found when those reporting abuse by a non-family member known to the victim or a member of the victim's extended family were compared on model variables ($p > .05$). Further analysis in which relationship to the abuser is used as a grouping variable will, therefore, combine these two categories into a second group 'individuals known to the victim'. Individuals in the two relationship groupings (i.e., immediate family member and individual known to the victim) were significantly different from each other $t(106) = 1.93, p < .05$ and from those whose abuser was a stranger $t(89) = 2.21, p < .01$ and $t(32) = 2.08, p < .01$, respectively. In further analyses, groupings based upon relationship to the abuser included Immediate Family Member, Individual Known to the Victim, and Stranger.

The majority of respondents (85.3%) reported that their abuser was male. One respondent disclosed abuse by a female perpetrator. The remaining 18 respondents disclosed that they had been abused by both male and female perpetrators. In each of these 18 cases, abuse was perpetrated by both parents or by a parent and that parent's partner. When asked to estimate the amount of time which passed between the abuse episode(s) and first disclosure of the abuse, the majority of respondents (41.5%) reported that disclosure did not occur until a period of more than ten years had passed. Twenty individuals (16.4%) waited from 1 to 5 years before disclosing about the abuse, and 18 individuals (14.8%) waited from 5 to 10 years prior to disclosure. Only 12 individuals (9.8%) disclosed the abuse within 24 hours of its occurrence. Of the 122 individuals included in the sample, 32 (26.2%) contacted the authorities to report the abuse. Of those individuals who contacted the authorities (51.0%) reported that authorities

reacted in a positive manner following the disclosure. The remainder reported that the authorities had reacted in a negative manner to the disclosure.

A family history of mental illness was disclosed in 84 cases (68.9%). In regards to accessing mental health services, 21 individuals (17.2%) had received such services prior to being sexually abused/assaulted. Of those surveyed, 50 (41%) were currently receiving counselling, 31 (25.4%) were currently receiving counselling and involved in a support group, 17 (13.9%) were in a support group, and 25 (20.5%) were neither in counselling nor in a support group. Of those who sought counselling following the sexual assault/abuse, the time period which elapsed prior to seeking counselling was greater than 10 years in 69 cases (56.6%). Thirteen individuals (10.7%) waited from 5 to 10 years, while an additional 12 individuals (9.8%) waited from 1 to 5 years prior to seeking counselling. Of the remainder, 22 cases waited from one week to one year prior to seeking counselling and 4 individuals were uncertain as to the amount of time which elapsed before they sought counselling. Of those who were in counselling or had received counselling regarding sexual abuse and its sequelae in the past, 49 individuals (40.2%) had received more than 2 years of counselling services. Thirty-eight individuals (31.2%) had received from 6 to 24 months of counselling services, 11 individuals (9.0%) had received from 1 to 6 months of counselling services, and 6 individuals (4.9%) had received less than one month of counselling services. Twenty-five individuals reported that they had, at some point, been given a psychiatric diagnosis. Thirty-four individuals had received psychotropic medications. Meichenbaum (1994) has stated that "A major concern in working with clinical populations, especially those who have been victimized...is the possibility of suicidal behaviour" (p.212). In the current sample, suicidal ideation was disclosed by 114

(93.4%) individuals. The number of individuals who reported having attempted suicide was 61 (50.0%). This figure is consistent with the study by Briere and Runtz (1989) who found that 49% of abused women in their sample had a history of suicide attempts.

Based upon the descriptive data, it appears that the typical abuse scenario involved greater than 50 incidents of abuse which began prior to puberty and was perpetrated by a male family member. Though the majority of respondents had received counselling, disclosure of the abuse often did not occur for a period of over 10 years, and reports of suicidal ideation and suicide attempts occurred with a high frequency.

Stage 2

The second stage of analyses examined differences in mean level of performance on model variables as a function of group using a 2 x 4 x 4 x 3 MANOVA (ethnicity x therapeutic status x age at first abuse x relationship to the abuser). The first factor, ethnicity, has two levels: Caucasian and Native American. As the group composed of those with neither Caucasian nor Native American ancestry included only 5 individuals, this group was not included in the analysis. The second factor, therapeutic status, has 4 levels: receiving counselling and involved in a support group, receiving only counselling, only in a support group, and neither in counselling nor in a group. The third factor, age at which the first abuse incident occurred, had four levels: less than 15 years of age, 15 to 25 years of age, 25 to 35 years of age, and over 35 years of age. The final factor, relationship of the victim to the perpetrator, had three levels: immediate family member, individual known to the victim, and stranger. Justification for age groupings and relationship to abuser groupings were presented on page 50. Dependent variables included the model variables coping, appraisal, event cognitions, neuroticism, crisis support, and

emotional states. Because this stage of analysis focuses on differences between naturally occurring groups, the problem of unequal cell size must be addressed. In a factorial design, if cells have unequal numbers of scores, the total sums of squares for all the effects is greater than the total sum of squares (Tabachnick & Fidell, 1989). As a result, there is ambiguity regarding where the overlapping sums of squares should be assigned, and hypotheses tested for main effects and interactions are no longer independent. In this instance, artificially equalizing cell sizes through random deletion of cases is inappropriate. As an alternative, SPSS MANOVA provides the researcher with a specific method for dealing with unequal cell sizes when survey data are being used. This is the *classic experimental approach*. This method imposes a hierarchy of testing of effects where main effects are adjusted only for each other and for covariates, while interactions are adjusted for main effects and covariates, and are also adjusted for same and lower-level interactions (Overall & Spiegel, 1969).

Using Wilks' criterion, multivariate effects on the dependent variables coping, crisis support, event cognitions, neuroticism, and event appraisals were significant for ethnicity $F(20, 228) = 1.87$, $p < .01$, age at which the first abuse incident occurred $F(18, 230) = 2.11$, $p < .01$, and counselling services being received $F(36, 452) = 2.22$, $p < .01$. Results for relationship to the abuser were not significant ($p > .05$). In addition to main effects, all interactions were tested using Wilks' criterion. Ethnicity and age at which the individual was first abused were found to interact significantly $F(18, 166) = 2.23$, $p < .01$. To determine the proportion of variance in the dependent variables accounted in the three significant main effects and the significant interaction, η^2 coefficients (η^2) were examined. The η^2 coefficient provides an index of the strength of association, representing the amount of variance accounted for in the grouping

variables by the best linear combination of dependent variables. Values of the η^2 coefficient may range in value from 0 to +1. The results reflect a strong association between ethnicity and age at first abuse and the combined dependent variables with $\eta^2 = .368$ and $\eta^2 = .379$, respectively. A more substantial relationship was found between counselling services being received and the combined dependent variables $\eta^2 = .634$. It should be noted here that, in calculating η^2 on 11,044 tests of statistical significance in issues of Journal of Counselling Psychology published between 1970 and 1979, Haase, Waetcher, and Solomon (1982) reported a median η^2 value of 0.083 and an interquartile of values from 0.043 to 0.268. While the η^2 values found in this study are quite large, Tabachnick and Fidell (1989) have noted that the effects reflected in η^2 values tend to be much larger in multivariate versus univariate analyses. Unlike the majority of the clinical literature examined by Haase, et al. (1982), in which only one dependent variable was used, the present values of η^2 refer to the association between a grouping variable and a combination of a number of dependent variables. Thus, the large η^2 value for the counselling grouping variable reflects the combined contributions each of the five dependent variables to the association with counselling status.

Follow-up analyses were conducted using discriminant function analysis, as outlined in Tabachnick and Fidell (1989). Discriminant function analysis has two main purposes. First, discriminant function analysis identifies the best linear combination of dependent variables, allowing the researcher to determine the extent to which the set of dependent variables can be used to predict group membership. Thus, while MANOVA allows the researcher to answer the question 'Is group membership associated with reliable differences among the combined dependent variables scores?', discriminant function analysis answers the question 'To what

extent can the set of dependent variables differentiate among groups?' Second, as a follow-up to MANOVA, discriminant function analysis provides, through examination of loadings of each predictor variable onto the combinations of predictors, called discriminant functions, for the identification of which dependent variables are associated with group differences. Therefore, as a follow-up to the significant MANOVA results in this study, discriminant function analysis will answer the questions 'Are groupings based on ethnicity, age at which abuse began, and counselling status associated with reliable differences among the combined dependent variables?' and 'Which dependent variables contribute to these reliable differences?'

Discriminant function analysis, as a follow-up to MANOVA, has a number of advantages when compared to use of univariate F tests (ANOVAs). First, discriminant function analysis identifies $N-1$ (where N is the number of levels in the grouping variable) potential underlying dimensions (discriminant functions) along which the dependent variables may be related, while univariate F tests assume only one underlying dimension. Second, by providing the loadings of each dependent variable onto the discriminant function, discriminant function analysis specifies the relative contribution of each dependent variable, rather than just the rankings of importance of the dependent variables which would be provided by univariate F tests. Third, discriminant function analysis takes into account the intercorrelations of dependent variables. The majority of correlations between dependent variables in this study were moderate (see Table 5). When univariate F tests are used when dependent variables are correlated, controlling for type I errors through Bonferroni correction becomes over-conservative, making it more difficult to detect real effects. In addition, when dependent variables are correlated, univariate F tests may yield misleading results as the importance of one contributing variable may be minimized, while

others may be maximized. Fourth, through examination of group means rather than rank ordering of groups, discriminant function analysis allows for a more precise interpretation of the pattern of differences among the predictors as a whole, in an attempt to understand the dimensions along which groups differ (see Borgen & Seling, 1978 or Haase & Ellis, 1987 for a review). As discriminant function analysis is typically a one-way analysis, as it is in this case, no special problems are posed by unequal sample sized across groups (Tabachnick & Fidell, 1989). Following the finding of three significant MANOVA main effects, three discriminant function analyses were performed to determine which dependent variables contributed to differentiation between groups. The first discriminant function examined ethnicity as a grouping variable and was significant $X^2(26) = 49.9, p = .003$, explaining 35.7% of the variance. Dependent variables which loaded onto this function included problem focused coping (.518), vulnerability as measured by the NEO-PIR neuroticism scale (.409), impulsiveness as measured by the NEO-PIR neuroticism scale (.313), and self-blame (-.300). Function 1 can therefore be said to represent increased use of problem focused coping methods, increased levels of impulsiveness and vulnerability, and increased likelihood of attributing the cause of the abuse to others. The means of ethnicity groups on the combined dependent variables were -.210, and .096. Thus, Caucasian individuals (group 1) rated these aspects of their response to abuse quite low, while Native Americans (group 2) rated these variables moderately. Percentage of cases correctly categorized was 68.85%. Classification was best for Caucasians (70.9% correctly classified).

A second discriminant function analysis examined age at which the first abuse incident occurred as a grouping variable and was significant $X^2(26) = 46.63, p < .01$, accounting for 33.8% of the variance. Dependent variables contributing to the first discriminant function

included social support (-.474) and anxiety as measured by the NEO-PIR neuroticism scale (.383).

Table 5. Correlations between model variables and variable subscales included as dependent variables in MANOVAs.

	Coping		Neuroticism										
	EC	CS	EF	PF	Ecog	ES	App	N1	N2	N3	N4	N5	N6
Event Characteristic (EC)	1.0												
Crisis Support (CS)	.303	1.0											
Coping													
Emotion Focused (EF)	.385	-.359	1.0										
Problem Focused (PF)	.179	-.353	.346	1.0									
Event Cognitions	.312	-.428	.496	.318	1.0								
Emotional States	.206	-.224	.470	.446	.768	1.0							
Appraisal	-.591	-.359	.449	.252	.439	.427	1.0						
Neuroticism													
Anxiety (N1)	.209	-.250	-.374	-.315	-.348	-.289	-.356	1.0					
Angry Hostility (N2)	-.050	-.226	-.118	-.299	-.359	-.095	.016	.360	1.0				
Depression (N3)	-.100	-.270	-.378	-.247	-.317	-.363	-.369	.702	.332	1.0			
Self-Consciousness (N4)	.300	-.223	-.304	.257	-.208	-.277	.005	.579	.262	.646	1.0		
Impulsiveness (N5)	.207	.471	-.373	.249	.205	.265	-.119	.255	.355	.221	.289	1.0	
Vulnerability (N6)	-.054	-.132	-.307	.258	-.356	-.241	-.149	.613	.571	.662	.510	.330	1.0

Note: Dependent variables are model variable. Each variable is made of a number of subscales. For example, while the variable Event Cognitions is based upon the a single summed score, Neuroticism is based upon the combination of scores from six subscales. Correlation values greater than (+/-) .195 and (+/-) .254 are significant at $p < .05$ and $p < .01$ levels, respectively.

Therefore, this function represents reduced access/availability of social supports following sexual abuse and an increase in anxiety. The means of age groups 1 to 3 on the dependent variables were .273, -1.18, and -2.02 respectively. Thus, individuals who were less than 15 years of age at the time of the first abuse (group 1) rated these aspects of their response moderately, individuals between the ages of 15 and 25 at the time of the first abuse incident (group 2) rated these variables low, and those older than 25 years of age at the time of the first abuse incident rated these variables quite low. Percentage of cases correctly categorized was 69.67%. Classification was best for group 3 (100% correctly classified). The second discriminant function for age was not significant ($p > .05$).

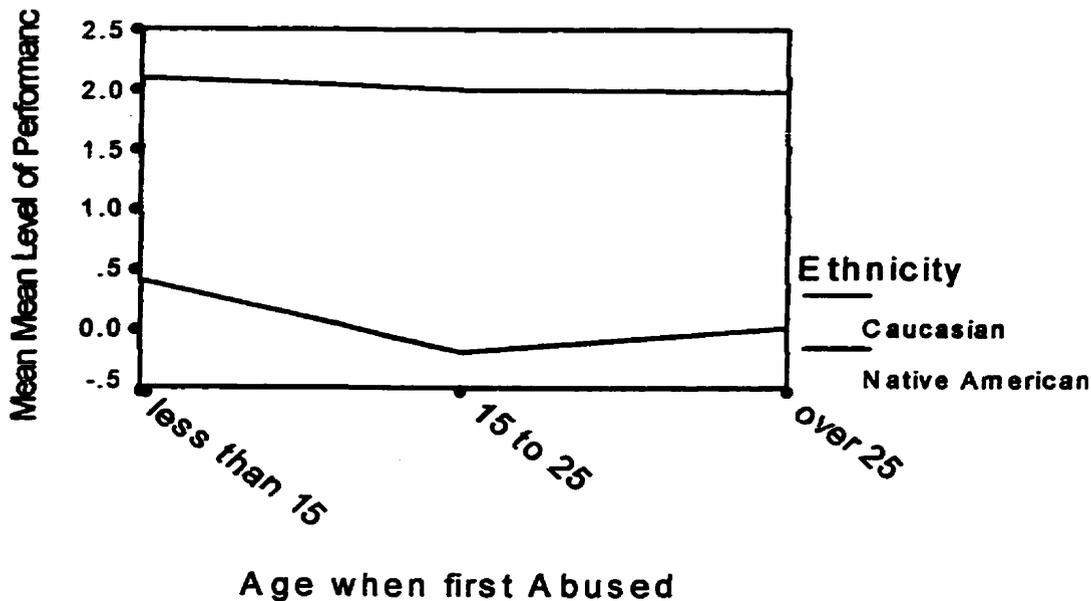
A third discriminant function analysis was performed using current counselling status as a grouping variable. This first discriminant function in this analysis was significant $X^2(51) = 104.31$, $p < .001$, accounting for 60.6 % of the variance. Dependent variables which contributed to this function included 3 subscales from the NEO-PIR neuroticism scale: anxiety (.447), vulnerability (.349), and depression (.348). The means of the various counselling groups 1 to 4 on the dependent variables indicate that those currently involved in a support group scored quite high on the first function (1.24), while those currently involved in both a support group and counselling (.343) and those receiving neither service (.230) scored moderately. In contrast those currently receiving counselling services (-.657) rated themselves low on anxiety, vulnerability, and depression. Percentage of cases correctly categorized was 54.1 %. Classification was best for those currently in a support group (77.8% correctly classified). The second discriminant function for counselling status was not significant ($p > .05$).

In addition to the examination of main effects, discriminant function analysis was used to examine the significant interaction found between the grouping variables ethnicity and age at which abuse first occurred on the combined dependent variables. In order for analysis results to be meaningful the data file was split so that discriminant function analysis could be performed on age at first abuse separately for Native and Caucasian respondents. As discriminant function analysis is typically a one-way analysis, and as the sample size of the smallest group ($n = 39$) exceeds the number of predictor variables being used, no special problem are posed by the unequal sample sizes in ethnicity groups (Tabachnick & Fidell, 1989). For Caucasian respondents age at which an individual was first abused was significant $X^2(24) = 50.516, p < .01$, accounting for 89.79% of the variance. Dependent variables which contributed to the discriminant function included trait anxiety (.399) and crisis support (-.333). Therefore, this function represents reports of increased levels of trait anxiety and reduced accessing and satisfaction with crisis supports. The means of age groups 1 to 3 were .392, -2.07, and -1.99, respectively. Thus, Caucasian individuals who were less than 15 years of age when first abused (group 1) rated these aspects of their response moderately, individuals between the ages of 15 and 25 at the time of the first abuse incident (group 2) and those over age 25 at the time of the first abuse incident (group 3) rated these variables low. For individuals of Native ancestry, discriminant function analysis using age at first abuse as the grouping variable was not significant ($p > .05$). Graphic representation of the interaction between ethnicity and age at first abuse incident is presented in Figure 5.

Consistent with the findings of discriminant function analysis, Figure 5 shown that mean level of performance in Caucasian individuals did alter with the age at which the first abuse

incident occurred, while mean levels of performance for Native American individuals were not influenced by the age at which the first abuse incident occurred.

Figure 5. Interaction between ethnicity and age at first abuse incident



Note: in Figure 5 age is a categorical variable. This graph does not depict an age-related trend. Increased levels of ‘Performance’ indicates increased scores on trait anxiety as well as decreased access/availability of crisis supports.

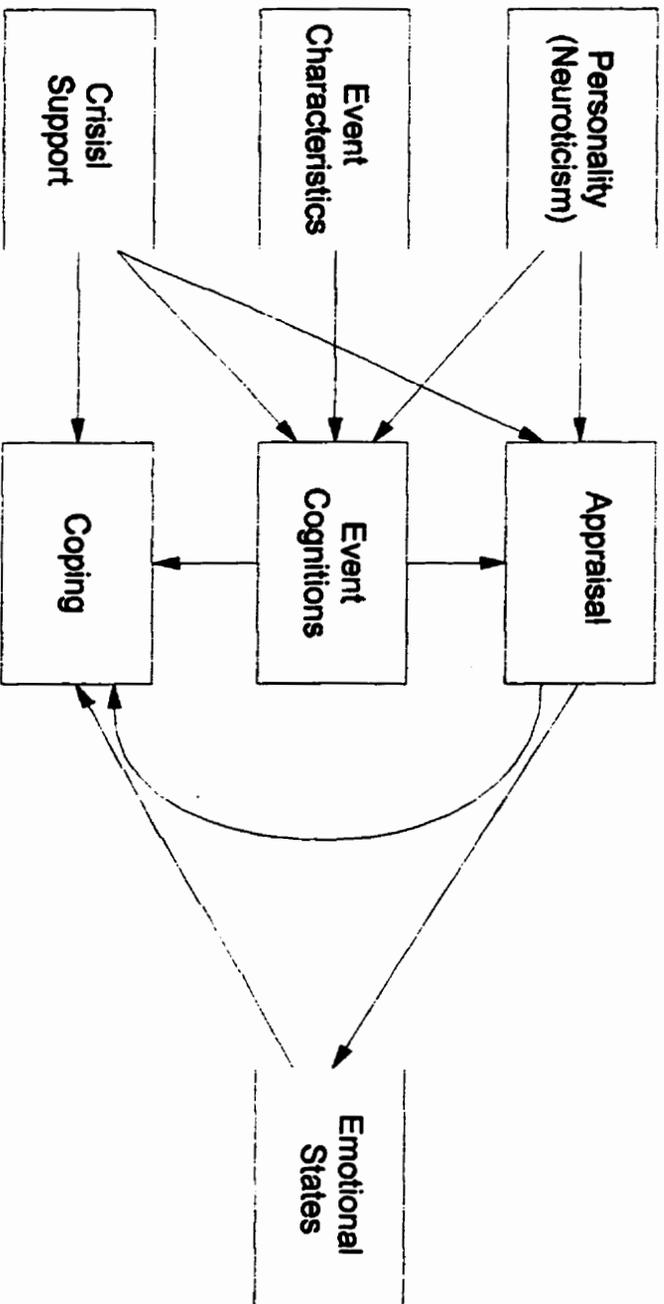
Stage 3

Path analysis (LISREL 7.0, Joreskog & Sorbom, 1988), was conducted to examine the process of coping and symptom development following sexual abuse. The model proposed by Joseph et al. (1995) (see Figure 1) was hypothesized to be the most appropriate model for the present data. In order to simplify the analysis, bi-directional paths within Joseph et al.’s (1995) model were replaced with unidirectional paths. First, as personality is considered a stable construct Joseph et al. (1995) describe it as influencing cognitive activity and schemata. Within

the model, however, over time personality may come to be influenced by event cognitions. The present study examines cross-sectional data. So, it is not appropriate to examine those bidirectional effects which are related to the passage of time. As such, the bi-directional path from personality to event appraisal was replaced with a unidirectional arrow from personality to event appraisal. Second, bi-directional path between appraisal and coping, which represents the reciprocal nature of this relationship over time, was replaced with a unidirectional arrow from event appraisal to coping. Third, emotional states such as grief, guilt, shame and fear, are believed to be associated with, and in fact be the result of, the occurrence of event cognitions and automatic thoughts/appraisals (Joseph et al., 1995). The bidirectionality of this relationship is associated with a sequencing of events in which appraisal's impact on emotional states precedes the effects of emotional states on appraisals. Due to the cross-sectional nature of the data, it was, therefore, deemed appropriate to replace the bi-directional path between appraisals and emotional states with a unidirectional arrow from appraisal to emotional states. Finally, the activation of social supports has been described as a subtype of coping (Moos, 1993). It would, therefore, follow that the type and extent of social supports which are engaged will be determined as a result of the individual's overall coping strategy. Therefore, the bi-directional path between coping and crisis support has been replaced by a unidirectional arrow from coping to crisis support. A representation of the simplified model, with exogenous variables on the left, is presented in Figure 6.

Two modifications to Joseph et al.'s (1995) model, based on the literature regarding sexual abuse and PTSD, were hypothesized. First, in their discussion of crisis support Joseph et al. (1995) note the general agreement in the literature that greater availability of social support is

Figure 6
Simplified version of Joseph et al.'s (1995) integrative cognitive-behavioural model.



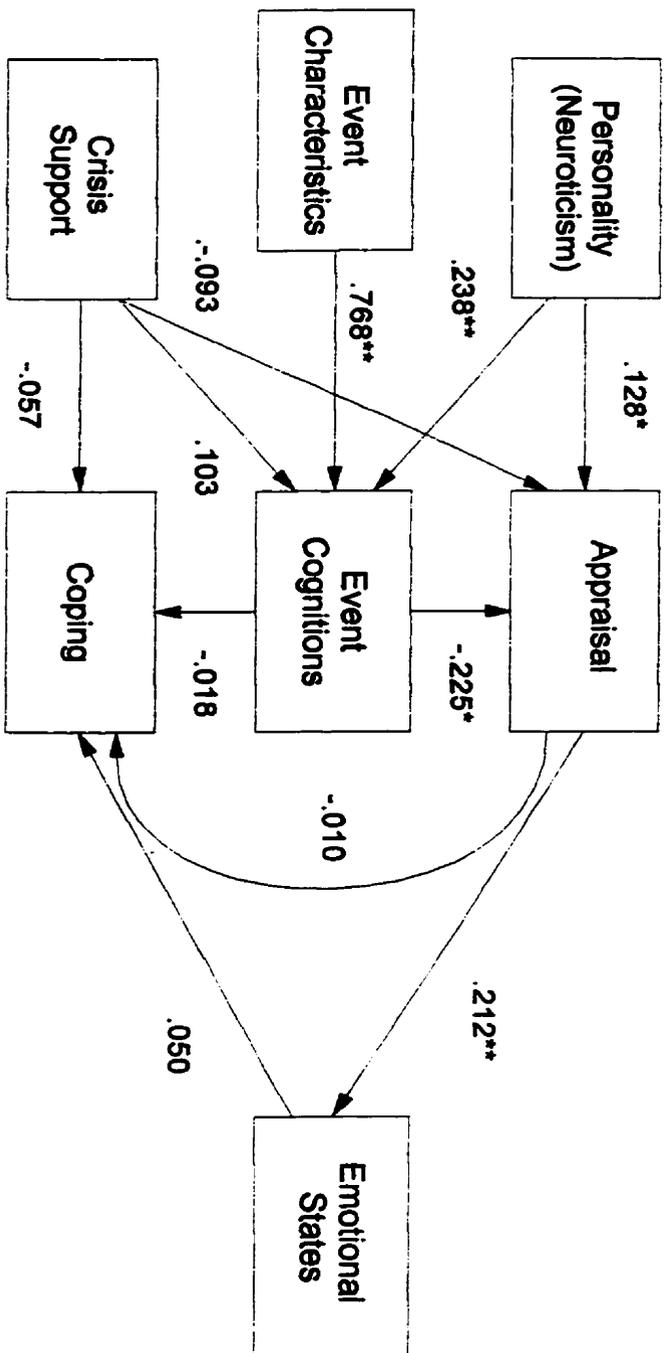
predictive of reduced rates of PTSD symptomatology (e.g., Jones & Barlow, 1990; Solomon, 1986). However, some traumatic events, like sexual abuse, can be stigmatizing and elicit shunning or avoidance responses by members of the social support network (Wortman & Lehman, 1985). In addition, due to the stigmatizing nature of sexual abuse, victims may fail to engage social supports, preventing support systems from assisting them in dealing with the trauma. It was, therefore, hypothesized that for female survivors of sexual abuse, increased availability of crisis support may not result in the initiation of adaptive coping strategies and event appraisals. Second, Joseph et al. (1995) indicate that the characteristics of a traumatic event will have a direct effect on only one variable, event cognitions. However, it has been found (e.g., Meichenbaum, 1994; Parrot & Bechofer, 1991) that some aspects of sexual abuse scenarios influence other variables presented in Joseph et al.'s (1995) model. Specifically, engagement of social support has been linked to amount of force used by the perpetrator. As indicated by Wyatt et al. (1991), increasing level of force used by a perpetrator is significantly related to increasingly negative reactions of others to the victim when sexual abuse is disclosed. Thus, the addition of a path from event stimuli to crisis support is proposed.

When tested, it was found that the simplified version of Joseph et al.'s (1995) model did not fit the data. The initial model for the data is shown in Figure 7. When a model does not fit the data appropriately (i.e., χ^2 is statistically significant), modification indices generated by LISREL 7.0 can be used to modify the model and improve its fit. Modification indices show the approximate change in χ^2 expected if a single parameter was freed (if currently constrained) or constrained (if currently free). Using Raykov's (1994) criteria, only those paths (i.e., parameters) whose modification indices exceeded the value of 5 should be freed. As stated by Raykov

(1994), modifications made to a model must also be based upon substantive considerations. Specifically, any proposed modification to a model must be examined both in terms of statistics (i.e., modification indices) and in reference to theory. In examining the output from the model presented in Figure 7, it was found that two paths had modification indices greater than 5. These modification indices were associated with paths from Personality to Event Characteristics and from Event Characteristics to Crisis Support, two parameters which had previously been fixed to equal zero. After individually freeing each of these paths the model fit the data $X^2(7) = 11.27, p = .127$. Addition of these two paths did not endanger the interpretability of the model. Indeed, the addition of a path from Event Characteristics to Crisis Support is one of the modifications hypothesized at the outset of this study to improve model fit. The second hypothesized change to the model, altering the sign of path from Crisis Support to Appraisals, to reflect maladaptive Appraisals in associations with increased Crisis Support, was also supported.

Following the addition of the two paths, a number of insignificant paths remained within the model. In order to streamline the model and further improve its fit, all insignificant paths ($p > .05$) were individually dropped from the model. As each insignificant path was removed from the model, the model was tested to determine the extent to which X^2 and its associated p value were influenced by the removal of that path. It was noted that as each path was removed the value of X^2 and its associated p value increased. The resulting streamlined model fit the data well, $GFI = .970, X^2(13) = 13.41, p > .4$ (see Figure 8). Using regression analysis it was found that this streamlined model accounts for 61.3% of the variance in the symptom variable Emotional States and 28.5% of the variance in the symptom variable Event Cognitions. The R^2

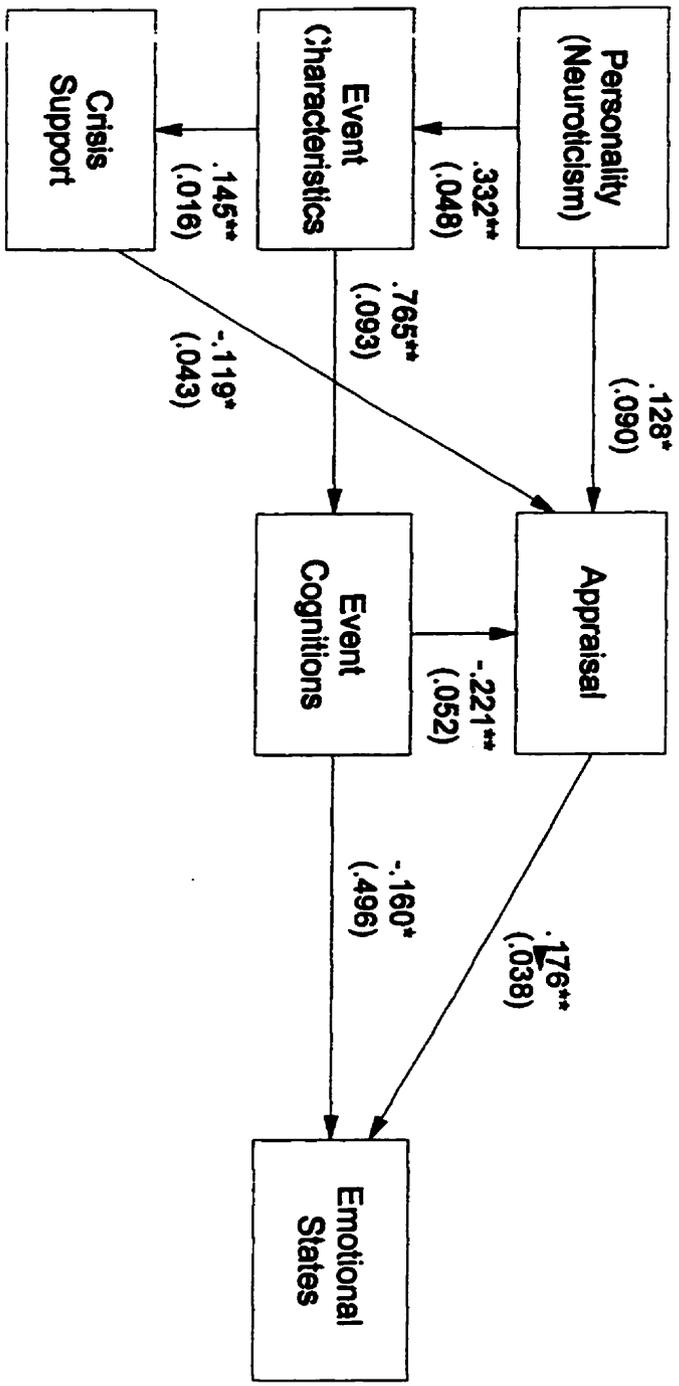
Figure 7
 Path model testing the fit of Joseph et al.'s (1995) model.



Chi sq. (9) = 24.81, $p < .01$

Paths indicate standardized Betas
 * $p < .05$ ** $p < .01$

Figure 8
 Path model testing the fit of Joseph et al.'s (1995) model following alterations based upon modification indices and removal of non-significant paths.



Chi sq. (13) = 13.41, p > 0.4

Paths indicate standardized Betas
 * p < .05 ** p < .01

associated with each path presented in Figure 8, is indicated in brackets below the beta weight of that path.

The model shows some similarities with, as well as some differences from, the model proposed by Joseph et al. (1995). The most obvious difference is that the Coping variable was dropped from the model as it was not significantly related with any of the other model variables. In addition, examination of modification indices resulted in the addition of paths from Personality to Event Characteristics and from Event Characteristics to Crisis Support. In examining the relationship between characteristics of the abuse and Crisis Support, increased force and extent of abuse were related to greater satisfaction with and engagement of crisis supports immediately following the most recent abuse.

In examining the effects of Event Characteristics, Personality, Crisis Support, and Appraisals on symptom outcome, it can be seen Event Characteristics influence the occurrence of Event Cognitions, with greater force and extent of abuse being associated with greater frequency and variety of symptoms of re-experiencing the abuse. Event Cognitions were also influenced indirectly by Personality through Event Characteristics with increased levels of neuroticism being related to reports of increasingly severe abuse which was, in turn, related to increased occurrence and variety of Event Cognitions. Two direct effects on the occurrence of negative emotional states were identified. First, the increased occurrence of Event Cognitions was associated with reduced occurrence of negative emotional states. Second, appraisals of the event which involved blaming of others were associated with increased occurrence of negative emotional states. A number of indirect effects on Emotional States were also found. First, Event Cognitions had a direct link with Appraisal of the event. Those who experienced fewer and less

severe Event Cognitions showed a tendency to blame others for the abuse and, as previously stated, increased blaming of others was associated with increased reports of negative emotional states. Crisis Support and Personality also had indirect effects on Emotional States that were mediated by Appraisals. Increased Crisis Support was associated with increased self-blame and, therefore, is associated with fewer reports of negative emotional states. Increased levels of neuroticism were associated with increased blaming of others and can therefore, be linked to increased negative emotions following abuse.

Stage 4

The fourth stage of the analyses examined relationships between sets of variable subscales in order to identify specific coping strategies, forms of appraisal, and neuroticism subtypes which are related to positive and negative symptom outcomes. Though coping was not found to significantly impact upon outcome in the examination of fit of Joseph et al.'s (1995) model, coping subscales were included in this portion of the analysis in order that the contributions of specific coping strategies to outcome may be uncovered. The importance of examining relationships between subscales is based on the potential clinical utility of identifying profiles of coping strategies, event appraisals, and neuroticism subtypes which are related to both positive and negative symptom outcomes. For example, in determining what therapeutic interventions will be of greatest benefit to a particular client, it is not enough to state that adaptive coping has a positive relationship with reduced PTSD symptomatology (a relationship which could be identified through path analysis). In order to be clinically useful in targeting interventions, specific coping strategies which relate to both positive and negative symptom

outcomes must be identified. Once identified, the presence of these coping strategies within a client's response repertoire could be examined.

Subscales for each variable were examined in relation to subscales of each other variable using canonical correlation. The goal of canonical correlation is to analyze the relationships between two sets of variables. Canonical correlation assesses the linear combinations for each of two sets of variables (i.e., canonical variates) such that the correlations between the linear combinations of the two sets are maximized. Through identification of interrelationships between sets of variables subscales, canonical correlation may be used to identify those coping strategies which are likely to hinder an individual's recovery as well as those which may aid recovery. Identification of specific aspects of neuroticism, and event appraisals which relate to positive and negative symptom outcomes could be applied to the formulation of clinical interventions in a similar fashion.

The main goal of this stage of analysis was to generate response profiles which are related to both positive and negative symptom outcomes. In order to generate such profiles, examination of canonical correlations between variable subscales focused on answering three specific questions: (a) are there specific coping strategies which are associated with positive or negative symptom outcomes? (b) are there specific coping strategies which are associated with a particular type of event appraisal? or with a specific profile of neuroticism subscale scores? and (c) are some neuroticism subscales (i.e., anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability) more strongly related to coping style and event appraisals than others? To provide the reader with a visual representation of the findings of this stage of analysis, results are depicted in figures 9, 10, 11 and 12.

Figure 9
 Associations between coping subscales and symptom scales.

Coping Scales	Symptom Scales
<u>Decreased</u>	<u>Decreased</u>
Cognitive Avoidance	Sexual Problems
Emotional Discharge	Somatic Complaints
Acceptance/Resignation	Event Cognitions
Logical Analysis	Negative Emotional States
<u>Decreased</u>	<u>Decreased</u>
Cognitive Avoidance	Sexual Problems
Seeking Support	Somatic Complaints
Problem Solving	

Figure 10
Associations between coping subscales and appraisals.

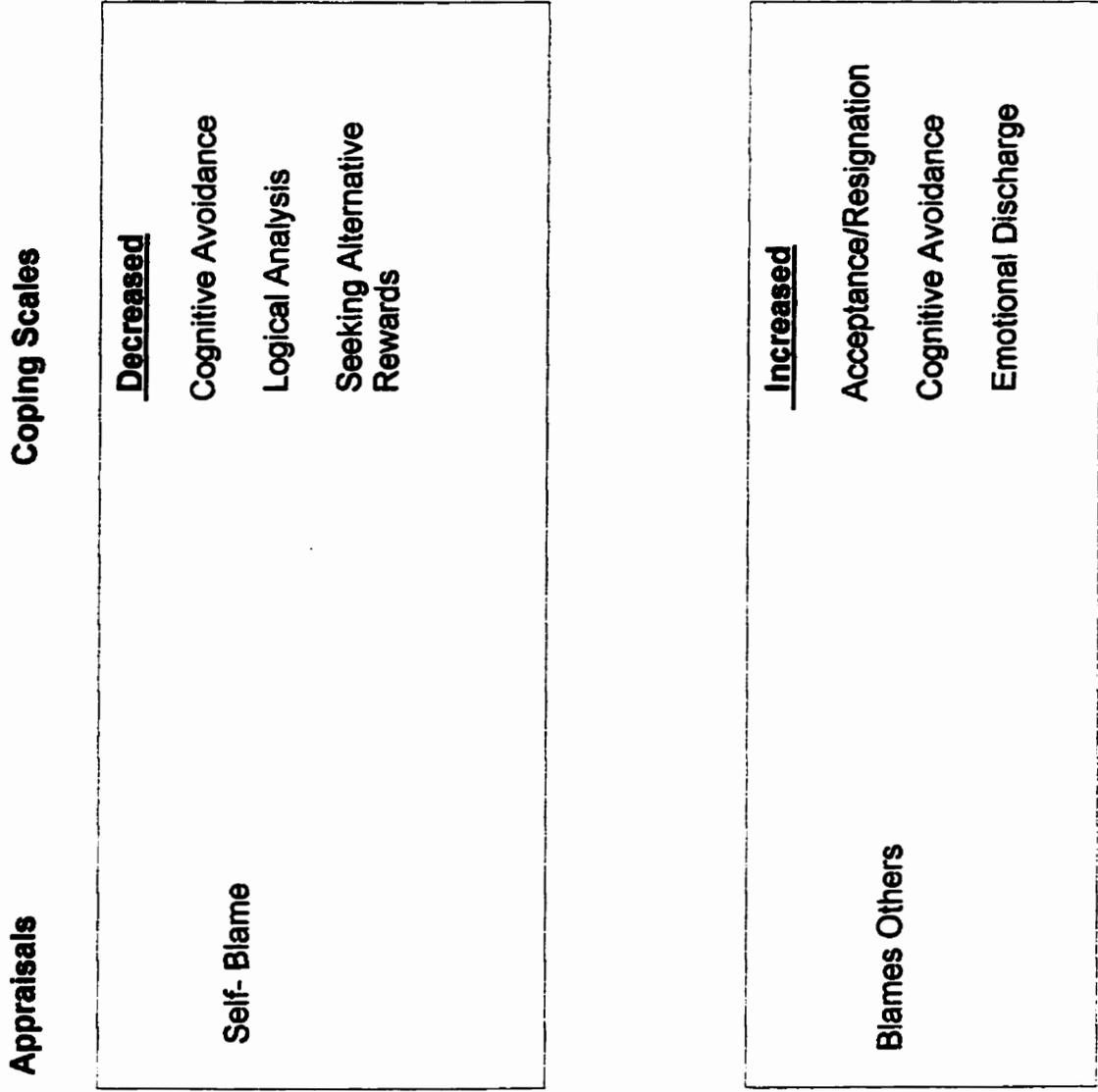


Figure 11. Associations between neuroticism subscales and appraisals and coping subscales

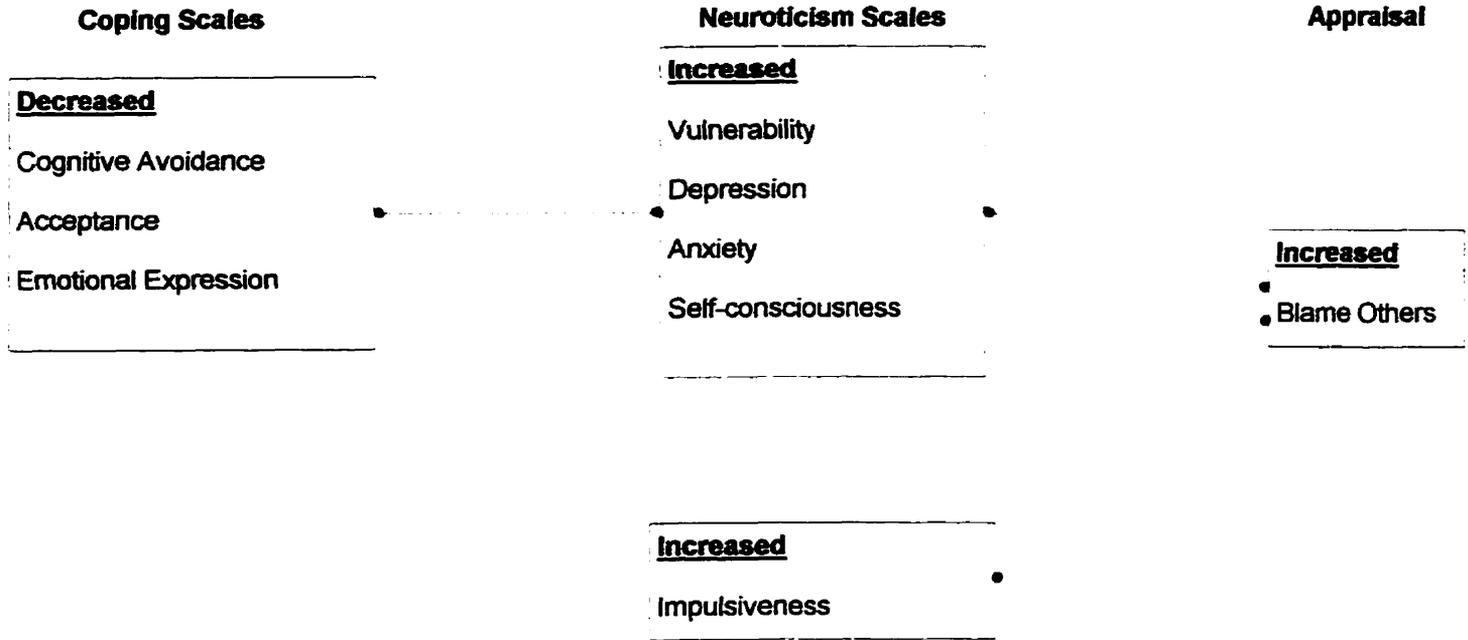


Figure 12. Associations between neuroticism subscales and symptom scales.

Neuroticism Scales	Symptom Scales
<u>Decreased</u>	<u>Increased</u>
Depression	Sexual Problems
Self-consciousness	Negative Emotional States
Vulnerability	Somatic Complaints
Anxiety	Event Cognitions
Impulsiveness	

<u>Decreased</u>	<u>Decreased</u>
Impulsiveness	Event Cognitions
	Negative Emotional States
<u>Increased</u>	Somatic Complaints
Anxiety	
Depression	
Vulnerability	

To examine whether specific coping strategies are associated with positive or negative symptom outcomes, canonical correlation was first used to examine the relationship between a set of 8 coping subscales and the 3 factors of the TSC-40 with factor 1 being differentiated into event cognitions and emotional states. The canonical correlation showed a significant relationship between the two sets of scores $F(32, 468) = 2.74, p < .001$. Two canonical variates were significant. The first canonical variate explained 21.8 % of the variance on coping subscales and 54.1 % of the variance in symptom outcome. In accordance with the decision rules outlined by Tabachnick and Fidell (1989) correlations between subscales and canonical variates (loadings) greater than +/- .3 were interpreted. In interpreting these loadings it was found that the first canonical variate reflected individuals who engaged in less cognitive avoidance (loading = -.73), emotional discharge (-.69), acceptance (-.67), and logical analysis (-.34) in attempting to cope with sexual abuse and assault. These individuals reported fewer event cognitions (-.93), fewer negative emotional states (-.87), and fewer sexual (-.55) and somatic (-.49) problems following the abuse incident(s). The second canonical variate explained 7.0 % of the variance on coping subscales and 25.6% of the variance in symptom presentation. This dimension reflects individuals who engaged in less cognitive avoidance (-.43), sought less guidance and support from others (-.38), and engaged in less problem solving behaviour following the abuse/assault. These individuals also reported fewer sexual (-.71) and somatic (-.71) complaints following the abuse/assault.

To examine whether specific coping strategies are associated with a particular type of event appraisal or with a specific profile of neuroticism subscale scores, the relationships between the coping subscales and the 3 aspects of event appraisal (i.e., internalisation, globality,

and stability of blame) were assessed. It was found that the two sets of variables were significantly related $F(32, 468) = 1.99, p < .001$. In examining the two sets, two significant canonical variates were identified. The first variate accounted for 18.4 % of the variance in coping and 46.1% of the variance in appraisals. Loadings indicated that this variate reflects individuals whose appraisals are stable over time (.79) and blame for the abuse/assault on others (.49). Coping strategies associated with this dimension include cognitive avoidance (.85), acceptance or resignation (.59), and emotional discharge (.44). The second canonical variate accounted for 7.5% of the variance in coping and 20.9% of the variance in appraisals. Coping strategies which typified this dimension included an increase in problem solving (.35), a decrease in the use of cognitive avoidance (-.40), logical analysis (-.34), and in the seeking of alternative rewards (-.34). Appraisals associated with this variate involved high levels of self-blame (-.79) and stability of appraisals over time (.78).

Finally, this stage of analysis examined whether some neuroticism subscales (i.e., anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability) were associated with a specific coping style or form of event appraisal. Canonical correlation was used to examine the relationship between a set of 8 coping subscales and a set of 6 neuroticism subscales. The canonical correlation showed a significant relationship between the two sets of variables $F(48,702) = 1.71, p < .01$. One canonical variate was significant. This variate explained 16.3 % of the variance in the coping subscales and 12.6 % of the variance in neuroticism subscales. Loadings indicated that this dimension reflected individuals who rated their use of cognitive avoidance lower (-.75), and who did not react to the abuse by accepting it (-.51) or through expressing emotional feelings (-.57). These individuals reported high levels of

vulnerability (.92), depression (.85), anxiety (.75), and self-consciousness (.69) on neuroticism subscales.

Canonical correlations also revealed that neuroticism subscales are significantly related to appraisal subscales $F(24, 476) = 1.63, p < .05$. One canonical variate was identified which accounted for 32.6% of the variance in neuroticism and 51.2% of the variance in appraisals. Loadings indicated that this dimension is typified by high levels of stability of appraisals (.82) and attributing the abuse/assault to others (.62). These high levels of stability and blaming others were associated with low levels of anxiety (-.82), depression (-.72), impulsiveness (-.55), vulnerability (-.54), and self-consciousness. The six neuroticism subscales were also found to have a significant relationship with symptom outcome $F(24, 476) = 2.51, p < .001$. Two significant canonical variates were identified. The first of these two variates accounted for 15.4% of the variance in neuroticism and 29.5% of the variance in symptom outcome. Loadings indicate that this first dimension is associated with reports of increased anxiety (.34), depression (.31), and vulnerability and with decreases in impulsiveness (-.74) and reports of reduced frequency of event cognitions (-.84), negative emotional states (-.57), and somatic symptoms (-.30). The second canonical variate accounted for 35.3% of the variance in neuroticism subscale scores and 47.5% of the variance in symptom outcome. Loadings on this variate suggest increased occurrence of sexual problems (.88), negative emotional states (.70), somatic complaints (.63), and event cognitions (.49) is accompanied by decreases in reported levels of depression (-.94), self-consciousness (-.59), anxiety (-.58), vulnerability (-.54), and impulsiveness (-.43).

Discussion

The main purpose of this study was to contribute to the development of theory concerning the process of coping and symptom development among women following sexual abuse. This was accomplished through evaluation of Joseph et al.'s (1995) integrative cognitive-behavioural model of PTSD, and the testing of two hypothesized modifications to the model, when applied to a sample of 122 female sexual abuse survivors from across Ontario, Canada. The contributions of this study to the literature on PTSD in survivors of sexual abuse are fourfold. First, detailed descriptions of the sample and the characteristics of abuse were generated that could then be compared to the literature, to determine the extent to which the results of this study are consistent with previous research. Second, it was found that age when first abused, ethnicity, and current counselling status had a significant impact on an individual's response to sexual abuse. Third, Joseph, et al.'s (1995) model of PTSD did not fit the data. However, a revised version of the model which incorporated two hypothesized modifications did result in a significant fit. Finally, the relationship of specific coping and neuroticism subscales to symptom outcome were identified.

Descriptors

In examining descriptors of the sample and the abuse experienced, it was found that the most common abuse scenario was severe, involving greater than 50 incidents of abuse which began prior to puberty. Of those surveyed, 76.2 % identified their primary abuser as a family member, with 85.3% of abusers being male. The present data also suggest that the family member most likely to perpetrate abuse is a parent or stepparent, accounting for 41.8% of the cases in the sample. While the epidemiological literature regarding sexual abuse confirms the

predominance of male perpetrators, the large proportion of the present sample who reported abuse by a family member, particularly a parent or step-parent, is in direct contrast to the literature. For example, Kirschner, Kirschner, and Rappaport (1993) reported that only 16% of cases of sexual abuse are perpetrated by a family member, and that only 4.5% of girls are abused by a biological father or stepfather. Kirschner et al. (1993) further state that uncle-niece incest is the most common form of intra-familial sexual abuse.

In addition to sample characteristics which may have influenced generalizability of the findings, an interesting characteristic of the sample was the high rate of reporting for suicidal ideation and suicide attempts. Almost all members of the sample (93.4%) reported suicidal ideation immediately following the abuse, and approximately half of the sample (50.0%) reported having attempted suicide. These findings are consistent with the literature on the proportion of female sexual abuse survivors who will attempt suicide (e.g., Meichenbaum, 1994). The finding that 93.4% of the sample report suicidal ideation may indicate that female survivors of sexual abuse/assault are at an extremely high risk for suicidal behaviour. This finding has direct implications for the assessment of abuse survivors. Specifically, these data indicate the importance of including an assessment of suicidal ideation and intent in clinical contacts with individuals who have been sexually abused.

Three sample characteristics were identified that may have impacted upon the findings and reduced the extent to which these findings are comparable to samples used in previous research efforts. These characteristics include (1) the unique ethnic composition of the sample, (2) the level of education of sample members, and (3) the frequency with which sample members report a family history of mental illness.

First, the ethnic composition of the sample was quite unique. In the majority of epidemiological studies of sexual abuse, samples are predominantly Caucasian (e.g., Draucker, 1995). In contrast, the present sample contained a large proportion of individuals of Native American ancestry (32.0%). Given the potential impact of cultural values and context on an individual's interpretations of and responses to events (Kurtines, Azmitia, & Gewritz, 1992), the results of this study may not be comparable to results obtained from samples of differing ethnic composition. It is possible that when examining individuals' reactions to sexual abuse (e.g., coping strategies, forms of event appraisals), lack of consistency between findings of previous authors and the current findings may be a result of differing ethnic compositions of the samples involved. Despite this potential lack of comparability, the unique ethnic composition of the present sample can also be considered one of the strengths of this study. Specifically, the unique ethnic composition of the sample has allowed the inclusion and examination of results, through descriptive statistics and group comparisons, that would not have been possible had the sample been different.

Second, the average level of education in the sample was high, with the majority of respondents (53.2%) completing at least one year of university. The high level of education in this sample may indicate that the findings are not generalizable to samples with significantly lower levels of formal education. One way in which education may have influenced the generalizability of the findings is that those with higher levels of education may have been more likely to engage in help-seeking behaviour. If this were the case, individuals with higher levels of education would be increasingly likely to be included in the sample. It could, therefore, be said that samples of sexual abuse survivors obtained from mental health service settings, such as

those used in this study, are not representative of the population of sexual abuse survivors, as a whole. Alternatively, while education level may not influence help-seeking behaviours, those with higher levels of education may have been more amenable to participation in a research project of this nature. If this alternative interpretation were found to be true, the sample used is not representative of sexual abuse survivors contacted through mental health service settings. High levels of education may also have influenced the results through participants greater familiarity with the literature on PTSD and the common sequelae of sexual abuse. Generalizations could only be made to sexual abuse survivors in mental health service settings with similar levels of formal education.

Finally, a family history of mental illness was reported by 68.3% of the sample. It is possible that mental illness may have played a role in precipitating the perpetration of sexual abuse by the mentally ill family member. That is, it is conceivable that a mentally ill adult family member may be more likely to perpetrate abuse. It is also possible that a mentally ill family member may be less likely to acknowledge or attempt to interfere with abuse being perpetrated by another family member. In this scenario, the mentally ill individual does not perpetrate the abuse, but his/her inaction may perpetuate the perpetration of abuse by others. A third possibility is that sexual abuse by a mentally ill family member may be perpetuated by the failure of other family members to acknowledge the abuse and/or blame the mentally ill individual for his/her actions. Finally, it is also possible that, due to a family history of mental illness, individuals may be predisposed to react more negatively to sexual abuse. Specifically, in accordance with the diathesis-stress model of mental illness (Davidson & Neale, 1990), a family history of mental illness may act as a diathesis, or predisposing factor, that increases the likelihood of an

individual experiencing mental health problems following extreme stress, such as sexual abuse. If this were the case, individuals with a family history of mental illness may have been more likely to come into contact with mental health services following sexual and are, therefore, increasingly likely to have been included in the sample. There are a number of ways in which the finding of a family history of mental illness in a large proportion of sample may have influenced the results. For example, the literature indicates that having a family member with a mental illness is stressful and can result in a familial environment that is not conducive to the provision of support during crisis (Davidson & Neale, 1992). As a result, the findings of the present study with regards to the influence of Crisis Support on response to trauma may not be generalizable to samples that do not have a family history of mental illness.

Between-Group Comparisons

Multivariate analysis of variance indicated that response to sexual abuse was significantly influenced by ethnicity, age at which abuse first occurred, and the type of mental health services currently being received. It is important to note that these findings do not establish causality of effects.

Ethnicity. In examining the effect of ethnicity, it was found that Caucasian individuals rated themselves lower on use of problem-focused coping strategies, vulnerability, impulsiveness, and self-blame than individuals of Native American ancestry. If replicated, this finding would indicate that use of problem-focused coping strategies, vulnerability, impulsiveness, and self-blame would have to be taken into consideration in the planning of clinical assessments and interventions. For example, if Native Americans were indeed found to engage in self-blaming behaviours to a greater extent than Caucasians, this would point towards

the use of cognitive strategies focused upon reducing the extent of self-blame. Additionally, if Caucasians were indeed found to engage in predominantly problem-focused coping strategies, mental health professionals may face greater difficulties in bringing these individuals to an understanding of their emotional reactions to sexual abuse.

It is also possible that these differences are a result of biases in reporting. Specifically, it is possible that Caucasian and Native individuals have the same inherent amounts of vulnerability, impulsiveness, self-blame, and problem-focused coping following abuse, but that Caucasian individuals have a bias towards social desirability and are, therefore, less likely to rate themselves high on these characteristics. Conversely, it is also possible that Native individuals' ratings may reflect a bias towards over-reporting of these characteristics. In order to determine whether this type of reporting bias is in operation, future research on ethnic differences in response to sexual abuse should include measures which differentiate socially desirable and undesirable response styles. Further research should also examine the impact of specific cultural/ethnic values and contexts on self-rated responses to abuse.

Age. In investigating the effects of age at first abuse on response to abuse, it was found that those who were less than 15 years of age when first abused/assaulted rated themselves higher on trait anxiety and lower on access/availability of social supports. Those in older age groups rated themselves in the opposite direction (i.e., lower on trait anxiety and higher on access/availability of social supports). These findings are in accord with the preponderance of literature which identifies anxiety, fear, anger/hostility, and evidence of poor social adjustment and distrust of others which precludes the engagement of social supports as common sequelae of childhood sexual abuse (e.g., Beitchman & Zucker, 1992; Briere & Runtz, 1993; Meichenbaum,

1994). The literature also reflects the difference between those abused at younger versus older ages. For example Finkelhor and Dziuba-Leatherman (1994) report that those who experience sexual assault/abuse at a younger age are more distressed and are less able to engage social supports than those who are assaulted in early adulthood.

Clinical Services Being Received. In examining the effect of services currently being received, it was found that individuals currently in counselling rated themselves lower on trait anxiety, depression, and vulnerability than those currently in support groups who rated themselves higher. Those who were currently receiving both individual counselling and support group services, and those receiving no clinical services scored moderately on the three variables. Two alternative interpretations of these findings are presented.

First, it is possible that individuals who seek individual counselling and those who seek assistance from support groups differ on trait levels of anxiety, depression, and vulnerability prior to seeking services. If this is the case, then the data could indicate that individuals who are more anxious, depressed, and vulnerable are more likely to be drawn towards support group services, while those who rate themselves lower on these traits are more likely to engage individual counselling services.

Alternatively, it is possible that the group differences reflect differences in the effects of individual counselling and support groups. Specifically, it is possible that, prior to engaging clinical services, individuals in counselling alone, counselling plus support group, or support group alone are not significantly different from those who received no clinical services. If this were the case, it could then be argued that while individual counselling reduces self-reported trait anxiety, depression, and vulnerability, involvement in a support group increases self-

reported levels of these traits, and that the combination of the two treatments produces moderate scores on these traits. In addition to examining these two possibilities, future research should examine the potential effects of stage of treatment process at which data are collected on self-ratings of anxiety, depression and vulnerability this would allow researchers to determine which stages of a given form of service are most helpful in reducing ratings on these traits. The implications of these alternative interpretations of the findings are examined in the section entitled Clinical Implications (see p. 85). In investigating the differential effectiveness of various forms of mental health services, future research should be conducted to determine whether individual counselling and support groups have differing effects at outcome.

Contrary to the vast majority of literature on PTSD following sexual assault/abuse (e.g., Meichenbaum, 1994) the MANOVA results of the present study indicated that a survivor's relationship to her abuser did not significantly impact on the process of coping and symptom development following abuse. One potential reason for this contradiction is that, because the present study examined the effects of a number of grouping variables on the coping process, the variance in response and outcome that is normally attributed to relationship with the abuser may have been better accounted for by some other grouping variable, such as age at which an individual was first abused. It would seem plausible that, due to increased dependence and accessibility, individuals in younger age groups may be more likely to be abused by a family member. In the present study relationship to abuser and victim age when abuse began were significantly related $r = .36, p < .001$, indicating that as age increased, distance of relationship between the victim and the abuser also increased. Mean age when abuse perpetrated by family member began was 7.8 years, while mean age when abuse by a stranger began was 13.9 years.

This type of relationship between age at first abuse and relationship to the abuser could account for the discrepancy between the findings of the present study and the literature, as the effect of age could overshadow any independent contribution made by relationship to the abuser.

Modelling Response to Abuse

The main contribution of this study is in the testing and modification of an existing theoretical model of PTSD to describe the process of coping and symptom development following sexual abuse. As a starting point of this statistical procedure, path analysis examined Joseph et al.'s (1995) integrative cognitive-behavioural model of PTSD.

Path analysis indicated that Joseph et al.'s (1995) model did not fit the data $\chi^2 (9) = 24.81, p < .01$ (see Figure 6). Two modifications to the model were hypothesized. The first hypothesized modification was the addition of a path from Event Characteristics to Crisis Support. In their discussion of Crisis Support, Joseph et al. (1995) note the general agreement in the literature that greater availability of social support is predictive of reduced rates of PTSD symptomatology (e.g., Jones & Barlow, 1990; Solomon, 1986). However, some traumatic events, such as sexual abuse, can be stigmatizing and elicit shunning or avoidance responses by members of the social support network (Wortman & Lehman, 1985). It was therefore hypothesized that increased availability of social supports would be associated with maladaptive appraisal of the abuse event. In accordance with the literature, maladaptive Appraisals were identified as appraisals of self-blame (e.g., Wyatt, Newcome, & Notgrass, 1991). The addition of this path is supported by the literature on response to sexual abuse. Inclusion of this path in the model was also supported by modification indices. Modification indices also identified the need to add a path from Personality to Event Characteristics. As all measures in this study were self-

reports, this path can be seen to represent the role played by personality and prior experience in shaping one's perception of events.

In examining the second hypothesized modification to the model, Joseph et al. (1995) indicate that the characteristics of a traumatic event will have a direct effect on only one variable, Event Cognitions. However, some aspects of sexual abuse scenarios are believed to have a direct influence on other variables presented in the model. For example, amount of force used by the perpetrator and extent of the abuse have been linked to engagement of social support. As indicated by Wyatt, Newcomb, and Notgrass (1991), increasing level of force used by a perpetrator was significantly related to increasingly negative reactions of others to the disclosure of abuse. It was, therefore, hypothesized that higher scores on Event Characteristics (i.e., increased force and extent of abuse) would result in increased engagement of social supports. As previously noted, this hypothesis was supported by the second alteration to Joseph et al.'s (1995) model based upon modification indices, the addition of a path from Event Characteristics to Crisis Support.

After the addition of paths suggested by modification indices, each insignificant path which remained in the model was individually removed. Removal of each insignificant path was found to increase the value of X^2 and its associated p value. The model which resulted fit the data well $GFI = .970$, $X^2 (13) = 13.41$, $p > .4$ (see Figure 7). This model indicates that symptom outcomes (i.e., Event Cognitions and Emotional States) were influenced by other model variables in a number of ways. First, greater force and extent of abuse (Event Characteristics) resulted in a greater frequency and variety of symptoms of re-experiencing the abuse (Event Cognitions). As summarized by Meichenbaum (1994), increased severity of abuse (duration,

frequencies, more intrusive sexual acts, and use of threat of force) is associated with poorer symptom outcomes. While a direct relationship between prior experience (Personality) and intrusions (Event Cognitions) was not supported, previous experiences did influence Event Cognitions indirectly through interpretation of Event Characteristics. This finding corresponds with statements of Joseph et al. (1995) that "Traumatic cognitions . . . will idiosyncratically reflect the individual's prior experience and the specific components of an event "(p.517), and that "intrusive ideation is, therefore, influenced by personality and/or representations of earlier experience" (p.517).

In accordance with Joseph et al. (1995), who stated that Event Cognitions form the basis of further cognitive activity called Appraisals, is the finding that increased Event Cognitions were associated with Appraisals of self-blame. In discussing Appraisals, Joseph et al. (1995) assert that appraisals are thoughts about the information depicted by Event Cognitions which draw extensively and consciously on past representations of experiences and/or aspects of personality. Paths in the model replicate this proposed relationship as seen by the direct path from Personality to Appraisal, as well as an indirect link from Personality to Appraisals through the influence of Event Characteristics on Event Cognitions.

Increased reports of Event Cognitions and Appraisals of blame to others were associated with reduced negative Emotional States. A number of indirect effects on Emotional States were found. First, those who experienced fewer and less severe Event Cognitions showed a tendency to blame others which is, in turn, associated with increased reports of negative Emotional States. Second, increased Crisis Support was associated with Appraisals of self-blame and, therefore, with fewer reports of negative Emotional States. Finally, increased levels of

neuroticism (Personality) were associated with increased Appraisals of blame to others and is, therefore, linked to increased negative Emotional States following abuse. It is important to note that each of the indirect relationships noted above are mediated by Appraisal of blame towards others. This is consistent with the work of Wiener (1985), who suggests that negative emotional states such as anger and rage are experienced in the context of externally controlled outcomes (i.e., external attributions of cause, blaming of others). As noted by Riggs, Dancu, Gershuny, Greenberg, and Foa (1992) blaming of others leads to emotional states of rage and anger, which are frequently reported by survivors of assault, and which may lead to the development and maintenance of PTSD.

In addition to comparing the modified model to the model proposed by Joseph et al. (1995), it is of interest to examine the modified model in light of other literature on PTSD. For example, Blank (1993) and Horowitz (1980, 1986) concur that intrusive cognitions, such as flashbacks and nightmares (i.e., Event Cognitions) represent a normal response to trauma which allows the individual to process the trauma and thereby lessen other negative symptomatology. As indicated by the path from Event Cognitions to Emotional States, increases in the experience of Event Cognitions are associated with a decrease in negative Emotional States. In support of the assertions of Horowitz (1980, 1986) and Blank (1993), suggest that this finding may be interpreted as indicating that processing traumatic information at a high level (i.e., scoring high on Event Cognitions) results in a lessening of other negative symptomatology (i.e., negative Emotional States).

In discussing the 'powerful nature' of emotions that can be evoked by the appraisal of a traumatic event Horowitz (1980, 1986) implies that those appraisals which challenge our basic

assumptions (schemata) increase the occurrence of such emotions. One basic assumption which may be challenged by the experience of sexual abuse is the illusion of self-control/determination. Langer and Rodin (1976) suggests that individuals often operate under an illusion of control, which is believed to promote psychological well-being, mental health, and recovery from illness (e.g., Taylor & Brown, 1988). When an individual is sexually abused, the abuse experience challenges that individual's assumptions of self-control/determination, leading to perceptions of helplessness (Resnick & Newton, 1992). Perceptions of helplessness are typically associated with attributions of blame to others (Davidson & Neale, 1990). In the modified model generated in this study, Appraisal of blame to others (i.e., challenging of assumptions of self-control) were associated with an increase in the frequency and variety of negative Emotional States. Though some studies (e.g., Wyatt, Newcomb, & Notgrass, 1990) associated negative emotional outcomes with self-blame, the results of the present study support the finding of Tennen and Affleck (1990), that blaming others is associated with poorer emotional adjustment, through the challenging of one's basic assumptions, a mechanism proposed by Horowitz (1980, 1986).

Subscale Relationships

When examined as a single construct in Joseph et al.'s (1995) model, Coping was not found to significantly influence other variables in the model. However, as noted by Joseph et al. (1996) attitudes towards emotional expression are able to predict anxiety symptoms "over and above scores of perceptions of helplessness.." (p.9). This would indicate that some specific coping strategies may have effects on symptom outcome which exceed the effects of event Appraisals (i.e., appraisals of helplessness/self-blame), which was retained within the model. Indeed, analysis of the data indicated that specific coping subscales are associated with positive

and negative symptom outcomes. Lower ratings of cognitive avoidance, emotional discharge, acceptance/resignation, and logical analysis were associated with lower scores on Event Cognitions, negative Emotional States, sexual problems, and somatic complaints. Those who engaged in less cognitive avoidance, support seeking and problem solving behaviours also reported fewer sexual or somatic complaints following the abuse/assault. Interestingly, the finding that low scores on emotional discharge are associated with lower ratings on symptom scales (i.e., Event Cognitions, Emotional States, somatic complaints, sexual problems) replicate the findings of by Joseph, et al. (1996), that lower scores on attitudes towards emotional expression, indicating more negative attitudes towards this coping strategy, were associated with higher symptom scores. These data also provide some replication of previous evidence that intrusions (Event Cognitions) are independent of the use of cognitive avoidance (Williams, Joseph & Yule, 1993; Joseph et al., 1996).

In terms of personality subscales, decreased levels of depression, self-consciousness, anxiety, vulnerability, and impulsiveness were associated with increased sexual and somatic complaints, negative Emotional States, and Event Cognitions. Conversely, increased anxiety, depression, and vulnerability and decreased impulsiveness were associated with reduced reports of event Cognitions, negative Emotional States, and somatic symptoms. In addition, low ratings on trait anxiety, depression, impulsiveness, vulnerability, and self-consciousness were associated with stable attributions of blame to others. These findings are consistent with the literature's identification of depression, anxiety, impulsiveness, and feelings of estrangement and self-consciousness as characteristics common to those who have survived a traumatic experience

(e.g., Davidson & Neale, 1990). Vulnerability has been specifically linked to victims of sexual abuse (Resick, Veronen, Calhoun, Kilpatrick, & Atekeson, 1986).

Clinical Implications

In examining the implications of this study for clinical assessment and interventions, the descriptive characteristics of the sample, and their potential impact on generalizability, must be considered. Specifically, the ethnic composition, high level of education, and frequent reports of a family history of mental illness in the sample may have influenced the results to the extent that the process of coping and symptom development that were found in this sample is not the same as what would have been found in samples of differing ethnicity, education level, and/or family history. For example, it is possible that individuals with higher levels of education may be more aware of the literature on the aftermath of sexual assault and may, therefore, respond to sexual assault in a different manner than those with lower levels of education. Despite this cautionary note, the importance of these findings to clinical practice should be examined.

Almost all members of the sample (93.4%) reported suicidal ideation immediately following the abuse, and approximately half of the sample (50.0%) reported having attempted suicide. This finding has direct implications for the assessment of abuse survivors. For example, these data indicate the importance of including an assessment of suicidal ideation and intent in clinical contacts with individuals who reports a history of sexual abuse.

The results of MANOVA must be replicated and investigation of the causal links between ethnicity, age at which abuse first occurred, and services being received must be conducted. If further investigation were to reveal that these factors influence the process of coping and symptom development, the implications for clinical assessment and intervention

would have to be considered. For example, if it is shown that individual counselling reduces trait anxiety, depression, and vulnerability, while involvement in a support group does not lower these traits, clinical practice would be influenced in a number of ways. First, clients seeking therapeutic services as a means for reducing symptomatology may need to be apprised of the relative benefits of individual therapy. Second, findings of this nature could impact on policies regarding the funding of community mental health programs, as governments and health insurance companies are likely to provide the greatest funding to programs which have been found most effective. Third, it might be shown that individuals who attend support groups differ on trait levels of anxiety, depression, and vulnerability from those who seek individual counselling prior to seeking such services. If this were the case, clinical research could examine how these traits influence individual and group therapy processes and outcomes.

In examining the results from canonical correlations, it was found that decreased trait levels of depression, self-consciousness, anxiety, vulnerability, and impulsiveness were associated with increased symptomatology (i.e., Event Cognitions, negative Emotional States, somatic complaints, and sexual problems). High levels on these traits were also associated with stable attributions of self-blame. Interestingly, if high levels of trait anxiety, depression, and vulnerability were present, a decreased level of impulsiveness was associated with reductions in Event Cognitions and somatic complaints. Though further research is required to establish the causal nature of these relationships, it would appear that ratings of negative symptoms may be more effectively reduced if interventions focus on reducing impulsiveness, as opposed to focusing on changing levels of anxiety, depression, or vulnerability.

A decrease in symptomatology (e.g., Event Cognitions, negative Emotional States,

sexual problems, and somatic complaints) was also associated with less cognitive avoidance, emotional discharge, acceptance/resignation, and logical analysis of the abuse/assault. In addition, reports of reduced cognitive avoidance, support seeking and problem solving behaviours were associated with fewer sexual or somatic complaints. These findings raise two alternative interpretations which have implications for clinical practice. The first interpretation suggests that cognitive avoidance, emotional discharge, logical analysis, acceptance/resignation, support seeking, and problem solving act as a buffer to reduce negative symptomatology. If this suggestion was supported, clinicians who work with survivors of sexual abuse could target these coping mechanisms as a means to change symptomatology. For example, a cognitive therapist may focus on teaching skills which allow the survivor to engage in cognitive avoidance or logical analysis of thoughts related to the abuse. A second interpretation suggests that persons who experience less symptomatology following abuse do not engage in these coping strategies because their lower levels of symptomatology result in a reduced need to actively employ such coping strategies. This implies that individuals who have less symptomatology are less likely to engage in attempts to cope with existing symptoms and are therefore less likely to seek mental health services. As a result, individuals with less symptomatology than was reported by the sample were less likely to be in contact with mental health services and less likely to have been given the opportunity to participate in this study.

Interestingly, the model indicated that increased reports of Event Cognitions were associated with reduced negative Emotional States. In regards to clinical practice, this finding raises the question 'Reduction of which aspect of symptomatology should be the focus of clinical intervention?' According to Joseph, et al. (1995) Event Cognitions are iconic

representations of Event Stimuli. Due to their overwhelming nature, these representations are held in active memory for further conscious processing. As described by Horowitz (1986), traumatic events must be processed in small and discrete portions that allow the individual to maintain equilibrium. The processing of Event Stimuli as Event Cognitions is generally thought to take the form of intrusive thoughts and behaviours (e.g., dreams, flashbacks) (Herman, 1992; Joseph et al., 1995). Within this context, a high frequency of Event Cognitions can be interpreted as meaning that the individual is processing information about the traumatic event at a high rate. While an individual who frequently processes information about the traumatic event would exhibit Posttraumatic symptomatology in the form of Event Cognitions, the negative Emotional States which have been linked to an inability to process and cope with trauma are less likely to be evident. Given this interpretation, the theoretical role played by Event Cognitions in the processing of traumatic information would seem to be upheld. In terms of clinical practice, this interpretation of the findings brings into question the benefit of techniques and/or approaches which focus on the reduction of intrusive symptomatology such as flashbacks and nightmares. However, Event Cognitions such as flashbacks and nightmares are extremely disturbing symptoms. Perhaps rather than abandoning techniques which focus on relief of these symptoms, clinicians should continue to use these techniques, but temper their use with an understanding of the role Event Cognitions appear to play in the processing of event related stimuli.

Reactions and Limitations

In general the response to this study, both from practitioners and sexual abuse survivors, has been overwhelmingly positive. However, despite this positive response and the potential clinical utility of the findings, this study has a number of limitations which point the way to

future research initiative. The following paragraphs examine qualitative data collected from participants which reflect their response(s) to the study. The main limitations of this study will be outlined and suggestions for future research to overcome these shortcomings will be examined.

Despite the difficult nature of the subject matter, written comments received from participants indicated an overwhelmingly positive response to this study. Seventeen respondents (13.9%) took the opportunity to provide written comments/clarifications regarding their responses and reactions to the study. Typical of these comments are the following excerpts: "Thank you for caring enough to even ask the questions.." and "Though at times I was unsure how to answer, I'm happy to have had the opportunity of participating in this study..." . These responses seem to indicate that sexual abuse survivors are receptive to projects of this nature. The one negative comment made regarding the study objected to the language used by the Coping Responses Inventory (Moos, 1993), in which responses were made in reference to "the problem" rather than "the sexual abuse incident(s)".

Though this project contributes to the literature and development of theory about sexual abuse, it also has a number of limitations. First, because data were collected using a survey method, all information which was collected was retrospective. As such, this research cannot go beyond its cross-sectional design to examine how the process of coping and symptom development progress over time. Therefore, further research should include longitudinal analysis of Joseph et al.'s (1995) model, as well as the revised model presented by this study. Such an analysis would allow for examination of the bi-directional effects which were proposed by Joseph et al. (1995). For example, in describing their model Joseph et al. (1995) state that an individual's initial appraisals of a traumatic event elicit attempts to engage coping strategies.

The engagement of coping is then said to alter the individual's appraisals. It is inferred that the bidirectional nature of this relationship (i.e., from appraisal to coping to appraisal) occurs over time. The data collected in this study are cross-sectional, meaning that data were collected on only one occasion, in reference to only one time period. As a result the temporal relationship of variables could not be directly examined. By implementing longitudinal research, in which data are collected from each participant on more than one occasion, changes in the interrelationships of model variables across time could be examined.

Second, due to the high level of formal education and the ethnic composition of the sample, generalizability to other samples may be limited. The unique ethnic composition of the sample allowed the identification of significant differences on levels of vulnerability, impulsiveness, self-blame, and use of problem-focused coping strategies found when comparing those of Native American and Caucasian ethnicity. The finding of these significant differences suggests that, if the model were tested and modified separately for samples of Native and Caucasian individuals, it is possible that the qualitative differences in how these populations cope may be identified (e.g., paths present in the model for Native Americans may be absent in the model for Caucasians). Unfortunately, the present sample did not contain a sufficient number of individuals of Native American ancestry to perform such a comparison.

Finally, due to the relatively small sample, analysis of the model was limited to path analysis. Path analysis involves examination of the interrelationships between the variables in a model, with each model variable is seen as a unitary construct which is indicated by a single measured variable. Thus, in using path analysis the present study assigned a single score to each model variable. As seen in comparison of the importance of coping as a unitary construct in the

path model and the importance of individual coping strategies in canonical correlations, an analysis of the model which took subscale scores into consideration may have been more appropriate. One method which would allow an examination of the unique contributions of variable subscales is structural equation modelling (SEM). In contrast to path analysis, SEM does not see model variables as unitary constructs with only one measured variable. On the contrary, in SEM each model variable can be seen as a latent variable which has a number of indicators. For example, in SEM coping would be understood as an underlying latent construct which cannot be directly measured, but which can be inferred from performance on a measured variables, such as coping subscales. In the context of SEM performance on a measure of coping, and therefore on the subscales of that measure, are believed to be caused by the underlying latent construct, coping. In the context of testing Joseph et al.'s (1995) model, path analysis required the estimation of 11 parameters. Application of SEM to testing this model would require the replacement of the unitary measured variables used in this study by latent variables with multiple indicators. As stated by Raykov (1994), in using Structural Equation Modelling (SEM) methods, sample size must be at least five times greater than the number of free model parameters being estimated. The sample collected in this study would, therefore, only be adequate to testing a model with a maximum of 24 parameters to be estimated.

Conclusions

This study represents an effort to advance the development of theory on the process of coping and symptom development following sexual abuse. As a means of describing the process of coping and symptom development following sexual abuse, the modified model indicates that increased severity of re-experiencing (i.e., event cognitions) is directly linked to increased force

and extent of abuse. Increased severity of event cognitions was indirectly linked to increased levels of neuroticism, mediated by force and extent of abuse. Presence of negative emotional states following abuse was directly linked to increased levels of self-blame regarding the abuse and reduced frequency/extent of event cognitions. Increased negative emotional states was indirectly linked to increased neuroticism, reduced accessing/availability of crisis supports, and increased force and extent of abuse. If replicated, the modified model which was generated could provide a context for understanding the individual differences and commonalties in psychological response patterns which follow sexual abuse. The model also provides a theoretical framework for assessing and understanding the unique ways in which individuals make sense out of and adapt to their sexual abuse experiences. If taken one step further, this could result in theory-based approaches to therapeutic interventions.

While it is important to the development of assessment and treatment protocols to note those commonalties of response to abuse across individuals, it is also important to note that traumatic events are experienced by individuals and that these events occur within the context of systems of meaning which are unique to the individual.

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Appendix A
Sexual Experiences Survey

In reference to sexual abuse episode(s) have you ever:

1. Had sexual intercourse with a man when you both wanted to? YES NO
2. Had a man misinterpret the level of sexual intimacy you desired? YES NO
3. Been in a situation where a man was so sexually aroused you felt it was useless to stop him even though you didn't want to have sexual intercourse? YES NO
4. Had sexual intercourse with a man even though you didn't really want to because he threatened to end your relationship otherwise? YES NO
5. Had sexual intercourse with a man when you didn't want to because you felt pressured by his continual arguments? YES NO
6. Found out that a man had obtained sexual intercourse with you by saying things he didn't really mean? YES NO
7. Been in a situation where a man used some degree of physical force to try to make you engage in kissing or petting when you didn't want to? YES NO
8. Been in a situation where a man tried to get sexual intercourse with you when you didn't want to by threatening to use physical force if you didn't co-operate, but for various reasons sexual intercourse did not occur? YES NO
9. Been in a situation where a man used some degree of physical force to try to get you to have sexual intercourse with him when you didn't want to, but for various reasons sexual intercourse did not occur? YES NO
10. Had sexual intercourse with a man when you didn't want to because he threatened to use physical force if you did not co-operate? YES NO
11. Had sexual intercourse with a man when you didn't want to because he used some degree of physical force? YES NO
12. Been in a situation where a man obtained sexual acts with you such as anal or oral intercourse when you didn't want to by using threats or physical force? YES NO
13. Have you ever been raped? YES NO

Appendix B

Additional Circumstance, and Susceptibility Items

My abuse was perpetrated by (circle all that apply):

1. parent/step-parent/guardian
2. sibling (brother, sister, step-brother, step-sister)
3. aunt/uncle/grandparent/cousin
4. non-family member (10 years older than myself or more)
5. non-family member (less than 10 years older than myself)
6. baby-sitter
7. stranger
8. spouse/partner/date
9. individual known to me
10. male
11. female

The abuse episode(s) occurred:

1. once
2. 1 to 10 times
3. 10 to 25 times
4. 25 to 50 times
5. more than 50 times
6. are still occurring
7. uncertain

What was the maximum number of rapes which occurred per abuse episode?

- | | |
|----------|----------------|
| 1. one | 5. five |
| 2. two | 6. five to ten |
| 3. three | 7. ten or more |
| 4. four | |

The abuse/assault episode(s) covered:

1. 1 day
2. 1 month
3. 1 year
4. 1 to 5 years
5. 5 to 10 years
6. more than 10 years
7. uncertain

Did you contact the authorities (e.g., police, lawyer, sexual assault crisis centre, doctor) within one year after the abuse?

YES NO

Did the authorities who became involved react positively or negatively to your disclosure?

POSITIVE NEGATIVE

How much time passed between the abuse episode(s) and when you first told someone of the abuse?

- | | |
|------------|-----------------------|
| 1. 1 day | 5. 5 to 10 years |
| 2. 1 month | 6. More than 10 years |

- 3. 1 year
- 4. 1 to 5 years
- 7. Uncertain

The reaction of this individual to my disclosure was:

- 1. very supportive
- 2. moderately supportive
- 3. mixed/neutral
- 4. non-supportive

What time period passed before you sought professional counselling?

- 1. 1 week
- 2. 1 month
- 3. 1 year
- 4. 1 to 5 years
- 5. 5 to 10 years
- 6. More than 10 years
- 7. Uncertain

I am currently:

- 1. On a waiting list for counselling
- 2. Receiving counselling
- 3. Receiving counselling and involved in a support group
- 4. In a support group
- 5. Neither on a waiting list, in counselling, or in a group

If you are currently in counselling or have received counselling in the past, approximately how much time have you spent in counselling?

- 1. less than one month
- 2. 1 to 6 months
- 3. 6 to 12 months
- 4. 12 to 24 months
- 5. more than 24 months

How old were you when you were first abused/assaulted: _____ years

How old were you when the abuse/assault ceased: _____ years

Does your family have a history of mental illness?

YES NO

Did you ever seek the services of a mental health professional before the assault/abuse (e.g., psychologist, psychiatrist, social worker, counsellor)?

YES NO

If yes, have you ever been given a psychiatric diagnosis?

YES NO

Have you ever received psychotropic drug therapy?

YES NO

Have you ever had thoughts of suicide?

YES NO

Have you ever attempted suicide?

YES NO

Appendix C

NEO-PI Neuroticism Items

Please read each of the following items carefully and circle the one answer that best corresponds to your agreement or disagreement.

1. I am not a worrier	SA	A	N	D	SD
2. I often get angry at the way people treat me	SA	A	N	D	SD
3. I rarely feel lonely or blue	SA	A	N	D	SD
4. In dealing with other people, I always dread making a social blunder	SA	A	N	D	SD
5. I rarely overindulge in anything	SA	A	N	D	SD
6. I often feel helpless and want someone else to solve my problems	SA	A	N	D	SD
7. I am easily frightened	SA	A	N	D	SD
8. I'm an even-tempered person	SA	A	N	D	SD
9. Sometimes I feel completely worthless	SA	A	N	D	SD
10. I seldom feel self-conscious when I'm around people	SA	A	N	D	SD
11. I have trouble resisting my cravings	SA	A	N	D	SD
12. I feel I am capable of coping with most of my problems	SA	A	N	D	SD
13. I rarely feel fearful or anxious	SA	A	N	D	SD
14. I am known as hot blooded and quick-tempered	SA	A	N	D	SD
15. I am seldom sad or depressed	SA	A	N	D	SD
16. At times I have been so ashamed I just wanted to hide	SA	A	N	D	SD
17. I have little difficulty resisting temptation	SA	A	N	D	SD
18. When under a great deal of stress, sometimes I feel like I am going to pieces	SA	A	N	D	SD
19. I am often tense and jittery	SA	A	N	D	SD
20. I am not considered touchy or temperamental	SA	A	N	D	SD
21. I have sometimes felt a deep sense of guilt or sinfulness	SA	A	N	D	SD
22. It doesn't embarrass me if people ridicule or tease me	SA	A	N	D	SD
23. When I have my favourite foods, I tend to eat too much	SA	A	N	D	SD
24. I keep a cool head in emergencies	SA	A	N	D	SD
25. I'm seldom apprehensive about the future	SA	A	N	D	SD
26. I often get disgusted with people I have to deal with	SA	A	N	D	SD
27. I tend to blame myself when anything goes wrong	SA	A	N	D	SD
28. I often feel inferior to others	SA	A	N	D	SD
29. I seldom give in to my impulses	SA	A	N	D	SD
30. It's often hard for me to make up my mind	SA	A	N	D	SD
31. I often worry about things that might go wrong	SA	A	N	D	SD
32. It takes alot to get me mad	SA	A	N	D	SD
33. I have a low opinion of myself	SA	A	N	D	SD
34. I feel comfortable in the presence of bosses or other authorities	SA	A	N	D	SD
35. I sometimes eat myself sick	SA	A	N	D	SD

36. I can handle myself pretty well in a crisis	SA	A	N	D	SD
37. I have fewer fears than most people	SA	A	N	D	SD
38. At times I have felt bitter or resentful	SA	A	N	D	SD
39. Sometimes things look pretty bleak and hopeless	SA	A	N	D	SD
40. If I have said/done the wrong thing to someone, I can hardly bear to face them again	SA	A	N	D	SD
41. I do things on impulse I later regret	SA	A	N	D	SD
42. When everything seems to go wrong I can still make good decisions	SA	A	N	D	SD
43. Frightening thoughts sometimes come into my head	SA	A	N	D	SD
44. Even minor annoyances can frustrate me	SA	A	N	D	SD
45. Too often, when things go wrong, I get discouraged and feel like giving up	SA	A	N	D	SD
46. When people I know do foolish things, I get embarrassed for them	SA	A	N	D	SD
47. I'm always able to keep my feelings in control	SA	A	N	D	SD
48. I'm pretty stable emotionally	SA	A	N	D	SD

Appendix D
Event Appraisals

Try to imagine yourself as you were following the most severe abuse/assault episode. Decide what you felt was the major cause of the event just after it occurred and write this cause in the blank provided. Answer the questions about the situation and the cause you have identified as you felt just after the abuse/assault episode.

1) What did you believe to be the major cause of the abuse/assault at the time it occurred?

2) Is the cause of the abuse/assault due to something about you or to something about the other people or circumstances involved? (circle one)

Totally due to
other people or
circumstances 1 2 3 4 5 6 7

Totally due to
me

3) Is the cause of the abuse/assault something which influenced only the abuse/assault or does it also influence other parts of your life?

Influences just
this particular
situation 1 2 3 4 5 6 7

Influences many
situations in my
life

4) In the future, if you are again the victim of abuse/assault, will the cause(s) you noted above again be present?

Will never
again be
present 1 2 3 4 5 6 7

Will
always be
present

What do you now feel is the major cause of the event. Write this cause in the blank provided. Answer the questions about the abuse/assault and the cause you have identified as you feel at the present time.

5) What do you believe to be the major cause of the abuse/assault at the present time?

6) Is the cause of the abuse/assault due to something about you or to something about the other people or circumstances involved? (circle one)

Totally due to
other people or
circumstances 1 2 3 4 5 6 7

Totally
due to me

7) Is the cause of the abuse/assault something which influenced only the abuse/assault or does it also influence other parts of your life?

Influences just
this particular
situations 1 2 3 4 5 6 7

Influences
many situations
in my life

8) In the future, if you are again the victim of abuse/assault, will the cause(s) you noted above again be present?

Will never
again be
present 1 2 3 4 5 6 7

Will always
be present

Appendix E

Coping Responses Inventory - Adult Form

Directions:

On the accompanying answer sheet, please fill in your gender, age, marital status, ethnic group, and education (number of years completed). Please mark all your answers on the answer sheet. Do not write in this booklet.

Part 1

This section contains questions about how you manage important problems that come up in your life. Please think about the sexual assault/abuse situation you have experienced. Briefly describe the problem in the space provided in Part 1 of the answer sheet. Then answer each of the ten questions about the problem situation (listed below and again on the answer sheet) by circling the appropriate response:

- Circle "DN" if your response is DEFINITELY NO.
- Circle "MN" if your response is MAINLY NO.
- Circle "MY" if your response is MAINLY YES.
- Circle "DY" if your response is DEFINITELY YES.

1. Have you ever faced a problem like this before?
2. Did you know this problem was going to occur?
3. Did you have enough time to get ready to handle this problem?
4. When this problem occurred, did you think of it as a threat?
5. When this problem occurred, did you think of it as a challenge?
6. Was this problem caused by something you did?
7. Was this problem caused by something someone else did?
8. Did anything good come out of dealing with this problem?
9. Has this problem or situation been resolved?
10. If the problem has been worked out, did it turn out all right for you?

Part 2

Read each item carefully and indicate how often you engage in that behaviour in connection with the problem you described in Part 1. Circle the appropriate response on the answer sheet:

- Circle "N" if your response is NO, Not at all.
- Circle "O" if your response is YES, Once or Twice.
- Circle "S" if your response is YES, Sometimes.
- Circle "F" if your response is YES, Fairly often.

There are 48 items in Part 2. Remember to mark all your answers on the answer sheet. Please answer each item as accurately as you can. All your answers are strictly confidential. If you do not wish to answer an item, please circle the number of that item on the answer sheet to indicate you have decided to skip it. If an item does not apply to you write NA (NOT APPLICABLE) in the box at the right of the number for that item. If you wish to change an answer, make an X through your original answer and circle the new answer. Note that answers are numbered across the rows on Part 2 of the answer sheet.

1. Did you think of different ways to deal with the problem?
2. Did you tell yourself things to make yourself feel better?
3. Did you talk with your spouse or other relative about the problem?
4. Did you make a plan of action and follow it?
5. Did you try to forget about the whole thing?
6. Did you feel that time would make a difference—that the only thing to do was wait?
7. Did you try to help others deal with a similar problem?
8. Did you take it out on others when you felt angry or depressed?

9. Did you try to step back from the problem and be more objective?
10. Did you remind yourself how much worse things could be?
11. Did you talk with a friend about the problem?
12. Did you know what had to be done and try hard to make things work?
13. Did you try not to think about the problem?
14. Did you realize that you had no control over the problem?
15. Did you get involved in new activities?
16. Did you take a chance and do something risky?

17. Did you go over in your mind what you would say or do?
18. Did you try to see the good side of the situation?
19. Did you talk with a professional person (eg, doctor, lawyer, clergy)?
20. Did you decide what you wanted and try hard to get it?
21. Did you daydream or imagine a better time or place than the one you were in?
22. Did you think that the outcome would be decided by fate?
23. Did you try to make new friends?
24. Did you keep away from people in general?

25. Did you try to anticipate how things would turn out?
26. Did you think about how you were much better off than people with similar problems?
27. Did you seek help from persons or groups with the same type of problem?
28. Did you try at least two different ways to solve the problem?
29. Did you try to put off thinking about the situation, even though you knew you would have to at some point?
30. Did you accept it; nothing could be done?
31. Did you read more often as a source of enjoyment?
32. Did you yell or shout to let off steam?

33. Did you try to find some personal meaning in the situation?
34. Did you try to tell yourself that things would get better?
35. Did you try to find out more about the situation?
36. Did you try to learn to do more things on your own?

37. Did you wish the problem would go away or somehow be over with?
38. Did you expect the worst possible outcome?
39. Did you spend more time in recreational activities?
40. Did you cry to let your feelings out?

41. Did you try to anticipate the new demands that would be placed upon you?
42. Did you think about how this event could change your life in a positive way?
43. Did you pray for guidance and/or strength?
44. Did you take things a day at a time, one step at a time?
45. Did you try to deny how serious the problem really was?
46. Did you lose hope that things would ever be the same?
47. Did you turn to work or other activities to help you manage things?
48. Did you do something that you didn't think would work, but at least you were doing something?

Part 3

Answer the following items in the same way as those in Part 2.

1. Did you use alcohol, drugs, or other substances as a means of coping?

N= NO, Not at all.

O= YES, Once or Twice.

S= YES, Sometimes.

F= YES, Fairly often.

2. Did you engage in sexual activities which were more promiscuous than previous activities?

N= NO, Not at all.

O= YES, Once or Twice.

S= YES, Sometimes.

F= YES, Fairly often.

Appendix F

Crisis Support Questionnaire

Appendix G

Trauma Symptom Checklist 40 (TSC-40)

How often did you experienced each of the following in the two months after the most severe assault/abuse episode?

	Never		Often	
1. Headaches	0	1	2	3
2. Insomnia (trouble getting to sleep)	0	1	2	3
3. Weight loss (without dieting)	0	1	2	3
4. Stomach problems	0	1	2	3
5. Sexual problems	0	1	2	3
6. Feeling isolated from others	0	1	2	3
7. "Flashbacks" (sudden, vivid, distracting memories)	0	1	2	3
8. Restless sleep	0	1	2	3
9. Low sex drive	0	1	2	3
10. Anxiety attacks	0	1	2	3
11. Sexual overactivity	0	1	2	3
12. Loneliness	0	1	2	3
13. Nightmares	0	1	2	3
14. "Spacing out" (going away in your mind)	0	1	2	3
15. Sadness	0	1	2	3
16. Dizziness	0	1	2	3
17. Not feeling satisfied with your sex life	0	1	2	3
18. Trouble controlling your temper	0	1	2	3
19. Waking up early in the morning and can't get back to sleep	0	1	2	3
20. Uncontrollable crying	0	1	2	3
21. Fear of men	0	1	2	3
22. Not feeling rested in the morning	0	1	2	3
23. Having sex that you didn't enjoy	0	1	2	3
24. Trouble getting along with others	0	1	2	3
25. Memory problems	0	1	2	3
26. Desire to physically hurt yourself	0	1	2	3
27. Fear of women	0	1	2	3
28. Waking in the middle of the night	0	1	2	3
29. Bad thoughts or feelings during sex	0	1	2	3
30. Passing out	0	1	2	3
31. Feeling that things are "unreal"	0	1	2	3
32. Unnecessary or frequent washing	0	1	2	3
33. Feelings of inferiority	0	1	2	3
34. Feeling tense all the time	0	1	2	3
35. Confusion about sexual feelings	0	1	2	3
36. Desire to physically hurt others	0	1	2	3
37. Feelings of guilt	0	1	2	3
38. Feeling that you aren't always in your body	0	1	2	3
39. Having trouble breathing	0	1	2	3
40. Sexual feelings when you shouldn't have them	0	1	2	3

Appendix H

Cover Letters to Practitioners and Participants

Dear Participant,

Lakehead University of Thunder Bay Ontario is conducting a survey of survivors of sexual abuse/assault entitled "A Model of Posttraumatic Stress Reaction to Sexual Abuse in Females".

It is important for both counsellors and policy makers to be aware of factors which influence how individuals cope with the trauma of abuse/assault. This increased awareness could result in more effective therapies and preventative measures to decrease the probability of posttraumatic reactions in the victims of sexual abuse (i.e., provision of funding to programs such as debriefings and support groups).

However, increased awareness and implementation of preventative measures cannot occur in the absence of data. Until data are made available, the question of how to best aid survivors will remain a mystery.

You are being asked to complete the enclosed questionnaire package. It is hoped that the responses we obtain from you and from others will contribute to our understanding of the effects of sexual abuse/assault and the development of more effective prevention and treatment strategies.

Your participation in this survey is voluntary and your responses are strictly confidential. Your name will not be associated with your responses and if you do not wish to answer a specific item you are under no obligation to do so. If you decide not to participate or to discontinue your participation at any point will not impact on your treatment at the facility.

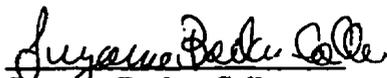
Completion of this package will take approximately 45 minutes of your time. If you choose to complete the package, it is important that you do so in the next few days. Completed questionnaire packages should be mailed in the self-addressed envelope immediately. Please note that the postage has been pre-paid.

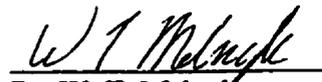
You are not required to provide your name or any other identifying information on the questionnaire material. All your responses will remain anonymous.

If you are interested in the results of this project, the general results will be made available to the crisis centre or individual practitioner who supplied you with the questionnaire package. If you have any questions regarding this project, please feel free to contact Mrs. Suzanne Barker-Collo at (807) 623-3965, or Dr. W. T. Melnyk at (807) 343-8432.

Please accept our sincere gratitude for your participation.

Sincerely,


Suzanne Barker-Collo
Ph.D. Candidate
Lakehead University


Dr. W. T. Melnyk
Professor, Department of Psychology
Lakehead University



Dear Sir or Madame,

Lakehead University of Thunder Bay Ontario, will be conducting a study entitled "A Model of Posttraumatic Stress Reactions to Sexual Abuse in Females".

It is important for both counsellors and policy-makers to be aware of factors which influence how individuals cope with the trauma of abuse/assault. This increased awareness could result in more effective therapies and preventative measures to decrease the probability of posttraumatic reactions in the victims of sexual abuse (i.e., provision of funding to programs such as debriefings and support groups).

However, increased awareness and implementation of preventative measures cannot occur in the absence of data. Until data is made available, the question of how to best aid survivors will remain a mystery.

At this time we are requesting your assistance in obtaining participants for this study. If you should agree to aid in this endeavour you will be asked to use your clinical expertise and judgement to provide as many sexually abused female clients as possible with the opportunity to participate in this study.

Participants in the study will be asked to complete a comprehensive questionnaire package. Completion of the entire package should take no more than 45 minutes of the respondent's time. All responses to the questionnaires will be considered strictly confidential. Respondents will not be required to provide their name or any other identifying information on the questionnaire material. All responses will remain anonymous.

It is hoped that the results of this project will contribute to the identification and understanding of those factors which are most relevant to the treatment of sexual abuse survivors. At the conclusion of the study, a summary of the general results will be provided to all crisis centres and individual practitioners involved in the distribution of the questionnaire packages.

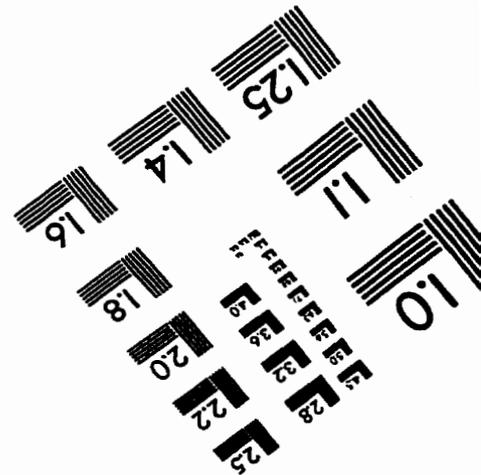
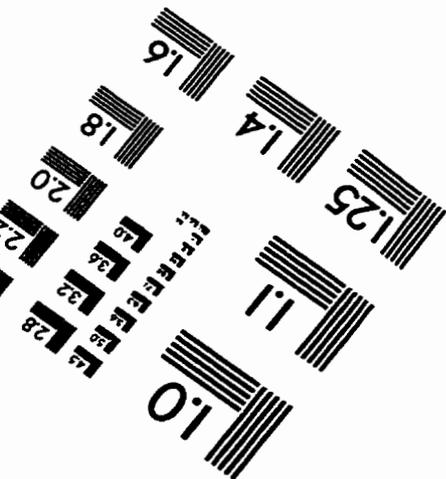
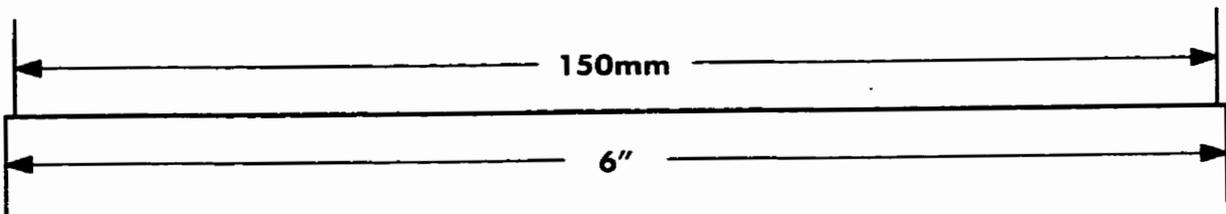
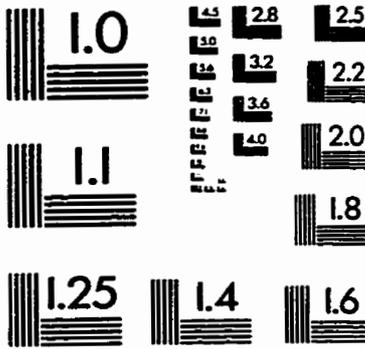
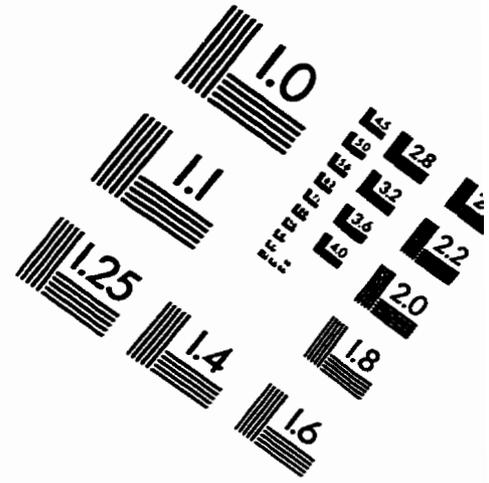
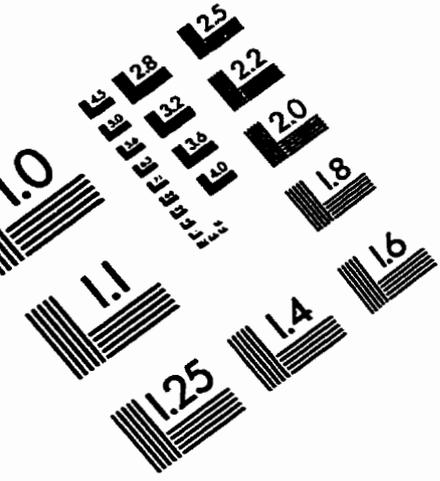
To confirm your willingness to participate in this important research project we will be contacting you via telephone within the next few days. In the interim, if you have any questions, or need to clarification on any aspect of this project, please feel free to contact Mrs. Suzanne Barker-Collo at (807) 623-3965, or Dr. W. T. Melnyk at (807) 343-8432 or (807) 935-2334.

Sincerely,

Suzanne Barker-Collo,
Ph.D. candidate
Lakehead University

Dr. W. T. Melnyk
Professor, Department of Psychology
Lakehead University

IMAGE EVALUATION TEST TARGET (QA-3)



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