

AN INVESTIGATION OF THE EHLERS-CLARK COGNITIVE THEORY OF PTSD
AND THE PHENOMENON OF MENTAL POLLUTION

by

NICHOLE FAIRBROTHER

B.A., University of British Columbia, 1990

M.A., Simon Fraser University, 1994

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in

THE FACULTY OF GRADUATE STUDIES

(Department of Psychology)

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

April 2002

© Nichole Fairbrother, 2002

In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of Psychology

The University of British Columbia
Vancouver, Canada

Date July 26/02

ABSTRACT

Cognitive models have successfully added to our understanding of the onset and maintenance of many anxiety disorders. I tested one component of a recent cognitive model of posttraumatic stress disorder (Ehlers & Clark, 2000) and examined the related phenomenon of mental pollution in a sample of 50 female sexual assault victims. Results indicated that sexual assault appraisals were strongly and positively related to PTSD symptoms. These relations remained significant after statistically controlling for the severity of the assault. Appraisals of the sexual assault and its sequelae explained a significant amount of the variance in PTSD symptoms even after the variance attributable to sexual assault severity was accounted for. Sixty percent of the women interviewed reported some feelings of mental pollution subsequent to the assault. Feelings of mental pollution related to post-assault washing behaviour. Deliberate recall of the assault resulted in stronger feelings of dirtiness and the urge to wash than deliberate attention to a pleasant memory or scene. In response to deliberate recall of the assault memory, nine women reported washing their hands. These findings support the cognitive model of PTSD proposed by Ehlers and Clark, and suggest that the phenomenon of mental pollution is important to our understanding of sexual assault trauma.

TABLE OF CONTENTS

Abstract		ii
List of Tables		v
List of Figures		vii
Acknowledgements		viii
CHAPTER I	Introduction	1
	1.1 What is PTSD?	3
	1.2 The Conditioning Theory of PTSD	5
	1.3 Cognitive Models of PTSD	7
	1.4 The Importance of Appraisals in PTSD	13
	1.5 Ehlers' and Clark's Cognitive Theory of PTSD	15
	1.6 Mental Pollution.....	21
	1.7 Rationale	28
CHAPTER II	A Test of a Component of the Ehlers-Clark Cognitive Theory of PTSD	29
	2.1 Hypotheses	29
	2.2 Research Methodology	30
	2.3 Results	48
	2.4 Summary of Key Findings	72
CHAPTER III	Mental Pollution	75
	3.1 Mental Pollution Hypotheses	75
	3.2 Methodology	76
	3.3 General Mental Pollution Results	79
	3.4 Results of Quasi-Experiment	87
	3.5 Summary of Mental Pollution Findings	91
CHAPTER IV	Discussion	93
	4.1 Support for the Ehlers-Clark Theory of PTSD	93
	4.2 Mental Pollution and Sexual Assault	105
	4.3 Mental Pollution and Sexual Assault Related PTSD	106
	4.4 Implications for Cognitive Behavioural Treatment	108
	4.5 Limitations and Weaknesses	110
	4.6 Future Research	112

References	115
Appendix	122

LIST OF TABLES

Table	
1. Intercorrelations between the Five Interview-Based Appraisals Ratings	40
2. Intercorrelations between the Four SARA Subscales	43
3. Internal Consistency: SARA Total and Subscales	44
4. Correlations Between Interview and Self-Report Measures of Appraisals	47
5. The Content of Self, World and Future Appraisals	50
6. The Content of Appraisals of Others' Reactions Upon Learning of the Assault	54
7. Correlations between Self, World and Future Appraisals, and CAPS and PSS-SR Scores	59
8. Correlations between Initial and Current Symptoms, and CAPS and PSS-SR Scores	60
9. Correlations between Appraisals of Others' Reactions, and CAPS and PSS-SR Scores	61
10. Summary of Regression Analysis for Interview Appraisals Predicting CAPS Symptom Scores	68
11. Summary of Regression Analysis for Interview Appraisals Predicting PSS-SR Scores	69
12. Summary of Regression Analysis for Questionnaire Appraisals Predicting CAPS Symptom Scores	70
13. Summary of Regression Analysis for Questionnaire Appraisals Predicting PSS-SR Scores	71
14. Washing Behaviour Carried Out Subsequent to the Urge to Wash	81
15. Mental Pollution Scores	84
16. Means and Standard Deviations for Ratings Following the Pleasant Memory or Scene and the Assault Memory	89

17. Summary of Appraisal Findings: Correlational Analyses	97
18. Summary of Appraisal Findings: Group Differences	100

LIST OF FIGURES

Figure	
1. A Comparison of PTSD and Non-PTSD Participants for Interview-Based Appraisals	64
2. A Comparison of PTSD and Non-PTSD Participants for Questionnaire-Based Appraisals	66

ACKNOWLEDGEMENTS

I would like to thank my supervisors, Dr. S. Rachman and Dr. Darrin Lehman, as well as my other committee member Dr. Ken Craig, for their kind help and support. I am indebted to Dr. S. Rachman who has, despite retirement, made himself consistently available to me for advice and feedback, and whose support and input have been invaluable.

I am very grateful to the women who agreed to participate in this project and discuss their experiences with me. Not only was their input essential to the completion of this project, but I found my interviews with them fascinating and enriching.

The data for this project were collected, in part, through the UBC Hospital, Anxiety Disorders Unit. I would like to express my gratitude to the Anxiety Disorders Unit, and to Dr. Koch in particular, for facilitating my data collection in this way. I would also like to thank Heather McIsaac, Tanna Mellings, and Sarah Newth for assisting me with data collection. I would also like to thank my research assistant, Samantha Richer, for her tremendous effort in data collection and coding.

I would like to thank Mike Papsdorf and Dana Thordarson for their input and feedback regarding my data analyses.

I would like to express my gratitude to Dr. Sheila Woody for her terrific input and support.

Finally, I am grateful to my family for their tolerance and support.

CHAPTER I

INTRODUCTION

The major aim of this project was to test one component of the recently introduced cognitive theory of PTSD put forward by Ehlers and Clark (2000). Their theory of PTSD represents a significant step forward in cognitive conceptualizations of the disorder.

When this project was initiated all of the supporting published information came from the authors of the theory themselves, and was concerned primarily with the interpretation of trauma-related intrusions in motor vehicle accident victims and ambulance service workers (Clohessy & Ehlers, 1999; Ehlers, Mayou & Bryant, 1998; Steil & Ehlers, 2000). There was also a notable absence of information specifically about victims of sexual assault. It was evident, therefore, that notwithstanding the encouraging nature of the results reported by Ehlers and Clark, there was a need for independent investigation. Therefore, in order to understand the types of appraisals made following sexual assaults, and to test an important component of the Ehlers-Clark theory, I decided to restrict my study to victims of sexual assault. Specifically, I set out to test the hypothesis that PTSD symptoms are strongly related to victims' appraisals of the trauma, its significance for their view of themselves, their world, and their personal future.

A subsidiary aim of the project was to investigate the hypothetical role of mental pollution in sexual assaults. Mental pollution was under active investigation in the fear and anxiety laboratory at the time and I was particularly interested by the descriptions given by de Silva and Marks (1999) of cases in which sexual trauma

had led to the development of feelings of contamination and compulsive washing. With this in mind I was interested to discover in the preliminary interviewing for this project that some of the victims of sexual assault spontaneously mentioned having experienced what appears to have been mental pollution. For these reasons it seemed highly probable that in many instances sexual assaults may well produce feelings of mental pollution. If so, then neglecting to identify and deal with these very powerful feelings may impede complete processing of the traumatic event.

I therefore took the opportunity to study this related phenomenon, mental pollution, that is not featured in Ehlers' and Clark's theory, but which may need to be integrated at a later stage (Rachman, 1994).

The specific aim of this project was to investigate sexual assault victims' appraisals of their assault experience and its sequelae, and to investigate the related phenomenon of mental pollution as it pertains to sexual assault. I anticipated that negative, idiosyncratic¹ appraisals of the sexual assault and its sequelae are related to ongoing PTSD symptoms. I also hypothesized that many sexual assault victims will experience feelings of mental pollution. To this end, I:

- (1) investigated the personal, idiosyncratic appraisals that women make of their sexual assault with respect to (i) themselves, (ii) the world, and (iii) their future.

¹ By idiosyncratic I mean specific or peculiar to the individual. While there may be considerable overlap in the appraisals that sexual assault victims make of the assault and/or its sequelae, no two individuals will appraise the event in exactly the same way. Consequently, each woman's set of appraisals is idiosyncratic. The Oxford English Dictionary (1989) defines idiosyncrasy as "The mental constitution peculiar to a person or class of persons; individual bent of mind or inclination; a view or feeling, a liking or aversion, peculiar to a single person, race, or nation."

- (2) investigated the personal, idiosyncratic appraisals that women make of their initial and current PTSD symptoms.
- (3) investigated the personal, idiosyncratic appraisals that women make of other people's reactions towards them upon learning about the assault.
- (4) assessed the relation of personal idiosyncratic appraisals to the severity of current PTSD symptoms.
- (5) investigated women's feelings of mental pollution following their sexual assault experience.

1.1 What is PTSD?

PTSD is a disorder of emotion subsequent to a traumatic event. According to the *Diagnostic and Statistical Manual of Mental Disorders* the person must have "experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity to oneself or others," to which he/she responds with feelings of intense fear, helplessness or horror (*DSM-IV*, 4th ed., American Psychiatric Association, 1994). The core PTSD symptoms fall into three categories: reexperiencing symptoms, avoidance and numbing symptoms, and symptoms of increased arousal. Reexperiencing symptoms include recurrent and intrusive memories of the event, nightmares about the event, acting or feeling as if the event were happening again, and becoming psychologically distressed or physiologically aroused when reminded of the event. Avoidance and numbing symptoms include trying to avoid thoughts, feelings and conversations related to the event, trying to avoid activities, places and people that remind one of the event, difficulty remembering parts of the event, loss

of interest in important activities, feeling detached or distant from others, blunted affect, and the sense of a foreshortened future. Symptoms of increased arousal include sleep difficulties, anger or irritability, problems concentrating, excessive attention to potential threat or danger, and an exaggerated startle response. The *DSM-IV* (1994) requires that the person has at least two reexperiencing symptoms, three avoidance or numbing symptoms, and two symptoms of increased arousal. The symptoms must last at least a month (if the symptoms last more than three months, the disturbance is considered chronic), and cause "clinically significant distress or impairment in social occupational or other important areas of functioning."

While not an exhaustive list, traumatic events include sexual assault, military combat, motor vehicle accidents, the death of a child, physical assault, miscarriage, traumatic childbirth, severe injury, kidnapping, or natural disasters such as hurricanes or earthquakes, etc. Sexual assault is both a common and disturbing life event, and as such provides a useful opportunity for the study of PTSD (Johnson & Sacco, 1995; Kilpatrick, Saunders, Veronen, Best, & Von, 1987; Kilpatrick & Resick, 1993; Koss, Gidycz, & Wisniewski, 1987; Resick, 1993). The lifetime prevalence rate of exposure to sexual assault (rape and non-rape) is estimated at 11.6% (Lee & Young, 2001). Estimates suggest that approximately 49% of rape victims and 23.7% of non-rape sexual assault victims develop PTSD subsequent to the event (Lee & Young, 2001).

Before turning to details of the Ehlers-Clark theory itself, an historical perspective is necessary. As will be seen, the Ehlers-Clark theory is essentially a

cognitive theory. The main alternative to cognitive explanations of PTSD is the conditioning theory.

1.2 The Conditioning Theory of PTSD

The first modern theory of psychological trauma was put forward by learning theorists such as Eysenck and Rachman (1965), Mowrer (1960), and Wolpe (1958) in the post-war period. There were some differences between their theories, but all were based on a conditioning framework. It was argued that when a trauma occurred, any neutral stimulus/context that was contiguous in space and time could be converted into a stimulus capable of evoking the fear on subsequent presentations of the stimulus or context. These conditioned fears were said to produce extensive avoidance behaviour. The conditioning theory of trauma was supported by a mass of experimental evidence collected from research on cats, dogs and rats, human clinical data and evidence from fears that developed under combat conditions (Rachman, 1978). It was argued that the strength of the conditioned fears are determined by several factors, but mainly by the intensity of the original trauma or traumas (i.e., that a dose-response relation exists between trauma severity and degree of conditioned response). Some attention was given to the possibility that the effects of a single major trauma might be different from repeated low level traumatic events (Rachman, 1978).

The conditioning theory was totally a-cognitive and the prediction of the emerging fears was based solely on conditioning factors. Appraisals played no part in the conditioning theory.

The conditioning theory of PTSD pre-dated the introduction of the *DSM* definition of PTSD, but the *DSM* concept was itself influenced by the theory, and also by reports of combat-related stress disorders among veterans of the Vietnam war. These combat fears were construed in conditioning terms, and the early *DSM* literature on PTSD was, like the conditioning theory itself, a-cognitive. The treatments that were developed on the basis of the concept were forms of de-conditioning, in which extinction training by repeated exposures to the conditioned stimulus, was the main element. In the subsequent extension of conditioning analyses and conditioning treatment to victims of rape, as exemplified in the work of Foa (Foa & Rothbaum, 1998) and others, repeated exposures to imaginal rehearsals of the fear stimulus were the main element of treatment. In the past five years Foa has collaborated with Ehlers and Clark in developing a method of assessing PTSD related cognitions (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) and has moved towards a more cognitive approach to this disorder.

Evaluations of the conditioning theory of fear including the role of trauma are given by Mineka and Zinbarg (1996) and Rachman (1978, 1990). Despite its weaknesses, for example difficulty in explaining why only a minority of people develop PTSD after a trauma (as is seen in victims of motor vehicle accidents), the treatment derived from the conditioning theory has proven to be moderately effective (Foa & Meadows, 1997). It should be emphasized that appraisals do not feature in the conditioning theory or in the treatment that is derived from the theory.

1.3 Cognitive Models of PTSD

Subsequent to the conditioning theory of PTSD, a number of cognitive theories of PTSD were proposed. According to certain of these cognitive models, the traumatic event provides the person with new information that is incompatible with pre-existing beliefs. PTSD symptoms arise as a result of the person's attempt to integrate the new trauma-related information with pre-existing belief sets.

Successful processing of the traumatic event occurs when pre-existing models of self and world are able to adapt and change in ways that accommodate the new information. Chronic posttraumatic stress results when trauma information is not successfully integrated with pre-existing beliefs. Another, related set of cognitive theories (e.g., the Ehlers-Clark theory), proposes that PTSD develops if and when the traumatized person makes maladaptive interpretations of the event/s and of the consequences of the event/s for them (e.g., my life has been ruined, I will never recover, it shows that I am a weak person, etc.).

I have outlined below the main cognitive models that have been developed to explain PTSD phenomenology. These models vary in the degree to which they focus on the content of pre and post trauma beliefs versus the way in which trauma-related information is processed.

Horowitz's (1976, 1986) social cognitive theory of PTSD was heavily influenced by psychodynamic theory. He hypothesized that people are motivated by what he calls a completion tendency – a need for new information to be integrated with existing cognitive models of the world. He proposed that following a traumatic event people are initially stunned and respond by crying out. This first phase is

followed by a period of information overload in which information about the trauma (i.e., thoughts, memories, images, etc.) cannot be reconciled with pre-existing belief structures. Defense mechanisms are used to prevent the trauma victim from being overwhelmed by re-experiencing symptoms. As a result of defense mechanisms coming into play, traumatic information remains unconscious, and the person experiences a period of numbing and denial. Horowitz argues that avoidance and numbing are control processes that regulate information processing and thereby prevent trauma victims from being overwhelmed by their experience. However, the completion tendency causes trauma-related information to break through defense mechanisms into consciousness via flashbacks, nightmares, and intrusions. The trauma victim tries to integrate intrusive trauma-related information with pre-existing beliefs about the world. The completion tendency and the need to protect oneself from being overwhelmed by the traumatic event causes the person to shift back and forth between phases of re-experiencing and phases of denial and numbing. The net result is that over time the trauma is gradually integrated. According to this model, PTSD becomes chronic when information about the traumatic event remains in active memory without being successfully integrated with other memories.

Janoff-Bulman hypothesizes that PTSD results when a traumatic event shatters basic positive assumptions that the person holds about the world (Janoff-Bulman, 1992; Janoff-Bulman & Frieze, 1983). Specifically, Janoff-Bulman suggests that people typically operate under the unchallenged assumptions that the world is meaningful, that one is personally invulnerable, and that the self is worthy. The traumatic event provides information that conflicts with or shatters these beliefs

(i.e., information that cannot be accounted for by pre-existing assumptions about the world and the self). Recovery from a traumatic event requires that the person integrate the new trauma-relevant information with pre-existing belief sets.

Inevitably this involves some accommodation of previously held beliefs. Janoff-Bulman looks to Horowitz to explain how this process occurs. He suggests that people vacillate between denial and integration (driven by the completion tendency).

The information-processing model of PTSD proposed by Foa and colleagues (Foa & Kozak, 1986; Foa & Riggs, 1993; Foa, Steketee, & Rothbaum, 1989; Foa, Zinbarg, & Rothbaum, 1992) is based on Lang's (1979) bioinformational theory of emotion. According to Foa and colleagues, traumatic events are encoded into memory as a fear network of interconnected points of trauma-related information. The fear network includes information about the traumatic event, information about cognitive behavioural, affective and physiological reactions to the event, and interpretive information about the meaning of the event. These authors hypothesize that when the fear network is triggered (e.g., by trauma reminders), information in the network enters consciousness and results in intrusion activity (e.g., flashbacks, nightmares, reliving, etc.). Attempts to avoid or suppress activation of the trauma network are hypothesized to lead to the development of avoidance symptoms. If the event is successfully processed, information about the trauma is fully integrated with existing memory structures. In order for integration (i.e., processing) to occur, the fear network must be activated (i.e., rendering it accessible for modification). Information that is inconsistent with the fear network must also be available in order for the fear network to be modified. Foa and colleagues argue that traumatic events

are difficult to process because they are uncontrollable and unpredictable, and because processes of attention and memory are disrupted during encoding, resulting in fragmented memories in the fear network.

Chemtob's cognitive action theory of PTSD (Chemtob, Roitblat, Hamada, Carlson, & Twentyman, 1988) is similar to Foa's information-processing theory, but narrower in its focus, fitting combat PTSD better than other types of traumatic events. Chemtob hypothesizes that the fear network of trauma victims is permanently activated. This chronic activation leads to trauma victims being in chronic survival mode and results in ongoing intrusion and hyperarousal symptoms.

Creamer, Burgess, and Pattison (1992) have proposed a cognitive processing model of PTSD, which they present their model as a reconceptualization and synthesis of other models. They see the impact of the trauma and recovery occurring in a series of five stages. Stage 1 is objective exposure to a traumatic event. They hypothesize that PTSD severity and persistence is mediated by subjective perceptions and appraisals of the event, rather than being directly influenced by the events' objective severity. Stage 2 is network formation. They argue that in order for trauma-related memories to be distressing, the event must be perceived as frightening or threatening by the victim. The trauma memory network is mainly determined by characteristics of the traumatic event, but may also be influenced by other factors such as pre-trauma personality and prior experiences. Stage 3 is called intrusion. According to this model, the trauma memory network must be activated and modified for recovery to occur. They argue that while intrusive memories are considered symptoms of PTSD, they can also be thought of

as processing. According to this model, activation of the fear network allows for processing of the event and later reductions in symptoms. Creamer et al. hypothesize that high levels of intrusions are associated with high symptom levels at the time of the intrusive experience, but with reduced symptoms levels in the future. High levels of intrusive activity are predictive of recovery whereas low levels of intrusive activity predict poor outcome. Stage 4 is called avoidance. High levels of avoidance behaviour are hypothesized to be predictive of symptom persistence. Stage 5 is called outcome. According to the Creamer et al. model, successful processing is predicted by activation and modification of the trauma memory network. Activation of the trauma memory network results in high levels of intrusive symptoms initially, but leads to modification of the network and reduced symptoms in the long run.

Brewin, Dagleish & Joseph (1996) have developed a cognitive model of PTSD that focuses on the nature of traumatic memories. Consistent with cognitive and neuropsychological research, they propose that sensory input is subject to both conscious and non-conscious processing. Non-conscious processing is extremely rapid and allows for the parallel processing of multiple inputs. Conscious processing on the other hand, is slow, serial in nature, and restricted by the small amount of information that can be held in memory at any one time. They hypothesize that traumatic events are represented in memory by: (1) the person's conscious experience of the event and (b) the non-conscious experience of the event. Brewin et al., have termed the person's conscious memory of the event verbally accessible memories (VAMs), and the non-conscious memory for the event situationally

accessible memories (SAMs). VAMs are hypothesized to reside with other autobiographical memories. They may be detailed but are selective because anxiety occurring during the traumatic event increases attentional selectivity and decreases short-term memory capacity. SAMs are more extensive and are triggered by exposure to reminders of the traumatic event. These reminders can be internal (e.g., thinking about the event) or external (e.g., driving past the scene of the accident). According to this model, emotional processing consists of activation of SAMs that provides new information about the trauma to consciousness, which is then manipulated. There is a conscious attempt to accommodate trauma information that conflicts with previously held beliefs about the self and the world. The objective of emotional processing is to reduce negative affect and restore a sense of safety and control through changes in beliefs about the self and the world. The authors suggest three different end points of emotional processing: (1) completion/integration in which trauma memories are fully integrated with the person's other autobiographical memories, (2) chronic emotional processing, and (3) premature inhibition of processing.

With the exception of the model by Foa and colleagues, these models suggest that people come to traumatic events with a set of positive beliefs about themselves and the world and the traumatic event provides new, negative information that conflicts with these beliefs. This point of view is inconsistent with the finding that people with a psychiatric history, who presumably hold negative self and world beliefs, are more likely to develop PTSD than are people without a psychiatric history, and with the finding that the experience of multiple traumas

increases, not decreases the probability of developing chronic PTSD (Burgess & Holmstrom, 1978; Kilpatrick, Veronen, & Best, 1985; Resick, 1987). Further, most of these models (with the possible exception of that of Foa and colleagues) also fail to adequately explain why some people develop PTSD subsequent to traumatic events, and others do not. The model proposed by Brewin et al. provides some very useful information regarding trauma memories, some of which has been incorporated into the Ehlers-Clark model. As will be seen the Ehlers-Clark model is fully cognitive in a way that other models are not. Further the Ehlers-Clark model situates PTSD conceptually amongst the anxiety disorders in a way that has not been done before.

1.4 The Importance of Appraisals in PTSD

Researchers in the area of stress and coping have long recognized the importance of appraisals in understanding stress (Brown & Harris, 1989; Lazarus, DeLongis, Folkman, & Gruen, 1985; Lazarus & Folkman, 1986). Lazarus and Folkman argue that environmental events cannot be identified as stressors independently of how they are appraised by the person who experiences them, and that investigators should not try to separate an objective stressor from the meaning of that stressor (Lazarus & Folkman, 1986). Consistent with the Ehlers-Clark theory, they argue that appraisals integrate person variables such as values, goals and beliefs with the stressful life events being confronted, and explain individual differences in responses to the stressors. Their view represents a somewhat more extreme view than that of Ehlers and Clark. Ehlers and Clark present a view of PTSD in which the traumatic event is clearly identified as a trigger that is separate

from the meaning attributed to the event. In their view, appraisals of the event and/or its sequelae serve to explain, in part, individual differences in response to traumatic events. Consistent with the Ehlers-Clark model, Lazarus and Folkman argue that symptoms of distress or stress can themselves also be a source of stress or distress. According to the Ehlers-Clark model, the degree to which PTSD symptoms themselves become a source of distress depends upon the appraisals the trauma victim makes of the symptoms.

Bowman (1997) also argues that the role of the traumatic events in producing symptoms of posttraumatic distress has been exaggerated relative to the influence of variables contained within the person such as personality, appraisals, coping, etc. In support of this argument, there is strong evidence that PTSD does not fit a dose response model in that most trauma victims recover within a relatively short period of time (i.e., less than three months), and that the objective severity of the event does not explain individual differences in response to traumatic events (Bowman, 1999). The model proposed by Ehlers and Clark, while recognizing the role of the trauma in producing PTSD, fully recognizes the importance of individual differences (i.e., individual differences in appraisals and memory for the event) in predicting posttraumatic stress symptoms (Ehlers & Clark, 2000).

Many trauma researchers now agree that thoughts and beliefs play an important role in individuals' emotional responses to trauma (e.g., Foa & Rothbaum, 1998; Horowitz, 1986; Janoff-Bulman, 1989 & 1992; Janoff-Bulman & Frieze, 1983; Resick & Schnicke, 1992). Although the model proposed by Ehlers and Clark incorporates many aspects of other cognitive models of PTSD, it is unique amongst

trauma theories in that (a) it is specifically a model of the persistence of PTSD, and (b) in keeping with contemporary models of other anxiety disorders, it hypothesizes that the persistence of PTSD symptoms is due to appraisals of current serious threat.

1.5 Ehlers' and Clark's Cognitive Theory of PTSD

The primary objective of this project is to test the first component of Ehlers' and Clark's theory: that negative idiosyncratic appraisals of the trauma and/or its sequelae are related to ongoing PTSD symptoms.

The fact that Ehlers and Clark have proposed a model to explain, not the onset or development of PTSD, but its persistence is important. Whereas many trauma victims experience some symptoms of PTSD immediately following the traumatic event, only a subset of trauma victims experience long term difficulties (Ehlers & Steil, 1995; Resick, 1993; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). Therefore, PTSD symptoms over the short-term may not be pathological, but rather part of a normal recovery process. Any model that attempts to explain PTSD needs to explain why it is that some people who experience a traumatic event recover, whereas others go on to experience persistent difficulties. Ehlers and Clark have proposed such a model.

They propose that initial PTSD will become persistent only when individuals interpret their traumatic event and/or its sequelae in a way that results in the perception of a serious current threat.

They propose that a sense of a current threat may arise from:

1. Individual differences in the appraisal of the trauma and/or its sequelae.

2. Individual differences in the nature of the memory for the event and its link to other autobiographical memories.

Ehlers and Clark suggest that trauma sufferers fail to recover from traumatic events, in part, because they make negative idiosyncratic appraisals of the event and/or its sequelae that result in the perception of current ongoing threat. They suggest several types of appraisals that can produce a sense of current threat. Trauma sufferers may overestimate the probability of future danger. An assault victim, for example, may appraise the assault to mean, "I can be assaulted at any time," and as a consequence feel constantly anxious and vigilant. They may overgeneralize from the event and as a result perceive a range of non-dangerous situations as dangerous, or as more dangerous than they really are. For example, a sexual assault victim might come to believe that all men are dangerous, and feel threatened even by checkout clerks in the grocery store. Trauma sufferers may interpret the assault to mean something negative and threatening about themselves such as "the fact that the assault happened to me means that I am a target" or "the fact that I did not fight off my assailant means that I am weak." These appraisals may have negative implications for people's future (e.g., "I will never be able to trust a man enough to get married", or "because I am weak I am unable to defend myself in dangerous situations").

Ehlers and Clark also hypothesize that negative idiosyncratic appraisals of the trauma sequelae may produce a sense of a current threat. They suggest that trauma sequelae such as one's initial PTSD symptoms, other people's reactions upon learning about the event, and the impact that the traumatic event has had in

other life domains (e.g., job loss, chronic pain or disability) may be interpreted in a way that lead to a sense of current threat and contribute to persistent PTSD. For example, if trauma victims do not see their initial symptoms as a normal part of the recovery process, they may become anxious that they have permanently changed for the worse or are physically or emotionally unwell and may not recover.

According to Ehlers and Clark, negative interpretations of the trauma and its sequelae maintain PTSD in two ways. First, they do so by directly producing negative emotions (e.g., anxiety, sadness, anger). For example, appraisals regarding danger lead to fear (e.g., "I can be assaulted at any time"), whereas appraisals of loss lead to sadness (e.g., "I may never marry or have children"). Second, they motivate individuals to engage in a variety of cognitive and behavioral strategies that are intended to reduce perceived threat and distress (over the short term), but have the paradoxical effect of maintaining or enhancing PTSD symptoms. For example, if a sexual assault is interpreted to mean that all men are dangerous, the assault victim may come to avoid men and consequently many social situations. This results in the person being cut off from social support and feeling estranged from others. If individuals interpret their intrusions to mean that they are losing their mind, they may be likely to try to suppress their thoughts. We know that thought suppression can lead to an increase in the frequency with which the thought occurs (Wegner, 1989).

One of the difficulties in developing a theoretical model of PTSD is that PTSD is considered an anxiety disorder, and cognitive models of anxiety posit that anxiety results from the perception of impending threat or harm. This poses a difficulty for

models of PTSD, because the problem in PTSD is the memory of an event, which occurred in the past. Ehlers and Clark's theory neatly deals with this difficulty by suggesting that PTSD persists only if trauma victims appraise the event and/or its sequelae in a way that produces a sense of current threat.

The second key process that may lead to a sense of ongoing, current threat is individual differences in the nature of the memory for the traumatic event and its link to other autobiographical memories. Individuals with PTSD have difficulty intentionally recalling the event in full detail, but also experience frequent involuntary, unwanted and intrusive memories of aspects of the traumatic event. Ehlers and Clark suggest these memory difficulties are due to the way that the trauma is encoded and laid down in memory. They hypothesize that memory for the traumatic event is poorly elaborated and poorly integrated into its context in time, place, new and prior information and other personal memories. Consequently, contextualization and reappraisal of the event is made difficult, and numerous benign situations become capable of triggering negative, unwanted and intrusive memories of threatening aspects of the traumatic event that create the sense of a current threat.

Ehlers and Clark point to a number of factors likely to influence the types of appraisals that individuals make of the event and/or its sequelae. For example the perceived controllability of the traumatic event may influence appraisals. Events where the trauma victim perceived a complete lack of control may be interpreted to mean that they have no control over their life. Traumatic events that result in permanent health problems are more likely to produce appraisals such as "my life is

ruined”, or “I will never be normal again”. If others react to the trauma victim in an objectively negative or critical way, these reactions may be interpreted to mean “the event was my fault”, or “others think poorly of me”. If individuals hold negative beliefs about themselves, others or the world prior to the occurrence of the trauma, the event may serve to confirm these beliefs. Individuals, who hold extremely positive beliefs prior to the trauma, may find that the trauma damages these beliefs and their trust in themselves or the world. People who know someone who developed a serious mental illness subsequent to a stressful life event may be vulnerable to interpreting their symptoms to mean that they are going crazy. Prior traumatic events and the meaning attributed to them may influence appraisals of the new trauma.

1.5.1 Evidence in Support of the Ehlers-Clark Theory

Although still in the early stages, some tests of the Ehlers-Clark theory have been conducted. For example, Ehlers & Steil (1995) found a positive relation between appraisals of initial symptoms and PTSD severity. Negative appraisals of intrusive recollections of traumatic incidents were correlated with PTSD symptoms in a sample of 56 ambulance service workers (Clohessy & Ehlers, 1999). Steil and Ehlers (2000), in two studies of motor vehicle accident survivors, also found a positive relation between interpretations of accident related intrusions and PTSD symptoms. Foa , Ehlers, et al. (1999), as part of the validation of the Posttraumatic Cognitions Inventory (PTCI) compared the responses of traumatized individuals with PTSD and traumatized individuals without PTSD. The PTCI contains three scales: negative cognitions about the self, including the feeling that one has permanently

changed as a result of the trauma and negative interpretation of one's symptoms, negative cognitions about the world, and self-blame. The PTSD group scored higher than the non-PTSD group on all three scales. The three scales correlated significantly with PTSD severity, even when current depression (as measured by the BDI) was controlled for. Dunmore, Clark, and Ehlers (1997) compared 11 trauma victims suffering from persistent PTSD with 9 trauma victims who had recovered from PTSD. Participants had been the victim of either a sexual or a physical assault. The groups were compared with respect to several cognitive factors including appraisals of others' responses following the assault, appraisals of one's PTSD symptoms, and global negative appraisals (i.e., beliefs about the impact that the assault had had on their perception of themselves, their beliefs about other people, beliefs about safety, and on beliefs about their future). The persistent PTSD group was more likely to report global negative appraisals, negative appraisals of other's reactions, and negative appraisals of their symptoms compared with the recovered group. Dunmore, Clark, and Ehlers (1999) investigated the role of cognitive factors in PTSD in a group of 92 physical and sexual assault victims. They compared assault victims who had persistent PTSD with assault victims who had recovered from PTSD. They found that negative appraisals of initial PTSD symptoms and negative appraisals of others' reactions following the assault were associated with both initial and persistent PTSD. Ehlers et al. (1998), in a study of motor vehicle accident victims, found that trauma victims who made negative appraisals of their trauma symptoms shortly after the event (i.e., within 8 days of the traumatic event) were more likely to suffer from PTSD at 3 months and 1 year post-

trauma compared with trauma victims who did not make negative appraisals of their symptoms. Negative appraisals of trauma symptoms at 3 months were also found to significantly predict PTSD severity at 1 year. Using a longitudinal design, Dunmore, Clark, and Ehlers (2001) investigated a number of cognitive factors in a sample of 57 victims of physical and sexual assault. Cognitive variables were assessed at 4, 6 and 9 months post-trauma. Appraisals of initial symptoms, negative perceptions of others' responses and perceived permanent change all predicted a significant amount of the variance in PTSD symptoms at both the 6 and the 9 month time point after controlling for gender, previous history or abuse/psychological difficulties and the severity of the assault (assessed subjectively). After controlling for gender, previous history and assault severity, negative beliefs about the self and the world were significantly related to PTSD symptoms at the 6-month time point only.

The results of these studies provide support for the relation of appraisals of the traumatic event and its sequelae to PTSD symptoms, but also of the role of early appraisals in predicting persistent PTSD symptomatology.

1.6 Mental Pollution

The second aim of this project is to test the hypothesis that there is a high probability that sexual assault victims will experience feelings of mental pollution following their assault.

In formal theoretical terms, the concept of mental pollution was introduced to the psychological literature by Rachman (1994). However, the concept (or metaphor) of mental pollution has been present in Western theological and literary

writings for considerably longer, and can be found explicitly as early as the 17th Century. Robert Leighton (1684), Archbishop of Glasgow in the late 1600s, refers to moral pollution in his writing, e.g.: “The soul and body of all mankind are stained by the pollution of sin.” (p. 114). Likewise, Rachman notes that John Bunyan, who suffered from unwanted intrusive thoughts, described his experience as “pollution of the mind.”

Furthermore, explicit in the contemporary definition of pollution is the notion of a moral (or psychological) as well as a physical (i.e., objective) dirtiness or contamination. The *Oxford English Dictionary* (1989) defines pollution as “the action of polluting, or condition of being polluted; defilement; uncleanness or impurity caused by contamination (physical or moral)”. *Collins Concise English Dictionary* (1992) states that to pollute is “to make morally corrupt”. The term “pollute” stems from the Latin *polluere*, meaning to defile.

According to Rachman, mental pollution is a sense of internal (i.e., psychological) dirtiness, which persists despite the absence of external, observable dirt. A prime example of this is Lady Macbeth, who despite repeated washing of her hands continued to feel dirty and guilty, “What! will these hands ne’er be clean?” Her hands contain no contaminant, yet they feel dirty because of her state of mind; that of mental pollution. Ordinarily, people feel dirty because they have come into direct physical contact with some soiled or objectively unclean material (e.g., feces, vomit). When this happens, washing the body part that came into contact with the dirty or unclean substance can alleviate these feelings of dirtiness. In contrast, when the feeling of dirtiness is psychological in nature, it cannot be fully eliminated

by washing. Further, feelings of dirtiness, when they pertain to objectively unclean objects, are not confined to the person who feels dirty (i.e., most people who come into contact with the substance in question would also feel dirty). For example, most people feel dirty when they touch rotten food or other garbage.

In mental pollution, however, feelings of dirtiness are only slightly or indirectly connected to objective, observable dirt. Mental pollution can and does arise even in the absence of physical contact with soiled or objectively unclean material. For example, one can feel mentally polluted simply by having an unacceptable sexual thought or image. Mental pollution is specific to the person experiencing it (i.e., if an external objective source of pollution can be identified, contact with that source will produce intense feelings of dirtiness only in the affected person). Other people will not feel excessively dirty when exposed to the triggering substance or material. For example, one might feel dirty after touching an object belonging to one's enemy. Others who are not enemies of this person would be able to touch the object without experiencing any feelings of dirtiness or contamination.

Feelings of mental pollution can be produced by "mental" events such as images, words, unacceptable thoughts or urges (e.g., sexual or blasphemous thoughts and urges). Feelings of mental pollution can also be evoked by memories, even in the absence of contact with the contaminant. Unlike ordinary feelings of dirtiness, feelings of mental pollution cannot be fully alleviated by washing. Nevertheless, people who feel mentally polluted will wash, even repeatedly, in an effort to eliminate the feelings of dirtiness that they are experiencing.

Feelings of mental pollution often have an “immoral” quality that is absent in ordinary physical pollution. Sexual behaviour is also associated with moral ideas and in cases of unwanted, non-consensual sexual acts; it can have an immoral quality.

It is important also, to distinguish the concept of mental pollution from the concept of disgust. In contrast with the concept of mental pollution, which is essentially a cognitive concept, disgust is considered a basic emotion (Rozin & Fallon, 1987). As a basic emotion, disgust is accompanied by a characteristic facial expression, a corresponding behaviour (withdrawal from the offensive object), a physiological reaction (nausea), and a feeling state (revulsion). Although the boundaries of the concept of disgust require further study, it is likely that much of the concept of mental pollution can be subsumed within the broader category of disgust. In most instances of mental pollution one is likely to experience disgust also. However, there are many situations where one might experience disgust without feeling mentally polluted. Also, feelings of mental pollution generally have a moral quality that is not always present in disgust. For example, touching dog feces, watching an operation on television, or seeing a dead insect in one’s salad are all situations where one might experience intense feelings of disgust without experiencing mental pollution.

The concept of disgust has been investigated extensively by Paul Rozin. In a key paper, Rozin and Fallon (1987) define disgust as, “revulsion at the prospect of (oral) incorporation of an offensive object”. Because their definition is narrow (albeit

intentionally), and emphasizes oral incorporation, the connections with mental pollution are limited, but interesting nevertheless.

One such connection lies in what Rozin and Fallon identify as one of three defining attributes of disgust, that of incorporation into the self. These authors focus on oral incorporation, and the mouth as the most important entry point to the self. By extension, incorporation of offensive substances into the body via other orifices should also provoke feelings of disgust, albeit less intense. Consequently, non-consensual sexual acts that involve incorporation of bodily products such as semen or saliva should be particularly disgusting, and incorporation of these products via the mouth should be the most disgusting. It may be that sexual assault victims are also more likely to experience feelings of mental pollution subsequent to assaults that involve an exchange of bodily fluids, particularly via the mouth.

A further connection between disgust and mental pollution lies in what Rozin and Fallon identify as another of the defining attributes of disgust, that of psychological contamination. They suggest that in all cultures some substances can provoke psychological contamination via physical contact. Even trace amounts of an offensive substance can provoke psychological contamination. They further argue that physical contact with a contaminant is not necessary for psychological contamination to occur. Contamination can occur through contact with clean objects that simply resemble dirty or disgusting objects. Contamination of this type clearly overlaps with the concept of mental pollution wherein feelings of pollution can be evoked by mental events in the absence of contact with a contaminant. Contamination can also be transmitted by contact with offensive objects or offensive

people. This particular type of contamination is most relevant to sexual assault induced mental pollution. For example, the act of kissing, in and of itself, is neither offensive nor disgusting, but becomes disgusting if it occurs with a disgusting or offensive person. Forced sexual contact of any kind automatically renders assailant offensive.

Rozin and Fallon also discuss the relation of contamination to the laws of sympathetic magic. The once in contact, always in contact property of the law of contagion is particularly relevant to mental pollution that comes about through sexual assault. Once a sexual assault has occurred, even if all physical traces of the event have been eliminated, some women will continue to feel dirty and contaminated, and feel as if they continue to have some trace of the event on or inside their person.

While the connections with disgust are interesting and merit further study, the present investigation focuses on mental pollution only. For the purposes of this project the concept of mental pollution, as described above, will be indexed in the following manner.

1. Mental pollution involves a sense of internal un-cleanness.
2. Mental pollution can be induced without actual contact with observable dirt.
3. Mental pollution persists in the absence of contact with observable dirt.
4. Mental pollution is not properly responsive to washing.
5. Feelings of mental pollution can be produced by mental events such as images, words or memories, in the absence of contact with a contaminant.

6. In addition to feelings of disgust or revulsion, mental pollution has a moral or emotional quality (e.g., feelings of responsibility or shame).

I was particularly taken by the fact that mental pollution is of course primarily cognitive, and given that it can develop without actual contact with a contaminant, it is obvious that a purely conditioning explanation cannot succeed. I therefore decided to take the opportunity to collect information on the occurrence of mental pollution and to do so in two ways. Firstly, I included a section on mental pollution in my standardized interview, and I also took the opportunity to carry out a simple quasi-experiment. The purpose was to discover whether or not it is possible to induce feelings of mental pollution by non-physical contact with a contaminant.

1.7 Rationale

The model proposed by Ehlers and Clark is in the early stages. Some preliminary findings have, however, been reported (Dunmore, Clark, & Ehlers, 1997, 1999, 2001) and more research is in progress. Although these studies provide support for the role of appraisals in PTSD, none of the testing reported so far has come from independent sources.

The primary objective of this project was to test the hypothesis that negative idiosyncratic appraisals of the trauma and/or its sequelae are associated with PTSD symptomatology. This is the first time that components of the Ehlers-Clark theory have been tested by independent investigators. This is also the first time that the model has been investigated with a sample comprised exclusively of sexual assault victims. As I suspect that the appraisals that trauma victims make of the trauma and/or its sequelae vary according to the nature of the traumatic event experienced, I was keen to learn more about the specific appraisals that may be key for women who have been sexually assaulted. Better delineation of the appraisals that are important for this population may lead to improved assessment and treatment of this population. Further, the decision to focus on sexual assault was particularly appropriate given my secondary interest in mental pollution as it relates to sexual assault.

CHAPTER II

A TEST OF A COMPONENT OF THE EHLERS-CLARK COGNITIVE THEORY OF PTSD

2.1 Hypotheses

Ehlers and Clark posit that negative idiosyncratic appraisals of the trauma and/or its sequelae may lead to a sense of a current threat and thereby maintain PTSD symptoms generally. If this is so, at a minimum, negative trauma appraisals should be related to ongoing PTSD symptoms. Consequently, I hypothesized a positive association between the extent to which sexual assault victims make negative, idiosyncratic appraisals of their sexual assault and/or its sequelae, and the severity of the PTSD symptoms they report. I further hypothesized that this association would be over and above the association between PTSD symptom severity and the length of time since the trauma, and the severity of the assault.

Specifically, I predicted a positive correlation between negative assault-related appraisals with respect to (a) oneself, (b) one's world, other people, one's relationships with others, (c) one's future, (d) one's initial and current PTSD symptoms, and (e) others' reactions upon learning about the assault, and PTSD symptom severity. I predicted that these correlations would remain positive and significant even after controlling for the effect of the length of time since the trauma and the severity of the assault (degree of perceived threat of harm, injury or death). As the Ehlers-Clark theory is a theory of a discrete diagnostic entity, people who meet criteria for PTSD should differ from people who do not meet criteria for PTSD with respect to their trauma and trauma sequelae related appraisals. I therefore

predicted that sexual assault victims who met diagnostic criteria for PTSD would report more negative sexual assault appraisals than sexual assault victims who do not meet diagnostic criteria for PTSD.

Given the Ehlers-Clark theory, with its emphasis on the critical role of key appraisals, it is worth examining the separate and cumulative predictive value of these appraisals. Therefore, although not specifically deduced from the Ehlers-Clark theory in the sense of the predictions stated above, I decided to evaluate the amount of variance in PTSD symptom severity that could be accounted for by the different trauma appraisals I assessed. I predicted that the negative, idiosyncratic appraisals that sexual assault victims make of their assault experience and its sequelae would account for a significant amount of the variance in PTSD symptoms.

2.2 Research Methodology

2.2.1 Design

This study used a cross-sectional design, and involved questionnaires, interviews and a quasi-experiment. Participants were administered two interviews, they were given a questionnaire package to complete, and they were invited to participate in a quasi-experiment.

2.2.2 Procedure

Prospective participants were first screened by telephone. They were told about the project, the amount of time required, and what they would be asked to do. They were told: "I am conducting a study of women who have experienced a sexual assault in adulthood. The study will require approximately 2 hours of your time. As part of your participation, you will be asked about your sexual assault experience,

you will be asked to complete a number of questionnaires, and you will be administered two interviews. The first interview assesses your beliefs and perceptions of your sexual assault experience. The second interview assesses the type of symptoms that people commonly experience following a sexual assault. If you think that you might be interested in participating in our study, I would like to ask you a few questions to determine whether or not your experience fits with what we are looking for." Interested women were then asked a number of questions to determine (1) that their experience fit our definition of sexual assault, (2) that they had not been sexually abused as children, (3) that they had experienced a maximum of two sexual assaults, and (4) that they were not involved in any legal proceedings related to the assault. Women who were not excluded on the basis of this conversation, and who were interested in participating were invited to come in to complete the interviews, quasi-experiment and questionnaire package.

Upon arrival at the fear and anxiety laboratory, the purposes and procedures of the study were explained to participants, and they were asked to complete the study consent forms (standard consent form and a consent form requesting permission to audio-tape the PTSD assessment interview). Participants were then administered an in-depth interview assessing sexual assault appraisals and mental pollution related to the assault. Following the appraisals/pollution interview, participants were invited to participate in a brief quasi-experiment assessing the relation between memory for the assault and mental pollution. The procedures for the quasi-experiment are explained in detail in Chapter III. Following this, participants were given a short break and then administered the PTSD diagnostic

interview (the Clinician Administered PTSD Scale [the CAPS]). Following the CAPS, participants were given the questionnaire package to complete. Upon completion of the interview and the questionnaires, participants were given brief personal feedback regarding their responses, thanked for their participation, offered referral resources, and given course credit for their time.

2.2.3 Sample

Participants were 50 women who reported an unwanted sexual experience. Participants were recruited through advertising on the UBC campus and through an ongoing sexual assault treatment project at the UBC Hospital (Koch, W. J., Fairbrother, N., Mellings, T. M. & Newth, S. J.). Forty-seven of the 50 participants were recruited through advertising on the UBC campus, and the remainder from the UBC Hospital. Prospective participants were screened over the telephone. Those women who reported an unwanted, non-consensual sexual experience were invited to participate.

The average age of participants was 24.5 years (range 16 – 49 years). The average number of years of schooling was 15.7 (range 12 – 19). Eighty percent of participants were single at the time of the interview, 12% were married or cohabiting, and 8% were divorced. Eighty percent of participants were students at the time of the interview, 18% were employed full time, and 2% were full time homemakers. Seventy eight percent of participants were Caucasian. Other ethnicities included East Asian (8%), First Nations Canadians (4%), South East Asian or Pacific Islander (4%), South Asian (4%), and Middle Eastern (2%). Eighty six percent of the sample reported that English was their native language.

2.2.4 Definition of Sexual Assault

Definitions of sexual assault vary enormously from study to study (Acierno, Kilpatrick, & Resnick, 1999). Even definitions of rape are highly variable, with some studies defining rape narrowly to include only forced vaginal intercourse, and others defining it more broadly to include all forms of penetrating sexual assault (Koss, 1993). Some studies include forced sexual contact while intoxicated as part of their definition of sexual assault, and others do not. At the narrow end of the spectrum, sexual assault may include only rape (Burge, 1998; Rothbaum, et al., 1992). At the very broad end of the spectrum, sexual assault is defined as unwanted sexual contact of any variety (Tanzman, 1992).

For the purposes of this study, sexual assault was defined as unwanted sexual touching of any variety (i.e., from fondling, grabbing or kissing to various types of sexual intercourse) that occurred without the woman's consent.

Consent was considered to be lacking if the woman (a) reported saying "no" or otherwise asked her assailant to stop, (b) expressed by her behaviour, a desire for the assailant to stop, (c) was too intoxicated to know what she was doing, or (d) was threatened with physical harm if she refused to comply. In keeping with this definition, women who agreed to engage in sexual activity when they did not want to because they were coerced into doing so were not included in the study.

In the absence of any clear standard within the sexual assault literature, I selected a reasonably broad definition of sexual assault. I sought a definition that was not restricted to forced intercourse only; but that was restricted enough to include only instances of sexual touching that were clearly assaultive and not only

coercive. This definition approximates Canadian sexual assault law which does not distinguish between penetrating sexual assault or rape and other forms of sexual assault, but in which the lack of consent is key (Martin's Annual Criminal Code, 2001).

I selected this definition, in part, to facilitate data collection. Restricting the definition to penetrating sexual assaults only would have significantly limited access to participants.

The primary investigator ensured that the assault being reported met this definition for sexual assault at the time of the telephone screening. All appropriate volunteers were invited to participate.

2.2.5 Inclusion – Exclusion Criteria

Participants were excluded if they reported an experience that did not fit the definition of sexual assault used for this study.

This was a study of persistent PTSD. While many assault victims meet criteria for PTSD immediately following the assault, most recover (Rothbaum, et al., 1992). According to the *DSM-IV* definition of PTSD, if the disorder persists for three months or longer it is considered chronic (1994). Therefore, only those individuals whose assault occurred at least 3 months previously were included in the study.

Women in this study were asked to report their appraisals of a particular event and any PTSD symptoms they were experiencing related to that event. In order to avoid the situation wherein a woman might have appraisals and symptoms arising from several events, women reporting multiple (i.e., three or more)

distressing sexual assaults were excluded.² One participant reported two events that were distressing for her. In this case, the interviews focussed on both assaults.

Women who reported having experienced sexual abuse as children that was prolonged or involved either genital or anal contact were also excluded from participating. Although there is some debate as to the psychological impact of childhood sexual abuse, I deemed that prolonged or highly intimate sexual abuse experiences were likely to be traumatic and influence the way in which women process an adult sexual assault (Beitchman et al., 1992; Kuyken, 1995; Rowan & Foy, 1993). Further, there is evidence that women who are sexually abused as children are more likely to be sexually assaulted as adults (Messman & Long, 1996). Because I believed that these women might differ in a number of ways from women who had only experienced sexual assault in adulthood, I decided to exclude them.

Participants were also excluded if they were involved in ongoing legal activity related to the assault. This was done primarily because I preferred not to be in a situation in which my data might be relevant in a criminal case.

2.2.6 Measures

Structured Interviews

The Clinician Administered PTSD Scale (CAPS). The CAPS (Blake et al., 1990) was used to assess severity of post-traumatic symptoms. The CAPS was developed by the American National Center for PTSD and takes approximately 45 minutes to administer. All *DSM-IV* PTSD criteria are evaluated. Each of the 17 core

² Some women reported several sexual assaults, but stated that only one of these caused them concern or distress.

PTSD symptoms are given frequency and intensity ratings on a scale from 0 to 4. The current symptom version was used for this study.

The CAPS has shown good reliability and validity. Internal consistency for the individual symptom clusters ranges from .63 to .89 (Blake et al., 1990; Hovens et al., 1994; Hyer, Summers, Boyd, Litaker, & Boudewyns, 1996; Weathers et al., 1999). Internal consistency for the 17 core PTSD symptoms is very good, ranging from .89 to .95 (Hovens et al., 1994; Hyer et al., 1996; Weathers et al., 1999). Inter-rater reliability estimates are also high. Blake et al. (1990) report inter-rater reliability estimates ranging from .92 to .99, with perfect diagnostic agreement for 7 patients. Hovens et al. (1994) report inter-rater reliability estimates ranging from .86 to .92, and again with perfect diagnostic agreement for 9 patients. Using other diagnostic interviews and clinical interviewing as the criterion, the CAPS has been found to have good sensitivity (74% to 91%), specificity (71% to 95%), with kappa values ranging from .58 to .75 (Hovens et al., 1994; Hyer et al., 1994; Radnitz et al., 1995; Weathers et al., 1999). Evidence of convergent and discriminant validity is more variable, but also generally strong (Blake et al., 1990; Hovens et al., 1994; Hyer et al., 1996; Weathers et al., 1999). For a full review of the CAPS interview, please see Weathers, Keane, and Davidson (2001).

Eleven (22%) of the CAPS interviews were audio-taped for the purposes of establishing diagnostic reliability. These tapes were then listened to and rated by an independent rater who had no knowledge of the current study and who was fully trained in the use of the CAPS interview. The degree of agreement achieved between the primary investigator and the independent rater with respect to CAPS

symptom total scores and diagnostic status (i.e., whether or not full *DSM-IV* diagnostic criteria for PTSD was met) was assessed. The correlation between the two raters' CAPS total scores was $r = .96$, $p < .001$, indicating a high level of agreement. Raters achieved 100% diagnostic agreement in the 11 cases assessed.

Appraisals interview. A semi-structured interview to assess women's appraisals of their sexual assault and its sequelae, and feelings of mental pollution was also administered. This interview was developed by the primary investigator for the purposes of this project. The interview contains questions intended to assess women's appraisals of their sexual assault experience with respect to themselves, the world, other people, their relationships with others, their future, other people's reactions to them upon learning of the assault, and their initial and current symptoms. Appraisals categories were selected to correspond closely to the types of appraisals hypothesized to be important by Ehlers and Clark in their cognitive theory of PTSD (Ehlers & Clark, 2000).

Specifically, women were asked if the assault had had any impact on their view of (1) themselves or their character, (2) their world, other people or their relationships with others, and (3) their future. Participants' responses to these questions were recorded verbatim and later coded into categories. Participants were then asked to rate the degree (on a scale from 0 to 100) to which they perceived these changes (with respect to themselves, their world and their future) to be negative and important for them. They were asked to make one negativity/importance rating for each of the three appraisals categories.

Participants made a total of 315 statements in response to these questions. The primary investigator first developed categories used to group these statements. The primary investigator and a research assistant then coded participants' responses. Initial complete agreement was achieved for 240 (76.2%) out of the 315 statements. Disagreements (either partial or total) occurred on 75 out of 315 statements. This resulted in a 76% agreement. Disagreements were resolved through discussion between the primary investigator and the research assistant.

Participants were then asked if anyone had reacted in a negative or upsetting way towards them upon learning about their sexual assault, and if so, what their reaction meant to them. Twenty-seven of the 50 participants reported that someone had reacted in a negative or upsetting fashion upon learning about their sexual assault. Twelve participants reported negative reactions from family members, 14 reported negative reactions from friends or acquaintances, 8 reported negative reactions from romantic partners, 2 from health care workers, 4 from police officers, and 3 from other authority figures. In several cases participants reported that no one had reacted negatively upon learning about their assault, in part because they had not told anyone of the assault prior to their participation in this study.

Participants' responses to these questions were recorded verbatim and later coded into categories. Participants were then asked to rate, on a 0 to 100 scale, the degree to which other people's reactions to them upon learning of the assault suggested something negative and important for them. Responses were coded in the same manner as for self, world and future appraisals. Participants made a total of 62 statements. Percent agreement was 84%.

Women's appraisals of their initial and current symptoms, and their belief that their symptoms (initial and current) indicate that they have permanently changed for the worse, or are physically or emotionally unwell and may not recover were then assessed. Specifically, women were asked to rate (on a scale from 0 to 100) the degree to which they believed their initial/current symptoms indicated that they had permanently changed for the worse, or that they were physically or emotionally unwell and might not recover.

The five appraisals categories (self, world, future, initial and current symptoms, and others) were moderately correlated with each other ($.20 < r < .60$). These correlations are presented in Table 1.

Participants were also asked various questions about the details of the assault (e.g., location, age of the assailant, presence/absence of a weapon, etc.). The questions pertaining to assault characteristics were adapted from Foa and Rothbaum's (1998) Assault Information and History Interview (AIHI). I used a subset of the questions contained in this interview, with some modifications. Participants were then asked to rate the degree to which they felt they were at risk of being hurt or killed during the assault. They were also asked whether or not they thought they had been raped.

The interview also contains questions about feelings of mental pollution. These questions are described in detail in Chapter III. In addition, participants were asked to describe their sexual assault.

Table 1

Intercorrelations between the Five Interview-Based Appraisal Ratings

Appraisal rating	1	2	3	4	5	6
1. Self appraisal rating	--	.60 ($p < .001$)	.50 ($p < .001$)	.29 ($p = .157$)	.41 ($p = .004$)	.47 ($p = .001$)
2. World appraisal rating		--	.35 ($p = .012$)	.23 ($p = .264$)	.30 ($p = .035$)	.48 ($p = .001$)
3. Future appraisal rating			--	.30 ($p = .131$)	.39 ($p = .006$)	.54 ($p < .001$)
4. Others appraisal rating				--	.20 ($p = .331$)	.33 ($p = .106$)
5. Initial symptoms appraisal rating					--	.28 ($p = .060$)
6. Current symptoms appraisal rating						--

Note. $N = 50$ for each of the appraisal categories, with the exception of the others category, in which case $n = 26$.

General Self-report Measures

PTSD Symptoms Scale--Self-Report (PSS-R). The PSS-SR (Foa, Riggs, Dancu, & Rothbaum, 1993) is a 17-item questionnaire designed to assess PTSD as defined by *DSM-III-R* criteria. This questionnaire contains three subscales (reexperiencing, avoidance and numbing, and arousal) representing the full range of PTSD symptoms. A Cronbach's α of .91 for the entire scale, and a one-month test-retest reliability of .74 have been reported for victims of sexual assault (Foa et al., 1993).

Sexual Assault and Rape Appraisals (SARA). The SARA questionnaire was also developed for the purposes of this project. This measure was designed to assess women's appraisals of their sexual assault and its sequelae. In order to fairly and accurately test the Ehlers-Clark theory, I adhered as closely as possible to the theory in developing the SARA. Consequently, the selection of items was deduced directly from the theory.

The questionnaire contains 80 items. Participants are asked to indicate the extent to which they believe each of the statements is true using a 0 (not at all true) to 3 (completely true) scale. As is the case with the appraisals interview, questionnaire items assess appraisals of the assault with respect to oneself, one's world, one's future, one's current PTSD symptoms and other people's reactions upon learning about the assault, and feelings of mental pollution. The four SARA subscales (self, world, future, current symptoms, and others) correlated with each other ($.38 < r < .85$). These correlations are presented in Table 2.

Coefficient alpha internal consistency estimates were calculated for the SARA and its subscales (Cronbach, 1951). These estimates are presented in Table 3. Very good levels of internal consistency were found for the SARA and its subscales. The lowest estimate was found for the others scale.

Table 2

Intercorrelations between the Four SARA Subscales

Appraisal scale	1	2	3	4	5
1. SARA Self Scale	--	.45 ($p = .001$)	.66 ($p < .001$)	.69 ($p < .001$)	.66 ($p < .001$)
2. SARA World Scale		--	.55 ($p < .001$)	.38 ($p = .007$)	.71 ($p < .001$)
3. SARA Future Scale			--	.50 ($p < .001$)	.85 ($p < .001$)
4. SARA Others Scale				--	.54 ($p < .001$)
5. SARA Current Symptoms Scale					--

Note. $N = 50$ for each of the five questionnaire appraisal scales.

Table 3

Internal Consistency: SARA Total and Subscales

	Reliability Coefficients (N = 50)
SARA Total (80 items)	.97
Self appraisals (17 items)	.92
World appraisals (11 items)	.83
Future appraisals (8 items)	.90
Other appraisals (10 items)	.79
Current symptom appraisals (29 items)	.93

Time since the assault. The amount of time between the assault and the time of the interview was measured in months. The average number of months from the time of the assault to the time of the interview was 65.40 ($SD = 65.84$), and ranged from three months to 22.4 years.

Assault severity. For the purposes of this study, severity of assault was defined as degree of perceived threat of harm, injury or death (see Dunmore et al., 2001 and Kilpatrick et al., 1989). Participants rated on a 5-point scale the degree to which they felt they were at risk of being physically hurt or injured during the assault. They also rated the degree to which they felt their life was in danger during the assault. All participants provided ratings of the degree to which they believed their life was in danger during the assault. All but four participants rated the degree to which they felt they were at risk of being hurt or injured during the assault. For these four missing values, Life threat (the degree to which participants believed their life was in danger during the assault) was used to predict injury risk (the degree to which they felt they were at risk of being physically hurt or injured during the assault). The four missing values were replaced with the predicted values.

Fourteen percent of participants reported they did not feel at any risk of physical injury during the assault, 62% reported they felt at slight or moderate risk, 18% felt they were at a great deal of risk, and 6% felt certain they would be hurt or injured during the assault. Twenty-eight percent of the women interviewed believed “slightly” or “moderately” that their life was in danger during the assault, 10% reported they believed “a great deal” that their life was in danger during the assault. Sixty-two percent reported they did not feel that their life was in any danger during

their assault. No one said they felt certain that they would be killed during the assault.

The severity of assault was then calculated as the sum of (1) the degree to which the participant felt she was at risk of being physically hurt or injured during the assault and (2) the degree to which she believed her life was in danger during the assault. The mean severity rating was 4.40 ($SD = 1.96$). Severity ratings ranged from 2 to 9. Possible scores ranged from 2 to 10.

2.2.7 Concurrent Validity of Interview and Questionnaire Appraisal Assessments

Correlations between questionnaire and interview based appraisal ratings were calculated for each of the appraisal categories. I was interested in assessing the concurrent validity of the two measures. The SARA asks participants for their appraisals of their current symptoms but not their initial symptoms, whereas the appraisals interview asks participants about their appraisals of both their initial and their current PTSD symptoms. Consequently, I examined the correlation between questionnaire ratings of current symptoms and interview ratings of both initial and current symptoms. An alpha level of .008 (.05/6) was used to control for the possibility of an inflated type-I error rate. All of the correlations were significant, with the exception of the correlation between interview and questionnaire appraisals of others' reactions. However, this correlation was fairly large ($r = .49$) and neared significance ($p = .011$). The smaller n for others appraisals may explain why this correlation fell below the cut-off for significance. These correlations are reported in Table 4 below.

Table 4

Correlations between Interview and Self-Report Measures of Appraisals

Self (n = 50)	World (n = 50)	Future (n = 50)	Others (n = 26)	Initial symptoms (n = 49)	Current symptoms (n = 46)
.56	.46	.60	.49	.39	.61
$p < .001$	$p = .001$	$p < .001$	$p = .011$	$p = .005$	$p < .001$

Note. Initial symptoms refers to the correlation between interview-based initial symptom ratings with questionnaire-based current symptom ratings. Initial symptoms refers to the correlation between interview-based initial symptom ratings with questionnaire-based current symptom ratings.

All correlations at $p < .008$ are significant.

2.3 Results

2.3.1 Assault Characteristics

Assaults occurred predominantly in residences; the victim's (12%), the assailant's (31%), or other residences such as at a party (22%). Fourteen percent of the assaults took place outdoors, 10% in hotels, and 8% in a car or other vehicle. One assault occurred in the assailant's shop, and one assault occurred at a concert.

Over 90% of all of the assaults reported were committed by someone known to the victim. Forty-six percent of the assaults were perpetrated by an acquaintance, 22% by a boyfriend, 2% by a spouse, 8% by a friend, 8% by an ex boyfriend, ex husband or estranged husband, 4% by a date, and 4% by a co-worker. The remaining 8% of assaults were committed by someone unknown to the victim.

In 51% of cases, the victim had not had a previous sexual relationship with the assailant. In 49% of cases the victim had had some sexual contact with her assailant prior to the assault.

In 29% of cases, participants reported that they were under the influence of alcohol or drugs (typically alcohol) at the time of the assault, and in a further 20% of cases, participants reported that they were so intoxicated, that they were unconscious at the time of the assault. In 51% of cases, participants reported that they were not under the influence of alcohol or drugs at the time of the assault. In 49% of cases, participants reported that their assailant was under the influence of alcohol or drugs at the time of the assault. In 32% of cases, participants reported that their assailant was not under the influence of alcohol or drugs at the time of the assault, and in 19% of cases, the participant was unsure.

In 14% of cases, participants reported that their assailant verbally threatened them during the assault. In 66% of cases, participants reported that their assailant restrained them using his hands or arms. One woman reported that her assailant restrained her by covering her face with a pillow. No one reported being threatened with a weapon. In 15% of cases, participants reported that their assailant attempted to reassure them during the assault. In 6% of cases, participants reported that their assailant struck them.

Participants reported 28 cases of vaginal intercourse, six cases of attempted vaginal intercourse, five cases of oral intercourse, one case of attempted oral intercourse, one case of attempted anal intercourse, nine cases of fondling, and five cases of attempted fondling, resulting in a total of 55 instances of non-consensual sexual activity. There are more instances of non-consensual sexual contact than participants because some assaults involved more than one type of sexual contact.

The mean age of the victim at the time of the assault was 19.2 years (range 13 – 41). The mean age of the assailant at the time of the assault was 24.8 years (range 12 – 45).

2.3.2 Appraisal Content

The content of participants' sexual assault appraisals with respect to themselves, their world, their future and other people's reactions upon learning about their sexual assault are presented in Tables 5 and 6 that follow.

Table 5

The Content of Self, World and Future Appraisals

Appraisal category	Number	Percent
Self appraisals		
The assault was my fault	10	20
I am weak / passive	7	14
I care less what other people think / I am more self-confident	7	14
I am stronger / braver / more assertive	7	14
I am less confident in my own judgement / I have poor judgement	5	10
I think less of myself / I have less self-confidence	5	10
I am less naïve / smarter	4	8
I am cheap / I am a slut	3	6
I am a bad person	3	6
Beliefs about one's body		
I am self conscious about my body	2	4
I am overweight / unattractive to protect myself from sexual assault	2	4

Appraisal category	Number	Percent
Beliefs about trust		
I am less trusting of men / suspicious of men's motives	25	50
I am less trusting of others / suspicious of others' motives	13	26
Men are dishonest / untrustworthy	6	12
Others can't be trusted to be good/nice/to be there for me when I need them	5	10
Beliefs about danger		
Men are dangerous/aggressive	9	18
I need to be careful to protect myself from danger/sexual assault	8	16
I need to protect young girls/children/women	5	10
The world/other people are dangerous	5	10
I can't protect myself from assault	4	8
Sexual assault seems more probable	4	8
I will never let myself be assaulted again	3	6

Appraisal category	Number	Percent
Beliefs about men		
Men are sexually predatory/highly motivated by sex	13	26
I have a negative pessimistic view of men	8	16
Beliefs about relationships with men		
My relationships with men are more distant / I am more hesitant in my relationships with men	6	12
I am less interested in/avoidant of relationships with men	5	10
I may never have children or a husband/life partner	7	14
My intimate/romantic relationships will be difficult	7	14
I may never have a healthy relationship with a man	4	8
Beliefs about friendships and relationships with women		
I am less disclosive in close relationships / I am fearful of being judged	5	10
I have closer relationships with women	4	8
I am more compassionate/more understanding of women who have been assaulted	2	4

Appraisal category	Number	Percent
Beliefs about one's sexuality		
I have sexual problems	10	20
I may never have a positive sexual relationship / Sexual relationships will be less special	4	8
Beliefs about one's future		
This event has had a positive impact on how I see my future	6	12
Difficulty with goals for the future / It's hard for me to see my future	2	4
Beliefs about alcohol		
I have changed my drinking behavior – I am more careful / I drink less	4	8
Situations and people are more dangerous when alcohol is consumed	3	6
Idiosyncratic appraisals	21	42

Table 6

The Content of Appraisals of Others' Reactions upon Learning of the Assault

Appraisal category	Number (N = 27)	Percent
Their reaction was hurtful/upsetting/unhelpful/unsupportive	12	44
Their reaction means that they/others think poorly of me/are blaming me	6	22
Their reaction made me feel badly about myself	5	19
They don't understand/can't relate	5	19
Their reaction means that what happened to me wasn't that significant	5	19
What they said means little to me / Their reaction says more about them than about me	5	19
Their reaction shows that they care	2	7
Idiosyncratic appraisals	6	22

2.3.3 Appraisals and PTSD Symptoms

Severity of Assault Ratings

I predicted a positive relation between appraisals and PTSD symptoms over and above the extent of relation that could be attributed to participants' ratings of the severity of the assault. Consequently, it was important to examine whether participants' ratings of the severity of the assault were related to PTSD symptoms. Severity of assault ratings correlated significantly with both CAPS symptom totals ($r = .38, p = .007$) and PSS-SR total scores ($r = .35, p = .013$). Therefore, severity of assault was controlled for, as planned, in several subsequent analyses.

Time Since the Assault

In addition to participants' ratings of the severity of the assault, I predicted that PTSD symptom severity could also be partially accounted for by the amount of time that had elapsed since the assault. The relation between time since the assault and PTSD symptom severity was assessed first to examine this relation. Time since the assault did not correlate significantly with either CAPS symptom totals ($r = -.21, p = .136$), or PSS-SR total scores ($r = -.15, p = .289$). Consequently, time since the assault was not controlled for in subsequent analyses.

Type-I Error Rate

The use of a family-wise error-rate represents a more conservative choice than simply using a comparison based on an alpha level of .05, but results in a decreased risk of Type-I errors. The choice of what constitutes a family is somewhat arbitrary (Glass & Hopkins, 1984). For the purposes of this project, each appraisal category (self, world, future, initial and current symptoms, and others) was

treated as a family, and family-wise alpha levels were used in all multiple comparison analyses.

Correlational Analyses

In most cases the familywise alpha level used was .013 (i.e., $.05/4$) as four separate correlations were calculated for each appraisal category. The one exception to this was appraisals of initial symptoms. As there were only two separate correlations calculated, a familywise alpha level of .025 (i.e., $.05/2$) was used.

To test the hypothesis that appraisals of the sexual assault and/or its sequelae are related to PTSD symptoms, correlations between appraisals and PTSD symptoms were calculated. In order to establish that a relation between appraisals and PTSD symptoms does in fact exist, these analyses were first carried out without controlling for ratings of assault severity. Subsequently, a more stringent test of the relation between appraisals and symptoms was executed wherein partial correlations between appraisals and symptoms were calculated controlling for assault severity.

Self appraisals. Interview and questionnaire appraisals of the assault with respect to one's view of oneself correlated positively with both CAPS symptom totals and PSS-SR scores, indicating that women's reports of how the assault impacted their view of themselves or their character were related to PTSD symptom severity. These correlations remained significant after controlling for ratings of assault severity, illustrating that the association between appraisals and symptoms is not due to assault severity. Correlations are presented in Table 7.

World appraisals. Interview and questionnaire appraisals of the assault with respect to one's world (world, others and one's relationships with others) correlated positively with both CAPS symptom totals and PSS-SR scores, indicating that women's reports of the assault's impact on how they view their world were related to PTSD symptom severity. Each of these correlations remained significant after controlling for ratings of assault severity. This finding illustrates that the association between world appraisals and PTSD symptoms cannot be accounted for by assault severity. Correlations are presented in Table 7.

Future appraisals. Interview and questionnaire appraisals of the assault with respect to one's future were positively correlated with both CAPS symptom totals and PSS-SR scores, indicating that women's reports of how the assault influenced their view of their future were related to PTSD symptom severity. These correlations remained significant after controlling for ratings of assault severity illustrating that the association between appraisals and symptoms cannot be accounted for by assault severity. Correlations are presented in Table 7.

Appraisals of initial PTSD symptoms. Interview ratings of the degree to which participants believed that their **initial** PTSD symptoms indicated that they had permanently changed for the worse, or that they were physically or emotionally unwell and might not recover correlated significantly with CAPS symptom totals, but not with PSS-SR scores. When assault severity was controlled for, interview ratings of appraisals of **initial** symptoms remained significantly correlated with CAPS symptom totals. These findings provide some evidence that negative beliefs about **initial** PTSD symptoms are related to current PTSD symptoms, and that this

association cannot be explained by assault severity. Appraisals of initial symptoms were not assessed via questionnaire. Correlations are presented in Table 8.

Appraisals of current PTSD symptoms. Interview and questionnaire ratings of appraisals of **current** PTSD symptoms correlated positively with both CAPS and PSS-SR scores. This result shows that to the degree that participants believe their **current** PTSD symptoms mean they have permanently changed for the worse, or that they are physically or emotionally unwell and might not recover is related to ongoing PTSD symptoms. These correlations remained significant after controlling for the assault severity, indicating that the association between appraisals of **current** symptoms and the **current** symptoms themselves cannot be accounted for by assault severity. Correlations are presented in Table 8.

Others appraisals. Contrary to predictions, interview appraisals of others' reactions upon learning about the sexual assault were unrelated to either CAPS symptom totals or PSS-SR scores before controlling for assault severity, and remained unrelated to either PTSD measure once the severity of the assault was controlled for. This result indicates that interview-based appraisals of others' reactions are not related to current PTSD symptoms. However, questionnaire appraisals of others' reactions upon learning about one's sexual assault experience were significantly correlated with both CAPS symptoms totals and PSS-SR total scores, and remained significantly related after controlling for the severity of the assault. This result indicates that questionnaire-based appraisals of others' reactions are related to current PTSD symptoms. Correlations are presented in Table 9.

Table 7

Correlations between Self, World and Future Appraisals, and CAPS and PSS-SR Scores

	Assault severity not controlled for		Assault severity controlled for	
	CAPS <i>r</i>	PSS-SR <i>r</i>	CAPS <i>pr</i>	PSS-SR <i>pr</i>
SELF (<i>n</i> = 50)				
Interview	.68	.63	.65	.60
Questionnaire	.67	.50	.63	.45
WORLD (<i>n</i> = 50)				
Interview	.56	.55	.52	.52
Questionnaire	.52	.56	.50	.54
FUTURE (<i>n</i> = 50)				
Interview	.58	.49	.56	.45
Questionnaire	.73	.62	.70	.58

Note. The CAPS (Clinician Administered PTSD Scale) is the interview measure of PTSD. The PSS-SR (Posttraumatic Stress Scale – Self-report) is the self-report measure of PTSD symptoms.

All correlations are significant at $p \leq .001$.

Table 8

Correlations between Initial and Current Symptoms, and CAPS and PSS-SR Scores

	Assault severity not controlled for		Assault severity controlled for	
	CAPS <i>r</i>	PSS-SR <i>r</i>	CAPS <i>pr</i>	PSS-SR <i>pr</i>
INITIAL SYMPTOMS				
Interview (<i>n</i> = 49)	.44*	.27	.37*	.18
CURRENT SYMPTOMS				
Interview (<i>n</i> = 46)	.71**	.69**	.71**	.68**
Questionnaire (<i>n</i> = 50)	.75**	.72**	.71**	.68**

Note. The CAPS (Clinician Administered PTSD Scale) is the interview measure of PTSD symptoms, and the PSS-SR (Posttraumatic Stress Scale – Self-report) is the self-report measure of PTSD symptoms.

* $p < .01$. ** $p < .001$.

Table 9

Correlations between Appraisals of Others' Reactions, and CAPS and PSS-SR Scores

	Assault severity not controlled for		Assault severity controlled for	
	CAPS <i>r</i>	PSS-SR <i>r</i>	CAPS <i>pr</i>	PSS-SR <i>pr</i>
OTHERS				
Interview (n = 26)	.36	.33	.32	.29
Questionnaire (n = 50)	.56**	.61**	.47*	.55**

Note. The CAPS (Clinician Administered PTSD Scale) is the interview measure of PTSD symptoms, and the PSS-SR (Posttraumatic Stress Scale – Self-report) is the self-report measure of PTSD symptoms.

* $p < .01$. ** $p < .001$.

Group Comparisons

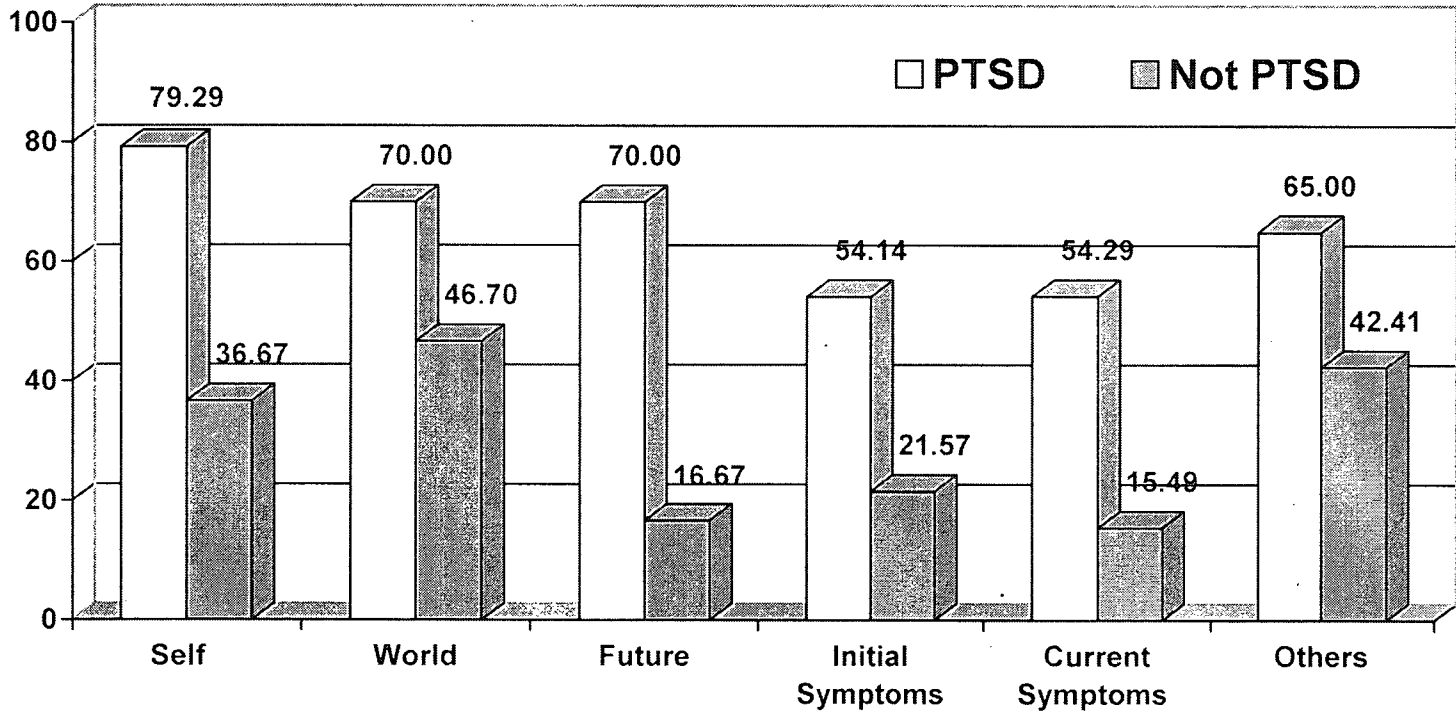
Participants who met criteria for PTSD ($n = 7$) were compared with participants who did not meet criteria for PTSD ($n = 43$) with respect to their appraisals of the sexual assault and its sequelae. As this research tests a theory about a diagnostic category (i.e., PTSD) it was considered important to determine if those participants with PTSD differed from participants without PTSD with respect to the variables of interest. Two group comparisons were conducted for each appraisal category: one for interview appraisals, and one for questionnaire appraisals. Appraisals with respect to initial PTSD symptoms were an exception. The questionnaire measure did not assess appraisals of initial symptoms, only appraisals of current symptoms.

Interview-based group comparisons. Participants who met full *DSM-IV* diagnostic criteria for PTSD rated their sexual assault appraisals with respect to themselves, their world and their future as more negative and important to them than participants who did not meet criteria for PTSD. Each of these group differences was statistically significant ($t(19.47) = 5.41, p < .001, d = 1.26$ for self, $t(14.38) = 2.75, p = .015, d = .72$ for world, and $t(48) = 4.51, p < .001, d = 1.84$ for future). Participants who met full *DSM-IV* criteria for PTSD also believed significantly more strongly than participants who did not meet criteria for PTSD that both their **initial** and **current** symptoms indicated that they had permanently changed for the worse, or that they were physically or emotionally unwell and might not recover ($t(47) = 2.64, p = .011, d = 1.08$ for initial symptoms, and $t(44) = 4.70, p < .001, d = 1.93$ for current symptoms). PTSD and non-PTSD participants did not

differ significantly with respect to their appraisals of others' reactions to them upon learning of the assault ($t(24) = 1.30, p = .205, d = .71$). Results are presented in Figure 1.

Figure 1

A Comparison of PTSD and Non-PTSD Participants for Interview-Based Appraisals

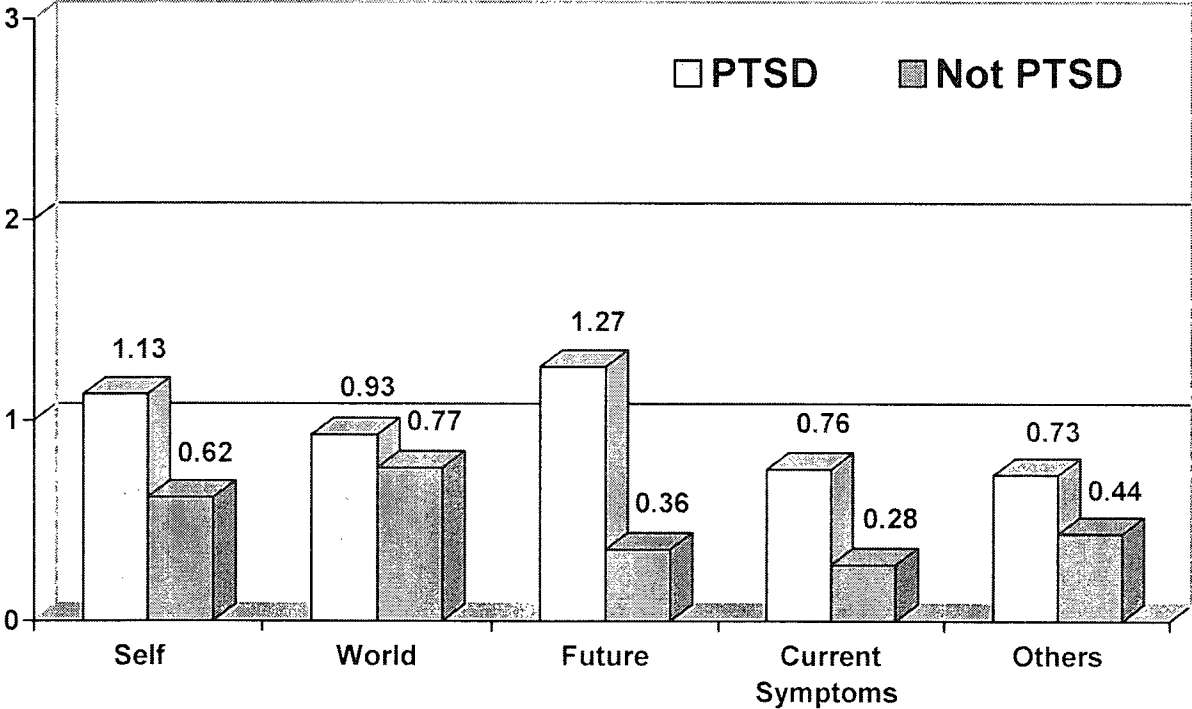


Note. All group differences, with the exception of others' reactions, are significant.

Questionnaire-based group comparisons. Participants who met full DSM-IV diagnostic criteria for PTSD did not differ significantly from participants who did not meet criteria for PTSD on any questionnaire-based appraisals. I.e., PTSD and non-PTSD participants did not differ with respect to self, world, future, or **current** symptom appraisals, nor did they differ with respect to appraisals of others' reactions upon learning about the assault ($.69 < ts < 2.19$, $.070 < ps < .497$, $.28 < ds < 1.82$). These results fail to support our hypotheses. Results are summarized in Figure 2.

Figure 2

A Comparison of PTSD and Non-PTSD Participants for Questionnaire-Based Appraisals



Note. None of the group differences are significant.

The Variance in PTSD Symptoms Explained by Sexual Assault Appraisals after Accounting for Sexual Assault Severity

Four regression analyses were conducted to assess the amount of variance in PTSD symptoms that could be explained by sexual assault appraisals after the variance attributable to assault severity was accounted for. Interview and self-report measures of appraisals were used to predict interview and self-report measures of PTSD symptoms. Assault severity was entered first into the regression equation, and appraisals with respect to the self, one's world, one's future, others' reactions upon learning about the assault, and one's symptoms were entered second, as a group. The regression analyses were conducted in this way to ensure that the variance in PTSD symptoms accounted for by appraisals could not be explained by assault severity alone.

In each of the four regression equations, sexual assault severity alone predicted symptoms. Including the other predictor variables (i.e., appraisals) significantly improved the regression equation. In each case, appraisals explained a significant amount of the variance in PTSD symptoms (40% or greater in the models tested) after assault severity was accounted for.

Summaries of these analyses are presented in Tables 10 through 13.

Table 10

Summary of Regression Analysis for Interview Appraisals Predicting CAPS Symptom Scores

Variable	r_{xy}	β	t	p
Severity of the assault alone				
Assault severity	.38	.391	2.082	.048
Complete model				
Assault severity	.38	.252	1.809	.086
Self	.68	.333	1.907	.072
World	.56	.128	0.799	.434
Future	.58	.241	1.341	.196
Others	.36	.082	0.577	.571
Symptoms	.44	.179	1.068	.299

Note. $R^2 = .153$ for severity of the assault alone. $R^2 = .672$, $R^2_{\text{change}} = .519$, and $F(5,19) = 6.014$, $p = .002$ for the complete model.

Table 11

Summary of Regression Analysis for Interview Appraisals Predicting PSS-SR Scores

Variable	r_{xy}	β	t	p
Severity of the assault alone				
Assault severity	.35	.366	1.928	.066
Complete model				
Assault severity	.35	.197	1.215	.239
Self	.63	.424	2.088	.051
World	.55	.210	1.126	.274
Future	.49	-.055	-.262	.796
Others	.33	.109	.664	.515
Symptoms	.27	.173	.886	.387

Note. $R^2 = .134$ for severity of the assault alone. $R^2 = .557$, $R^2_{\text{change}} = .423$, and $F(5,19) = 3.632$, $p = .018$ for the complete model.

Table 12

*Summary of Regression Analysis for Questionnaire Appraisals Predicting CAPS
Symptom Scores*

Variable	r_{xy}	β	t	p
Severity of the assault alone				
Assault severity	.38	.382	2.859	.006
Complete model				
Assault severity	.38	.117	1.134	.263
Self	.67	.219	1.498	.141
World	.52	.036	.270	.788
Future	.73	.279	1.546	.129
Others	.56	.061	.457	.650
Symptoms	.75	.266	1.214	.231

Note. $R^2 = .146$ for severity of the assault alone. $R^2 = .645$, $R^2_{\text{change}} = .499$, and $F(5,19) = 12.101$, $p < .001$ for the complete model.

Table 13

*Summary of Regression Analysis for Questionnaire Appraisals Predicting PSS-SR**Scores*

Variable	r_{xy}	β	t	p
Severity of the assault alone				
Assault severity	.35	.352	2.609	.012
Complete model				
Assault severity	.35	.030	.276	.784
Self	.50	-.185	-1.202	.236
World	.56	.119	.853	.398
Future	.62	.070	.368	.715
Others	.61	.391	2.780	.008
Symptoms	.72	.472	2.050	.047

Note. $R^2 = .124$ for severity of the assault alone. $R^2 = .606$, $R^2_{\text{change}} = .482$, and $F(5,19) = 10.521$, $p < .001$ for the complete model.

2.4 Summary of Key Findings

Most predictions were supported by the findings. Both interview and questionnaire self, world, and future appraisals correlated positively and significantly with interview and questionnaire measures of PTSD symptoms. Each of these correlations remained significant after controlling for assault severity. This finding indicates that women's reports of how the assault influenced their view of themselves and their character, their world and their future are related to trauma symptoms, an association that cannot be explained by the severity of the assault.

Interview appraisals of **initial** symptoms correlated significantly with the interview measure of PTSD symptoms, and remained significantly related controlling for assault severity, providing some evidence that negative beliefs about initial PTSD symptoms are related to **current** PTSD symptoms, and that the association between beliefs about **initial** symptoms and current PTSD symptoms cannot be attributed to assault severity. However, interview appraisals of initial symptoms did not correlate significantly with the self-report measure of PTSD symptoms. Appraisals of **initial** symptoms were not assessed via questionnaire.

Appraisals of **current** PTSD symptoms correlated significantly with both measures of PTSD symptoms. This was true for both the interview and the questionnaire measure of appraisals of **current** symptoms. These correlations remained significant after controlling for assault severity. These findings indicate negative beliefs about trauma symptoms are related to ongoing PTSD symptoms, and that the association between beliefs and symptoms is not attributable to assault severity.

Only questionnaire appraisals of others' reactions correlated significantly with PTSD symptoms; interview-based appraisals of others' reactions did not. This correlation remained significant once assault severity was controlled for. This finding provides some evidence that appraisals of others' reactions are related to ongoing PTSD symptoms, and that this association cannot be explained by the severity of the assault.

Participants who met criteria for PTSD differed significantly from participants who did not meet criteria for PTSD with respect to interview-based self, world, and future appraisals. These groups also differed significantly with respect to interview appraisals of **initial** and **current** PTSD symptoms. PTSD and non-PTSD groups did not differ significantly with respect to interview appraisals of others' reactions. PTSD and non-PTSD groups did not differ significantly with respect to any of the questionnaire ratings of appraisals. These findings provide some evidence that PTSD and non-PTSD groups differ in the degree to which they make negative idiosyncratic appraisals of the assault and its sequelae. The exception to this is appraisals of others' reactions; results provide no evidence that PTSD and non-PTSD groups differ in the degree to which they make negative appraisals of others' reactions to them upon learning about the assault.

Sexual assault appraisals explained significantly more of the variance in PTSD symptoms (at least 40% more in the models tested) than assault severity alone. This finding is important as it indicates that appraisals can explain a significant amount of the variance in PTSD severity beyond that accounted for by

assault severity alone. This was true for both measures of appraisals and both measures of PTSD symptoms.

CHAPTER III

MENTAL POLLUTION

The following hypotheses have been drawn from our theoretical understanding of the concept of mental pollution. The corresponding predictions presented below have been deduced from the more general hypotheses.

3.1 Mental Pollution Hypotheses

3.1.1 General Mental Pollution Hypothesis

There is a high probability that women will report feelings of mental pollution following a sexual assault. I predicted that women would report that the feelings of dirtiness they experienced following their sexual assault were, internal, emotional in nature, moral in nature, persistent in the absence of contact with a contaminant, could not be fully eliminated by washing, and could be evoked by memories, information or images, in the absence of contact with a contaminant.

3.1.2 Mental Pollution Quasi-Experiment Hypothesis

Interesting and enlightening as it is, a great deal of the literature on PTSD is limited by the fact that most of the data are retrospective. The desirability of carrying out a more experimental analysis is evident. Consequently I have included a quasi-experimental analysis of mental pollution in this project.

I hypothesized that recollections of one's sexual assault would provoke feelings of mental pollution. I predicted that when asked to focus first on a pleasant memory or scene and second on the most upsetting part of the assault for them, women would report significantly stronger feelings of dirtiness and the urge to wash following the assault memory compared with the pleasant memory or scene. I also

predicted that feelings of dirtiness and the urge to wash following deliberate recollection of the sexual assault would be positively correlated with questionnaire measurement of mental pollution.

3.2 Methodology

I took the opportunity to test the above hypotheses using the same population that was used in the first part of this research testing a component of the Ehlers-Clark model of PTSD. I deemed this particularly appropriate as it seems highly probable that mental pollution will be a common consequence of sexual trauma, common but totally unrecognized in the empirical literature to date.

The general methodology has already been described in the previous chapter. As a brief reminder to the reader, 50 female sexual assault victims were administered two interviews, completed a questionnaire package and were invited to participate in a quasi-experiment. The interviews and questionnaires assessed sexual assault appraisals, mental pollution, PTSD, and depression. The study used a cross-sectional design.

In order to test the mental pollution hypotheses outlined above, I added a number of questions to the appraisals interview and the SARA questionnaire, and a quasi-experiment.

3.2.1 Mental Pollution Measures

Appraisals Interview

The appraisals interview was described in detail in Chapter II. The last two pages of the interview contained questions about feelings of mental pollution that participants may have experienced. Participants were asked if they experienced

any urge to wash following the assault, when the urge occurred, and what washing was carried out at the time and subsequently. They were asked how the washing made them feel, what feelings they had that made them want to wash, and if these feelings were different to how they feel if they have touched some dirty or soiled material. They were asked whether these feelings were internal, external, or both, and whether memories of the assault, or anything else, could bring back the feelings of dirtiness. They were also asked how long after the assault they continued to wash, and if the feelings that initially made them want to wash had changed or gone away.

Sexual Assault and Rape Appraisals (SARA)

The SARA has also been described in detail earlier in the text. Three of the statements contained in the SARA pertain to feelings of mental pollution. These statements are as follows: (1) I feel that I will never be clean again, (2) No matter how much I wash, I still feel dirty on the inside, and (3) I feel contaminated by my sexual assault/rape experience. Participants were asked to rate how true each of these statements is for them on a 0 to 3 scale with 0 being not at all true, and 3 being completely true.

3.2.2 Procedure for Quasi-Experiment

Following the appraisals/pollution interview, participants were invited to participate in a brief quasi-experiment assessing the relation between memory for the assault and mental pollution. Participants were told what was involved and that their participation in this portion of the project was completely voluntary. They could participate in the rest of the project (interviews and questionnaires) even if they

chose not to complete the quasi-experiment. They were told: "This next portion of the interview is optional. If you would prefer to skip this part, and continue with the rest of study, that is fine. What I will be asking you to do is first, to imagine a pleasant memory or scene, and to focus on this memory or scene for about 30 seconds. Second, I will be asking you to imagine the most upsetting part of the assault/rape for you, and to focus on this memory for about 20 seconds. I will also be asking you several questions after the pleasant memory or scene, and following the assault/rape memory. Again, this portion of the interview is optional, and I am happy to skip it if you prefer." Participants were then asked to bring to mind a happy or pleasant memory or scene. They were asked to tell the experimenter when they had this image or memory clearly in their minds. They were then asked to focus on the memory/scene for a few seconds (20 seconds were timed by the experimenter). "Please take a minute to close your eyes and to imagine a very happy or pleasant memory or scene. When you have this image clearly in your mind, let me know by raising your hand. I'd like you to focus on this image for another few seconds." Following deliberate attention to the pleasant memory or scene, they were asked to rate out of 100 how anxious, distressed, dirty on the inside, and how strong of an urge to wash they felt right at that moment. Next they were asked to bring to mind the most distressing part of the assault for them. They were asked to tell the experimenter when they had the memory clearly in their mind. They were then asked to focus on the memory for a few seconds (20 seconds were timed by the experimenter). "Now I would like you to imagine as clearly as you are able, the most upsetting part of the assault/rape for you. Only imagine it as clearly as you are

comfortable with. When you have the image clearly in your mind, let me know by raising your hand. I'd like you to focus on this image for another few seconds." Again, they were asked to rate out of 100 how anxious, distressed, dirty on the inside, and how strong of an urge to wash they felt right at the moment that they completed these ratings. Participants were then given a five-minute break, and the experimenter ensured that the participant was calm and not distressed. Following the five-minute break, participants were asked: "Did you wash your hands during the break? Was this because you went to the bathroom? Do you think you would have washed your hands anyway?"

Forty-three of the 50 women participated in the quasi-experiment. Two participants declined to participate in the quasi-experiment because they thought that deliberately recollecting their assault might be too upsetting for them. Five women were not invited to participate in the quasi-experiment because the experimenter forgot to do so.

3.3 General Mental Pollution Results

3.3.1 The Urge to Wash Following Sexual Assault.

Participants were asked if they felt an urge to wash following their sexual assault. Women who responded "yes" to this question were then asked a series of questions about washing behaviour and feelings of dirtiness they may have experienced following their sexual assault. The majority (70%) of participants reported that following the sexual assault they experienced an urge to wash or clean. Participants were asked to rate the strength of their urge to wash using a

scale from 0 to 100. This urge was rated as strong ($M = 77.35$, $SD = 23.12$), and ranged from 30 to 100.

In the majority of cases the urge to wash was first experienced within 24 hours of the assault (45% immediately or very soon after the assault, 38.7% for the first time the next day, and 12.9% when the women arrived home). In only 3.2% of cases was the urge experienced after a delay exceeding one day.

3.3.2 Cleaning or Washing in Response to Initial Urge to Wash

All of the women who reported an urge to wash following the sexual assault, with the exception of one, also reported engaging in some washing behavior in response to this urge. This woman reported that she did not wash because, at the time, she was unable to do so. The washing behaviour that these women engaged in is presented in Table 14.

Table 14

Washing Behaviour Carried Out Subsequent to the Urge to Wash

Washing behaviour carried out	Percentage
Longer, hotter shower, or shower that involved more scrubbing	51.0
Normal shower	23.0
Washed mouth or teeth	14.3
Extra washing of genitals	8.6
Washed hands	8.6
Bath	5.7
Washed clothing	5.7
Washed using extra cleaning products	5.7
One woman reported that she has become a much cleaner person since the assault	2.9

Note. The reported percentages are based on only the 35 women who washed following the sexual assault.

3.3.3 Feelings of Mental Pollution

The responses of the 35 women who reported feeling an urge to wash subsequent to their sexual assault were evaluated for the presence or absence of each of the six previously defined mental pollution criteria (i.e., that the feelings of dirtiness experienced were internal, emotional in nature, moral in nature, persistent in the absence of contact with a contaminant, not fully eliminated by washing, and can be evoked by memories, information or images, in the absence of contact with a contaminant). Each of the six criteria was evaluated. Participants were then given a score out of six, indicating the number of mental pollution characteristics they endorsed. Both the primary investigator and a second coder evaluated the content of participants' responses for the presence of mental pollution criteria. Out of the 210 responses coded, the two raters initially agreed on 180 (85.71%). The two raters' pollution scores correlated strongly and significantly ($r = .81, p < .001$). Disagreements between raters were discussed and a final rating was agreed upon. The resultant scores were used as an index of the degree of mental pollution reported by each participant. Feelings of mental pollution were also assessed via three items contained within the SARA questionnaire.

Thirty-four (97%) of the 35 women who reported feeling an urge to wash subsequent to the sexual assault met at least one of the criteria for mental pollution. On average, these women met 3.09 ($SD = 1.50$) out of a possible six mental pollution criteria. Further, women who reported feeling an urge to wash following the assault obtained significantly higher questionnaire-based mental pollution scores ($M = .63, SD = .75$) compared with women who did not report feeling an urge to

wash following the assault ($M = .11$, $SD = .16$), $t(40.75) = 3.88$, $p < .001$. The results for each of the six mental pollution criteria are presented in Table 15 below.

Table 15

Mental Pollution Scores

Mental Pollution Criteria	N (%)
Internal	27 (77)
Emotional	23 (66)
Can be evoked by memories, information or images	21 (60)
Not fully eliminated by washing	17 (49)
Persistent in the absence of contact with a contaminant	13 (37)
Moral	7 (20)

3.3.4 Persistence of Washing Behaviour

Of the 35 women who reported feeling an urge to wash following their sexual assault, 17 (49%) reported washing more than once in response to this feeling. Eight women (23.6%) reported washing excessively anywhere from one day to a few weeks. More than twenty five percent of those women who washed following their sexual assault reported that they continued to wash excessively for several months or more; 14.7% (N = 5) for one to several months, and 11.8% (N = 4) for at least a year.

Both interview and questionnaire measures of mental pollution correlated significantly with the length of time after the assault that participants continued ($r = .54, p = .001$ and $r = .62, p < .001$, respectively), indicating that the stronger the feelings of mental pollution that women experienced, the longer after the assault they continued to wash. The washing behaviour of those women who continued washing more than was usual for them for several months or more following their sexual assault experience merits further comment.

Participant #2 was assaulted 14 months prior to participation in this project. She reported that she continues to wash her hands and face when she comes into the house, something she didn't do before the assault. She reports that overall she washes her hands more frequently than she did prior to the assault. If she comes into physical contact with other people, she feels apprehensive and wants to wash. Participant #7 reported that she has become very clean since the assault. Two-minute showers became 12-minute showers. She reported going from one shower a day to two showers a day. She uses major cleaning products as well as lots of

feminine cleaning products. She feels a need to take a shower after having sex. When feelings of dirtiness are provoked (e.g., by memories of the assault or by being touched sexually) she cleans everything; herself and her house. She says that the cleaning wears her out and exhausts her. She reports that she feels good when everything is clean. It has been 10 years and seven months since her assault. Participant #13 reported that she took two showers a day for the first three weeks following the assault. For some time after the assault she would wash after having sex with her boyfriend. She said that having sex and feeling sexually attracted to a man would bring back the feelings of dirtiness she experienced after the sexual assault. Subsequent to the assault she began washing her hands more often during the daytime than was usual for her. This has now become a problem for her, and she has been diagnosed with obsessive compulsive disorder (washing compulsions). Although the feelings of dirtiness have diminished, she now has a hand washing habit. It has been one year and seven months since her assault. Participant #18 reported that the day after the sexual assault she took two showers. These showers were longer and involved more scrubbing that was typical for her. She reported that two days later she began taking as many as four showers a day. This washing behaviour lasted for approximately three months. She reported that now when she experiences feelings of dirtiness, she tries to distract herself from them rather than washing because she "doesn't want to waste time/life", and because she is fighting these feelings. Her assault occurred 9 months prior to her participation in this study. Participant # 31 began washing three months after the assault, at the time when she began talking about what had happened to her. She

began taking longer, hotter and more frequent showers with more scrubbing. The showers made her feel dirtier because they made her think about the assault. She experiences feelings of dirtiness when she has thoughts of kissing her assailant (she will wipe her lips), talking about the assault and showering. It has been over four years since her assault. For approximately six months following the assault, participant #41 took more showers than had been usual for her. For about five years afterwards, she would continue to wash following consensual sexual activity. The assault occurred eight years and five months prior to her participation in this project. For the first two and a half months following the assault, participant #53 continued to take more baths than was typical for her. She continues to use more soap and wash more than she did prior to the assault. The assault took place 3 months prior to the interview. Participant #60 was assaulted nine months ago. Immediately after the assault she washed her hands and mouth. Nine months after the assault she continued to wash her hands much more frequently than was typical for her (i.e., approximately 12 times per day).

3.4 Results of Quasi-Experiment

Consistent with our prediction, participants rated their feelings of anxiety, distress, dirtiness and the urge to wash higher following deliberate recollection of the assault memory compared with the ratings they provided following attention to the pleasant memory or scene. A multivariate analysis and individual t-tests were conducted in order to determine whether these mean differences were statistically significant. The overall analysis was significant (Hotelling's Trace = 3.82, $F(4) = 37.22$, $p < .001$). Because the overall analysis was significant, I was able to conduct

t-tests to compare each of the post-pleasant memory of scene ratings with each of the corresponding post-assault memory ratings. The four t-tests were also significant. Table 16 presents the means and standard deviations for participants' ratings of anxiety, distress, dirtiness and the urge to wash following the pleasant memory or scene, and following the assault memory.

Table 16

Means and Standard Deviations for Ratings Following the Pleasant Memory or Scene and the Assault Memory

	Ratings following attention to the pleasant memory or scene		Ratings following deliberate recall of the assault	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Anxiety	13.05	17.25	52.14*	25.75
Distress	8.19	14.89	58.70*	25.55
Feelings of dirtiness	3.49	7.57	33.84*	27.28
The urge to wash	4.26	10.23	24.19*	28.08

* $p < .001$

Nine of the 43 women who participated in the mental pollution quasi-experiment reported that they washed during the break that followed deliberate recollection of the sexual assault. They each washed their hands, and one woman washed her face also. The women reported that they washed because of the feelings they experienced as a result of deliberately recollecting the assault, and not because they come into contact with some dirty or soiled material (e.g., gone to the washroom or had touched something dirty or soiled). One participant spontaneously reported she would probably have a bath that evening because of the feelings provoked by the quasi-experiment.

The women who washed following deliberate recollection of the assault reported a significantly stronger urge to wash following the recollection compared with women who did not report washing ($t(12.93) = -2.94, p = .006$). These women also obtained significantly higher interview-based mental pollution scores compared with women who did not report washing following deliberate recollection of the assault memory ($t(24.28) = -3.61, p = .001$). The mean interview-based mental pollution scores for the women who washed compared with the women who did not wash were 4.00 ($SD = 0.76$) and 2.45 ($SD = 1.50$) respectively. Women who washed following the assault memory did not differ from non-washers with respect to their questionnaire-based mental pollution scores.

Correlations between questionnaire-based mental pollution scores and the degree of dirtiness and the extent of the urge to wash that participants reported following deliberate recollection of their sexual assault were calculated. In both cases degree of dirtiness reported following attention to the pleasant memory or

scene was controlled for. A familywise error rate of .025 (i.e., .05/2) was used for these analyses, treating feelings of dirtiness and the urge to wash as a family. Feelings of dirtiness were positively and significantly correlated with mental pollution scores, whereas the urge to wash was not ($r = .45, p < .001$; $r = .18, p = .253$, respectively).

3.5 Summary of Mental Pollution Findings

3.5.1 The Urge to Wash and Washing Behaviour

Seventy percent of participants reported feeling an urge to wash following their sexual assault. The average strength of this urge was 77.35 out of 100. In more than 95% of cases this urge was first experienced within 24 hours following the assault. Of the women who reported feeling an urge to wash following the assault, all but one engaged in some washing behaviour in response to this urge. Approximately half of the women took a shower that was longer, hotter or involving more scrubbing than was usual for them. Other washing behaviour included a normal shower, a bath, washing mouth, teeth, hands, or clothing, extra genital washing, or using extra cleaning products.

3.5.2 Feelings of Mental Pollution

Thirty-four of the 35 women who reported feeling an urge to wash following the assault met at least one of the six criteria for mental pollution. On average, these women met 3.09 out of 6 of the mental pollution criteria. Women who reported feeling an urge to wash following the assault also obtained higher questionnaire-based mental pollution scores compared with women who did not report feeling an urge to wash following the assault.

3.5.3 Persistence of the Washing Behaviour

Of the 34 who reported engaging in washing behaviour following the sexual assault, half reported washing more than once in response to this feeling. Approximately one quarter reported washing for one day to a few weeks. More than one quarter reported washing for several months to a year or more. Both interview and questionnaire mental pollution scores were significantly related to the length of time women continued to wash following the assault.

3.5.4 Quasi-Experiment

In support of predictions, participants reported significantly higher levels of feelings of anxiety, distress, dirtiness, and the urge to wash following deliberate recollection of the most upsetting part of the assault compared with the feelings they reported following deliberate attention to a pleasant memory or scene. Nine participants reported washing their hands following deliberate recollection of the assault memory. Compared with participants who did not wash following deliberate recollection of the assault memory, participants who washed reported significantly higher interview-based mental pollution scores and a significantly stronger urge to wash following the recollection. The feelings of dirtiness that participants reported following recollection of the assault memory were positively and significantly correlated with questionnaire-based mental pollution scores. The urge to wash did not correlate with questionnaire-based mental pollution scores.

CHAPTER IV

DISCUSSION

A central component of Ehlers' and Clark's theory is that negative idiosyncratic appraisals of the trauma and/or its sequelae serve to maintain PTSD symptomatology. The primary aim of this project was to evaluate the relationship between appraisals of sexual assault trauma and its sequelae, and PTSD symptoms. The second aim of this project was to investigate the related phenomenon of mental pollution as it pertains to sexual assault.

This dissertation makes several contributions to the literature on PTSD. First, it provides independent replication of a key component of the Ehlers-Clark theory. Second, it tests the generalizability of the theory to a particular subgroup of PTSD sufferers (sexual assault victims). Third, as a consequence of the selection of this subgroup, it offers insights into the specific nature of the appraisals that are relevant to sexual assault related PTSD. It is a test of the Ehlers-Clark theory of PTSD, rather than of theories of sexual assault, but should offer useful insights into the specific nature of sexual assault related PTSD. Finally, it provides important information about the occurrence and nature of mental pollution subsequent to sexual assault.

This final chapter reviews the findings and limitations of this project, and offers suggestions for further research.

4.1 Support for the Ehlers-Clark Theory of PTSD

Ehlers and Clark (2000) have proposed a theory to explain the persistence of posttraumatic stress disorder (PTSD). Although initial PTSD reactions are common

following a traumatic event, they hypothesize that they will become persistent only when individuals process the traumatic event in a way that results in the perception of a serious current threat. They suggest that a sense of current threat may arise from the way in which trauma victims appraise the trauma and/or its sequelae.

Consistent with the Ehlers-Clark theory, I hypothesized a positive association between the extent to which sexual assault victims make negative, idiosyncratic appraisals of their sexual assault and/or its sequelae, and the severity of the PTSD symptoms they report. In most respects this hypothesis was supported by the results.

Specifically, I predicted that negative appraisals of the sexual assault with respect to oneself, one's world (one's world, other people, one's relationships with others), and one's future would be positively and significantly correlated with PTSD symptom severity. This prediction was supported by the results. Both interview-based and questionnaire-based self, world and future negative appraisals were significantly correlated with both the interview and the questionnaire measure of PTSD symptoms. Correlations remained significant after controlling for assault severity. These findings provide evidence that women's reports of how the assault impacted on the way they see themselves, other people, their relationships with others, their world and their future are related to ongoing PTSD symptom severity. Furthermore, these relations cannot be accounted for by assault severity. A summary of results is presented in Table 17.

In keeping with the Ehlers-Clark theory regarding trauma sequelae, I predicted that appraisals of **initial** and **current** symptoms would be positively and

significantly correlated with PTSD symptom severity. This prediction received support for **current** symptoms and partial support for **initial** symptoms. Interview and questionnaire appraisals of **current** symptoms were significantly related to both interview and questionnaire measures of PTSD symptoms. These correlations remained significant after controlling for trauma severity. Interview appraisals of **initial** symptoms were significantly related to the interview but not the self-report measure of PTSD. This correlation also remained significant after controlling for assault severity. These results provide evidence that what women believe about their current symptoms is related to their current symptom status, and that this association that cannot be accounted for by assault severity. However, the evidence for a relation between women's retrospective accounts of their beliefs about their initial symptoms and their current symptom status is weaker. There was no questionnaire assessment of appraisals of initial symptoms. A summary of these findings is presented in Table 17.

The relation between appraisals of **current** PTSD symptoms and **current** symptoms may be stronger than the relation between appraisals of **initial** PTSD symptoms and current symptoms for a number of reasons. First, as participants are asked to recall retrospectively what they thought about their symptoms when they first occurred, poor recall of initial symptoms may attenuate the relation between appraisals and symptoms. Second, it may be that the more severe a participant's current symptoms are, the more likely she is to make negative appraisals of these symptoms, thereby strengthening the relation between appraisals of current symptoms and the current symptoms themselves. In order to properly assess the

importance of appraisals of symptoms in predicting the course of those symptoms, a prospective assessment is essential.

Ehlers and Clark also hypothesize that appraisals of others' reactions towards trauma victims following the event will contribute to persistent PTSD. Consequently, I predicted a positive and significant relation between women's appraisals of others' reactions upon learning of the sexual assault and PTSD symptom severity. This prediction was supported by the questionnaire data, but not the interview data. Interview appraisals of others' reactions were not significantly correlated with either symptom measure of PTSD, whereas questionnaire appraisals of others' reactions were positively and significantly correlated with both the interview and the self-report measure of PTSD symptoms. Furthermore, these two correlations remained significant after controlling for assault severity. These results provide some evidence for a relation between interpretations of other people's reactions towards trauma victims, and the PTSD symptoms they experience. That questionnaire appraisals of others' reactions were related to ongoing PTSD symptoms, but interview appraisals of others' reactions were not suggest that the interview and questionnaire may be measuring somewhat different constructs. This issue is dealt with in more detail later in the text. For a summary of finding see Table 17.

Table 17

Summary of Appraisal Findings: Correlational Analyses

Are appraisals related to PTSD symptoms?		Not controlling for assault severity	Controlling for assault severity
Self	1. Interview appraisals with CAPS symptom totals	YES	YES
	2. Interview appraisals with PSS-SR scores	YES	YES
	3. Questionnaire appraisals with CAPS symptom totals	YES	YES
	4. Questionnaire appraisals with PSS-SR scores	YES	YES
World	1. Interview appraisals with CAPS symptom totals	YES	YES
	2. Interview appraisals with PSS-SR scores	YES	YES
	3. Questionnaire appraisals with CAPS symptom totals	YES	YES
	4. Questionnaire appraisals with PSS-SR scores	YES	YES
Future	1. Interview appraisals with CAPS symptom totals	YES	YES
	2. Interview appraisals with PSS-SR scores	YES	YES
	3. Questionnaire appraisals with CAPS symptom totals	YES	YES
	4. Questionnaire appraisals with PSS-SR scores	YES	YES

Are appraisals related to PTSD symptoms?		Without controlling for assault severity	Controlling for assault severity
Initial Symptoms	1. Interview appraisals with CAPS symptom totals	YES	NO
	2. Interview appraisals with PSS-SR scores	NO	NO
	3. Questionnaire appraisals with CAPS symptom totals	N/A	N/A
	4. Questionnaire appraisals with PSS-SR scores	N/A	N/A
Current Symptoms	1. Interview appraisals with CAPS symptom totals	YES	YES
	2. Interview appraisals with PSS-SR scores	YES	YES
	3. Questionnaire appraisals with CAPS symptom totals	YES	YES
	4. Questionnaire appraisals with PSS-SR scores	YES	YES
Others' Reactions	1. Interview appraisals with CAPS symptom totals	NO	NO
	2. Interview appraisals with PSS-SR scores	NO	NO
	3. Questionnaire appraisals with CAPS symptom totals	YES	YES
	4. Questionnaire appraisals with PSS-SR scores	YES	YES

The Ehlers-Clark theory is a theory of a diagnostic entity: namely PTSD. I therefore also chose to evaluate the relation between sexual assault appraisals and PTSD symptoms by comparing participants who met *DSM-IV* criteria for PTSD with participants who did not meet *DSM-IV* criteria for PTSD.

Participants who met criteria for PTSD differed significantly from participants who did not meet criteria for PTSD with respect to all of the interview-based appraisals with the exception of appraisals of others' reactions. This was not the case for questionnaire-based appraisals. Participants with PTSD did not differ significantly from non-PTSD participants with respect to any of the appraisal categories.

While these findings provide some evidence that PTSD sufferers make more negative appraisals of the sexual assault and its sequelae than non-PTSD sufferers, they also suggest that there may be a problem with the questionnaire measure of appraisals. It may be that the range of responses on the SARA (i.e., the appraisals questionnaire) was too narrow to produce significant differences. The average score for individual SARA items ranged from .02 to 1.55. The largest standard deviation for any item was 1.12. The implication of this is that SARA scores fell to the low end. Consequently, while group differences were consistently in the predicted direction, they were, in most cases, too small to reach significance.

The results of analyses comparing the PTSD and the non-PTSD groups are summarized in Table 18 that follows.

Table 18

Summary of Appraisal Findings: Group Differences

Do PTSD and non-PTSD groups differ with respect to appraisal ratings?	PTSD versus non-PTSD groups
Self	1. Interview YES 2. Questionnaire NO
World	1. Interview YES 2. Questionnaire NO
Future	1. Interview YES 2. Questionnaire NO
Initial symptoms	1. Interview YES 2. Questionnaire N/A
Current symptoms	1. Interview YES 2. Questionnaire NO
Others' reactions	1. Interview NO 2. Questionnaire NO

Finally, I assessed the amount of variance in PTSD symptom scores that could be explained by sexual assault severity and the six appraisal categories combined (self, world, future, initial and current symptoms, and others). Appraisals and explained a significant amount of the variance in PTSD symptoms (at least 40% more in each of the models tested) after assault severity was accounted for. This finding supports part of the Ehlers-Clark theory of PTSD persistence.

Self-report and interview methods of assessing appraisals and PTSD symptoms produced very similar results, which is an encouraging sign of consistency. Because the appraisals questionnaire assesses women's appraisals of their current symptoms only (i.e., it does not assess women's appraisals of their initial symptoms), I was concerned that this might inflate the amount of variance accounted for by questionnaire-based appraisals. Consequently, I repeated the regression analyses excluding appraisals of current symptoms. With appraisals of current symptoms included in the analysis, questionnaire and interview appraisals explained between 44.3% and 49.9% more of the variance in interview and self-report measures of PTSD symptoms, than assault severity alone. With appraisals of current symptoms excluded from the analysis, questionnaire appraisals explained 48.7% and 44.3% more of the variance in interview and self-report measures of PTSD symptoms, respectively, than assault severity alone. These results indicate that for the models tested, even by conservative estimates, sexual assault appraisals explain 40% or more of the variance in PTSD symptom scores.

While the majority of our predictions were supported by the findings, several were either not supported, or only partially supported. These non-significant results merit further comment.

Appraisals of initial symptoms correlated significantly only with the interview measure of PTSD, and then only before controlling for assault severity. It may be that this relation is genuinely weak. However, because participants were asked to reflect retrospectively on how they had interpreted their initial PTSD symptoms, it may be that participants' recall of their interpretation of their initial PTSD symptoms is poor, resulting in a weak relation between appraisals of initial symptoms and current PTSD symptoms. The relation between participants' appraisals of their **current** symptoms and the **current** symptoms themselves is much stronger. Although this finding lends support to the theory, it must be viewed with some caution. It may be that women who have a high level of PTSD symptoms tend to interpret them very negatively (i.e., negative interpretations of current symptoms may simply be a function of the severity of one's current symptoms).

The relation between appraisals of others' reactions upon learning of the sexual assault and PTSD symptoms was fairly strong and significant for questionnaire-based appraisals but not significant for interview-based appraisals. There are two possible explanations for this difference in findings. First, the interview assessed appraisals of others' reactions upon learning of the assault quite differently from the questionnaire. This was not the case for the other appraisal categories. In the interview participants were asked to reflect upon the actual reactions of people who they told of the assault. Questionnaire items ask

participants more generally about their beliefs about other people, and what others would think of them if they knew that they had been assaulted (e.g., "Other people think that it is my fault that I was assaulted/raped", "Because of the sexual assault/rape, other people think that I am weak", "Others can tell that I am a victim", "Others have not treated me fairly"). This difference may account for the differences in the results for interview and questionnaire appraisals of others' reactions.

Second, only 26 of the 50 participants reported that someone had reacted negatively to them upon learning of the assault. The other 24 participants either (a) had not told anyone of the assault, or (b) had others who responded in a positive and supportive manner. The fact that interview appraisal ratings were obtained for only a subset of the sample (only women who had experienced a negative reaction reported appraisals of others' reactions) may also have decreased the probability of achieving significance.

Before reviewing the mental pollution findings, it is worth commenting on the Ehlers-Clark theory of PTSD and how our findings reflect upon it. Theirs is the first comprehensive theory of PTSD, and it is the first theory that is truly cognitive. This is particularly important because existing theories are all partial, in that they have difficulty explaining delayed onset PTSD, the transition from acute to persistent PTSD reactions, and individual differences in response to traumatic events. Most early work was based on conditioning theory and was unduly influenced by reports of combat victims. While the Ehlers-Clark theory of PTSD acknowledges the role of conditioning factors, their incorporation of important cognitive factors is a welcome theoretical expansion. It opens the way to an explanation of individual differences in

response to traumatic events because cognitive appraisals are themselves specific to the individual. Further, they have expanded the scope of the theory to include other kinds of trauma beyond combat trauma, and sexual traumas are of course, regrettably common.

However, this very strength carries with it a possible weakness: namely, is it reasonable to expect that a single theory will incorporate all different types of trauma ranging from a single random event such as a motor vehicle accident (MVA) to prolonged sexual abuse spanning most of one's childhood? Because it is so essentially cognitive, coming from two of the leading theorists in the world, the theory deserves to be taken seriously. The truly cognitive quality of the theory is evident in the great emphasis placed on the victims' appraisal of the event. It is not the event per se that leads to persistent PTSD, but the cognitive consequences of the event. For example, many of the women who participated in this project reported appraisals about men and their relationships with men. More specifically, they reported that they felt less able to trust men, that men seemed more dangerous and less deserving of trust, and that they expected less success in their romantic relationships than they did prior to the assault. While there is undoubtedly some overlap, it seems unlikely that motor vehicle accident victims or disaster victims would report comparable appraisals, and feel that their personal appraisals were so altered.

I proposed several hypotheses and predictions that were deduced directly from the Ehlers-Clark theory. These predictions were overwhelmingly supported by the findings. However, there is obviously a need for replication in order to be

confident that these findings are genuine and robust. Finally, while the Ehlers-Clark theory attempts to explain the persistence of PTSD, and appears to have significant merit, at this stage it has little to say about predisposing factors or factors determining initial PTSD reactions.

4.2 Mental Pollution and Sexual Assault

I predicted that it was very probable that women who had been sexually assaulted would report feelings of mental pollution following the assault. This prediction received strong support from the data. In keeping with expectations, the information collected on this phenomenon, interview and questionnaire data, and the results of the quasi-experiment, reveal that feelings of mental pollution are reported by a large majority of the victims of sexual assault.

Thirty of the 35 women who reported feeling an urge to wash subsequent to their sexual assault endorsed at least one of the six mental pollution criteria (i.e., 60% of the complete sample reported some feelings of mental pollution). The specific criteria for mental pollution were endorsed on average 3.09 on a 0 to 6 scale. Of the six mental pollution criteria, the most commonly endorsed were internal and emotional feelings of dirtiness. Mental pollution scores were significantly higher for women who reported feeling an urge to wash following the sexual assault compared with women who did not report feeling an urge to wash following the assault. In addition, questionnaire and interview mental pollution scores were significantly related to the length of time women continued to wash following the assault. The moral quality of mental pollution received slight endorsement.

Deliberate recall of the sexual assault resulted in reports of stronger feelings of dirtiness and the urge to wash than deliberate attention to a pleasant memory or scene. Nine of the women who engaged in this component of the study reported that they washed (hands or mouth) following deliberate recall of the sexual assault. As one would expect, the nine women who washed following deliberate recollection of the assault memory reported a stronger urge to wash in response to the manipulation than the women who did not wash. These nine women also obtained higher interview-based mental pollution scores than the 34 women who did not wash. The feelings of mental pollution evoked in the quasi-experiment were correlated with mental pollution questionnaire scores, and this is an encouraging sign of consistency.

These findings support the hypothesis that many sexual assault victims experience feelings of mental pollution. Further, feelings of mental pollution are related to post-assault washing behaviour. These results also convincingly demonstrate that mental pollution and the urge to wash can be triggered without physical contact with a contaminant, and in some cases be strong enough to lead to actual washing behaviour.

4.3 Mental Pollution and Sexual Assault Related PTSD

Considering that mental pollution occurs and oftentimes persists in sexual trauma victims, it is important to attempt to integrate this finding with the Ehlers-Clark theory of PTSD persistence. It may be that mental pollution represents an additional cognitive domain relevant to the prediction of the persistence of PTSD symptoms. People who feel mentally polluted may interpret their sexual assault to

mean that they have been dirtied or sullied in a non-physical (i.e., internal, mental or psychological and moral sense) way. It follows that feelings of mental pollution should be related to PTSD symptom severity. Our data support this prediction in that questionnaire-based mental pollution scores correlated significantly with both CAPS and PSS-SR scores ($r = .59, p < .001$; $r = .53, p < .001$).

In some cases feelings of mental pollution may lead to the development of a secondary washing difficulty (i.e., obsessive compulsive disorder [OCD]). de Silva and Marks (1999) present two cases of sexual assault induced OCD. One woman reported that immediately following the sexual assault she felt dirty and spent considerable time washing her person and the possessions she had with her at the time of the assault. Her feelings of dirtiness persisted and she continued to wash herself and numerous of her possessions repeatedly. She met criteria for PTSD for a period of time. However, at the time she sought psychological assistance, her PTSD had resolved and her main difficulty was OCD. She reported obsessional thoughts such as “I am dirty”, “I am filthy”, “everything is unclean”. In another example, a 26-year-old woman with no history of OCD developed PTSD and OCD subsequent to being tied up and raped. She reported feeling unclean, and washed her body, hands, and home in a ritualistic fashion. In our pilot work, I interviewed one woman who had been repeatedly raped by her brother during her childhood. She (an adult woman at the time of the interview) continues to wash repeatedly and use highly scented bath products. She reported that if she does not use scented soaps in the shower she is able to smell her brother and his bodily products on her skin. Several of the participants in this project continued to wash repeatedly in

response to feelings of uncleanness for a lengthy period of time following the sexual assault (i.e., for up to a year or more). One participant in particular appears to have developed what became a more independent washing problem that may very well be of sufficient severity to merit a diagnosis of OCD. It appears that sexual assault has the potential to provoke strong feelings of dirtiness and the urge to wash that persist well beyond the point where any physical traces of the event have been eliminated. One of the symptoms of PTSD is unwanted memories of the traumatic event. Our findings show that memories of the sexual assault can provoke feelings of dirtiness and the urge to wash. If these feelings are strong, and assault related intrusions consistently lead to washing behaviour, it is not difficult to see how OCD with washing compulsions can arise, and how these in turn may feedback and exacerbate posttraumatic stress symptoms. Further research is required to fully understand the relationship between sexual trauma, mental pollution and obsessive-compulsive disorder. de Silva and Marks (2001) provide a useful discussion of the role of trauma in the genesis of OCD.

4.4 Implications for Cognitive Behavioural Treatment

One of the basic tenets of cognitive-behavioural approaches to anxiety disorders is that changes in thoughts and beliefs about impending threat or harm can lead to a reduction in symptoms of anxiety. While there is ample evidence that imaginal exposure is effective in reducing PTSD symptoms (Foa, Dancu, et al., 1999), treatment may be rendered more effective by incorporating techniques intended to alter trauma appraisals and may reduce the amount of imaginal exposure necessary to achieve the desired effect. A purely behavioural approach to

the treatment of PTSD may not provide the necessary disconfirmation for some persons. According to the Ehlers-Clark cognitive theory of PTSD, changes in negative appraisals of the trauma and its sequelae are hypothesized to lead to a reduction in the perception of current threat, and consequently to a decline in a range of PTSD symptoms. For example, as a sexual assault victim ceases to believe that she may be assaulted at any time, including in her bed at night, she will feel less threatened and consequently experience fewer sleep difficulties. As she ceases to believe that all sudden noises indicate that someone is breaking into her home to attack her, she will startle less easily.

A number of current approaches to the treatment of sexual assault related PTSD involve the use of cognitive interventions (e.g., Foa & Rothbaum, 1998; Resick & Schnicke, 1996). However, for cognitive interventions to be useful in alleviating symptoms of posttraumatic stress disorder, at a minimum, beliefs and symptoms must be related. The data collected in this project provide evidence that idiosyncratic appraisals of sexual assault trauma are related to persistent PTSD. This project also provides some preliminary information about the types of appraisals that may be important in sexual assault PTSD. The more that is known about the specific appraisals that are important for sexual assault trauma, the easier it will be to help assault victims identify and evaluate the appraisals that are relevant for them. Further, in the first study to assess the effectiveness of cognitive behavioural therapy based on the Ehlers-Clark theory of PTSD, treatment was found to reduce symptoms of PTSD (Gillespie, Duffy, Hackmann, & Clark, 2002). In spite

of several limitations, including the lack of a control group, this finding is encouraging.

The results of the current project indicate that feelings of mental pollution are common amongst sexual assault victims, and may occasionally give rise to obsessive-compulsive disorder. Further, de Silva and Marks (2001) provide evidence of a link between OCD and PTSD. The implication of these findings is that therapists should be attentive to the presence of feelings of mental pollution in their clients who have been sexually assaulted, and that these feelings and the beliefs that underlie them may be an important target for treatment. Exposure (to feelings of mental pollution) and response prevention (inhibition of washing behaviour) in conjunction with cognitive interventions is likely the most effective way of dealing with feelings of mental pollution and related washing behaviour that arise subsequent to sexual assault.

4.5 Limitations and Weaknesses

While this research provides support for a component of the Ehlers-Clark theory of PTSD and the concept of mental pollution, it nevertheless suffers from a number of limitations. First, Ehlers and Clark have proposed a causal theory that attempts to explain the persistence of PTSD. Because the data collected in this project are correlational, they do not tell us if sexual assault appraisals contribute to the maintenance of PTSD, or if they simply co-occur with symptoms. Although cross-sectional research is an important first step in the evaluation of cognitive theories of anxiety, longitudinal research is necessary for a full test of the model (see Clark, 1996).

The number of participants in this study was small ($N = 50$). This was particularly problematic for interview appraisals of others' reactions. Only 26 women reported negative reactions from others. The appraisals that women made of these reactions did not correlate with PTSD symptoms. It may be that appraisals of others' reactions are truly not related to PTSD symptoms, or it be that the sample was too small to detect a significant relation. A larger sample would clarify the relation between appraisals of others' reactions and symptoms, and provide greater confidence in the results in general.

The measures that were used to assess sexual assault appraisals were developed for the purposes of the study. It would have been advantageous to include well-validated measures of appraisals against which to evaluate our measures. However, at the time that this project was conceived, no such measures were available.

It would have been preferable to conduct a truly experimental rather than a quasi-experimental evaluation of mental pollution. All participants were first exposed to the pleasant memory or scene followed by the assault memory. It is possible that the results of the quasi-experiment are due to participants feeling that they ought to make higher ratings of their feelings of anxiety, distress, dirtiness and the urge to wash subsequent to the assault memory compared with the pleasant memory, and not due to the manipulation per se. Future research should use counterbalancing/random assignment. It would also be beneficial to include a second (non-assault) negative memory to verify that feelings of dirtiness and the urge to wash are provoked specifically by the assault memory, and not simply by

any negative or upsetting memory. Scheduling a break following each memory exposure would ensure that any washing behaviour that occurred during the break was clearly due to the feelings provoked by the assault memory.

Finally, the research tackled one component of the Ehlers-Clark theory. The other components, and their inter-connections, need to be tested on other groups of victims of sexual assault. More broadly, it remains to be seen whether their theory can indeed encompass all forms of trauma – as mentioned earlier, this is a tall order.

One is also obliged to ask if the results of this study will generalize to other groups of individuals. The generalizability of findings depends upon the sample selected and the methods used. While the sample for this project was well chosen, it does not include assaults characterized by severe violence, or prolonged sexual trauma. It remains to be seen if what was found in this study will be found in women who have suffered more violent and prolonged sexual trauma than was characteristic of this sample.

4.6 Future Research

This project helped to identify and evaluate some of the appraisals that may be important for sexual assault related PTSD. However, more information about which appraisals are most important and most predictive of future distress is needed. Refining the interview and the questionnaire appraisal measures that were developed for this project would be one step in this direction. In order to be confident that negative appraisals serve to prolong PTSD symptoms, and do not

simply co-occur with the disorder, a prospective analysis is essential. Some of this work has already been carried out (see Dunmore et al., 2001), and more is needed.

Another key area for future study is that of current threat. Although explicit in the theoretical model and implicit in much of the research that has been carried out to date to test the model, that trauma victims feel under current threat has not been directly evaluated. An initial step would be to ask trauma victims if they feel under threat in their day-to-day lives. This would be best done using a structured interview, asking trauma victims if they feel under current threat and under what circumstances they experience these feelings. This information could then be related to the degree to which trauma victims make negative appraisals of the event and/or its sequelae, and to PTSD symptom severity. This would replicate the current project and extend it to include a thorough evaluation of perceptions of current threat.

As mentioned above, the quasi-experimental component of this research did not use a control group. Participants served as their own controls. To ensure that the feelings of dirtiness and the urge to wash that were provoked were indeed due to deliberate recollection of the assault memory, the quasi-experiment needs to be replicated using a true experimental design (i.e., with either counterbalancing, or having participants randomly assigned to the pleasant memory or the assault memory).

A number of women in the sample reported that prior to participation in the project, they had not told anyone about the assault. Further, 14 participants endorsed the questionnaire items "I will be rejected if people learn about my sexual

assault/rape” and “If people knew about my sexual assault/rape, they would think less of me.” It would be interesting to learn more about disclosure of sexual assault, particularly as social support and talking about the trauma are both positively related to recovery. It may be that many women are reluctant to disclose the sexual assault to others for fear of rejection (Lehman, Ellard, & Wortman, 1986). The evolutionary psychology view of rape suggests that rape adversely influences a woman’s ability to ensure the care and protection of her offspring by a mate (Thornhill & Thornhill, 1990). According to this perspective, rape or suspected rape reduces the certainty of male parentage, and consequently poses a risk to the woman in terms of the care and attention she can expect for herself and her offspring from a mate. From this it follows that women should be motivated to keep any attempted or completed rape a secret. The Ehlers-Clark model would predict that women who believe others will reject them if they find out about the assault will be motivated to keep the rape a secret. These ideas merit further investigation.

It would also be interesting to assess for the occurrence of mental pollution in victims of other types of traumatic events to determine if the experience is specific to sexual assault trauma, or if it also occurs in other types of trauma.

REFERENCES

- Acierno, R., Kilpatrick, D.G., & Resnick, H.S. (1999). Posttraumatic stress disorder in adults relative to criminal victimization: Prevalence, risk factors, and comorbidity. In P.A. Saigh, & J.D. Bremner (Eds.), *Posttraumatic stress disorder: A comprehensive text* (pp. 44-68). Needham Heights, MA: Allyn & Bacon.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Blake, D.D., Weathers, F.W., Nagy, L.M., Kaloupek, D.G., Klauminzer, G., Charney, & Keane, T.M. (1990). A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. *Behaviour Therapist*, 13, 187-188.
- Beitchman, J.H., Zucker, K.J., Hood, J.E., DaCosta, G.A., Akman, D., & Cassavia, E. (1992). A review of the long-term effects of child sexual abuse. *Child Abuse and Neglect*, 16, 101-118.
- Bowman, M.L. (1997). *Individual differences in posttraumatic response: Problems with the adversity-distress connection*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Bowman, M.L. (1999). Individual differences in posttraumatic distress: Problems with the DSM-IV model. *Canadian Journal of Psychiatry*, 44, 21-33.
- Brewin, C.R., Dalgleish, T., & Joseph, S. (1996). A dual representation theory of posttraumatic stress disorder. *Psychological Review*, 103, 670-686.
- Brown, G.W., & Harris, T.O. (Eds.). (1989). *Life events and illness*. New York: Guilford Press.
- Burge, S.K. (1988). Post-traumatic stress disorder in victims of rape. *Journal of Traumatic Stress*, 1, 193-210.
- Burgess, A.W., & Holmstrom, L.L. (1978). Recovery from rape and prior life stress. *Research in Nursing and Health*, 1, 165-174.
- Clark, D.M. (1996). Panic disorder: From theory to therapy. In P.M. Salkovskis (Ed.), *Frontiers of cognitive therapy* (pp. 318-344). New York, NY: Guilford Press.
- Clohessy, S. & Ehlers, A. (1999). PTSD symptoms, response to intrusive memories and coping in ambulance service workers. *British Journal of Clinical Psychology*, 38, 251-265.

- Chemtob, C., Roitblat, H.L., Hamada, R.S., Carlson, J.G., & Twentyman, C.T. (1988). A cognitive action theory of post-traumatic stress disorder. *Journal of Anxiety Disorders, 2*, 253-275.
- Creamer, M., Burgess, P., & Pattison, P. (1992). Reaction to trauma: A cognitive processing model. *Journal of Abnormal Psychology, 101*, 452-459.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.
- de Silva, P., & Marks, M. (1999). The role of traumatic experiences in the genesis of obsessive-compulsive disorder. *Behaviour Research and Therapy, 37*, 941-951.
- de Silva, P., & Marks, M. (2001). Traumatic experiences, posttraumatic stress disorder and obsessive-compulsive disorder. *International Review of Psychiatry, 13*, 172-180.
- Dunmore, E.C., Clark, D.M., & Ehlers, A. (1997). Cognitive factors in persistent versus recovered post-traumatic stress disorder after physical or sexual assault: A pilot study. *Behavioural and Cognitive Psychotherapy, 25*, 147-159.
- Dunmore, E.C., Clark, D.M., & Ehlers, A. (1999). Cognitive factors involved in the onset and maintenance of posttraumatic stress disorder (PTSD) after physical or sexual assault. *Behaviour Research and Therapy, 37*, 809-829.
- Dunmore, E.C., Clark, D.M., & Ehlers, A. (2001). A prospective investigation of the role of cognitive factors in persistent posttraumatic stress disorder (PTSD) after physical or sexual assault. *Behaviour Research and Therapy, 39*, 1063-1084.
- Ehlers, A., & Clark, D.M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy, 38*, 319-345.
- Ehlers, A., Mayou, R.A., & Bryant, B. (1998). Psychological predictors of chronic posttraumatic stress disorder after motor vehicle accidents. *Journal of Abnormal Psychology, 107*, 508-519.
- Ehlers, A., & Steil, R. (1995). Maintenance of intrusive memories in posttraumatic stress disorder: A cognitive approach. *Behavioural and Cognitive Psychotherapy, 23*, 217-249.
- Eysenck, H.J., & Rachman, S. (1965). *The causes and cures of neurosis*. London: Routledge and Kegan Paul.

- Foa, E.B., Dancu, C.V., Hembree, E.A., Jaycox, L.H., Meadows, E.A., & Street, G.P. (1999). The efficacy of exposure therapy, stress inoculation training and their combination in ameliorating PTSD for female victims of assault. *Journal of Consulting and Clinical Psychology, 67*, 194-200.
- Foa, E.B., Ehlers, A., Clark, D.M., Tolin, D.F., & Orsillo, S.M. (1999). The posttraumatic cognitions inventory (PTCI): Development and validation. *Psychological Assessment, 11*, 303-314.
- Foa, E.B., & Kozak, M.J. (1986) Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin, 99*, 20-35.
- Foa, E.B., & Meadows, E.A. (1997). Psychosocial treatments for post-traumatic stress disorder: A critical review. *Annual Review of Psychology, 48*, 449-480.
- Foa, E.B., & Riggs, D.S. (1993). Posttraumatic stress disorder in rape victims. In J. Oldham, M.B. Riba, & A. Tasman (Eds.), *American Psychiatric Press review of psychiatry* (Vol., 12, pp. 273-303). Washington, DC: American Psychiatric Press.
- Foa, E.B., Riggs, D.S., Dancu, C.V., & Rothbaum, B.O. (1993). Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress, 6*, 459-473.
- Foa, E.B., & Rothbaum, B.O. (1998). *Treating the trauma of rape*. New York: Guilford Press.
- Foa, E.B., Steketee, G., & Rothbaum, B.O. (1989). Behavioral/cognitive conceptualization of post-traumatic stress disorder. *Behavior Therapy, 20*, 155-176.
- Foa, E.B., Zinbarg, R., & Rothbaum, B.O. (1992). Uncontrollability and unpredictability in posttraumatic stress disorder: An animal model. *Psychological Bulletin, 112*, 218-238.
- Gillespie, K., Duffy, M., Hackman, A., & Clark, D.M. (2002). Community based cognitive therapy in the treatment of post-traumatic stress disorder following the Omagh bomb. *Behaviour Research and Therapy, 40*, 345-357.
- Glass, G.V., & Hopkins, K. D. (1984). *Statistical methods in education and psychology*. (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Horowitz, M.J. (1976). *Stress response syndromes*. New York: Jason Aronson.
- Horowitz, M.J. (1986). *Stress response syndromes* (2nd ed.). New York: Jason Aronson.

- Hovens, J.E.J.M., Van der Ploeg, H.M., Bramsen, I., Klaarenbeek, M.T.A., Schreuder, B.J.N., & Rivero, V.V. (1994). The development of the Self-Rating Inventory for Posttraumatic Stress Disorder. *Acta Psychiatr Scand*, *90*, 172-183.
- Hyer, L.A.L., Summers, M.N., Boyd, S., Litaker, M., & Boudewyns, P.A. (1996). Assessment of older combat veterans with the Clinician-Administered PTSD Scale. *Journal of Traumatic Stress*, *9*, 587-593.
- Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition*, *7*, 113-136.
- Janoff-Bulman, R. (1992). *Shattered assumptions: Towards a new psychology of trauma*. New York: Free Press.
- Janoff-Bulman, R., & Frieze, I.H. (1983). A theoretical perspective for understanding reactions to victimization. *Journal of Social Issues*, *39*, 1-17.
- Johnson, H., & Sacco, V.F. (1995). Researching violence against women: Statistics Canada's national survey. Special Issue: Focus on Violence Against Women Survey. *Canadian Journal of Criminology*, *37*, 281-304.
- Kilpatrick, D.G., & Resick, H.S. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *Journal of Consulting and Clinical Psychology*, *61*, 984-991.
- Kilpatrick, D.G., Saunders, B.E., Amick-McMullan, A., Best, C.L., Veronen, L.J., & Resnick, H.S., (1989). Victim and crime factors associated with the development of crime-related post-traumatic stress disorder. *Behavior Therapy*, *20*, 199-214.
- Kilpatrick, D.G., Saunders, B.E., Veronen, L.J., Best, C.L., & Von, J.M. (1987). Criminal victimization: Lifetime prevalence, reporting to police, and psychological impact. *Crime & Delinquency*, *33*, 479-489.
- Kilpatrick, D.G., Veronen, L.J., & Best, C.L. (1985). Factors predicting psychological distress among rape victims. In C.R. Figley (Ed.), *Trauma and its wake* (pp. 113-141). New York: Brunner/Mazel.
- Koss, M.P. (1993). Detecting the scope of rape: A review of prevalence research methods. *Journal of Interpersonal Violence*, *8*, 198-222.
- Koss, M.P., Gidycz, C.A., & Wisniewski, N. (1987). The scope of rape: Incidence and prevalence of sexual aggression and victimization in a national sample of

- higher education students. *Journal of Consulting and Clinical Psychology*, 55, 162-170.
- Kuyken, W. (1995). The psychological sequelae of childhood sexual abuse: A review of the literature and implications for treatment. *Clinical Psychology and Psychotherapy*, 2, 108-121.
- Lang, P.J. (1979). A bio-informational theory of emotional imagery. *Psychophysiology*, 16, 495-512.
- Lazarus, R.S., DeLongis, A., Folkman, S., & Gruen, R. (1985). Stress and adaptational outcomes: The problem of confounded measures. *American Psychologist*, 40, 770-779.
- Lazarus, R.S., & Folkman, S. (1986). Cognitive theories of stress and the issue of circularity. In M.H. Appley, & R. Trumbull (Eds.), *Dynamics of stress: Physiological, psychological, and social perspectives* (pp. 63-80). New York, NY: Plenum Press.
- Lee, D., & Young, K. (2001). Post-traumatic stress disorder: Diagnostic issues and epidemiology in adult survivors of traumatic events. *International Review of Psychiatry*, 13, 150-158.
- Lehman, D.R., Ellard, J.H., & Wortman, C.B. (1986). Social support for the bereaved: Recipients' and providers' perspectives on what is helpful. *Journal of Consulting and Clinical Psychology*, 54, 438-446.
- Leighton, Abp. Robert Works a1684 (1805-08, 1830, 1859, 1869-75). A practical commentary upon the two first chapters of the first epistle general of St. Peter a1684 (1693, 1817).
- Martin's Annual Criminal Code* (2001). Aurora, ON: Canada Law Book
- Messman, T.L., & Long, P.J. (1996). Child sexual abuse and its relationship to revictimization in adult women: A review. *Clinical Psychology Review*, 16, 397-420.
- Mineka, S., & Zinbarg, R. (1996). Conditioning and ethological models of anxiety disorders: Stress-in-Dynamic-Context Anxiety models. In D.A. Hope (Ed.), *Nebraska Symposium on Motivation, 1995: Perspectives on anxiety, panic, and fear. Current theory and research in motivation*, 43, 135-210. Lincoln, NE: University of Nebraska Press.
- Mowrer, O. (1960). *Learning theory and behaviour*. New York: Wiley.

- Murray, J.A.H., Bradley, H., Craigie, W.A., Onions, C.T., & Burchfield, R.W. (Eds.). (1989). *The Oxford English dictionary* (2nd ed., Vols. 1-20). Oxford: Clarendon Press.
- Rachman, S. (1978). *Fear and courage*. San Francisco, CA: Freeman.
- Rachman, S. (1990). *Fear and courage* (Rev. 2nd ed.). San Francisco, CA: Freeman.
- Rachman, S. (1994). Pollution of the mind. *Behaviour Research and Therapy*, 32, 311-314.
- Radnitz, C.L., Schlein, I.S., Walczak, S., Broderick, C.P., Binks, T.M., Tirch, D.D., Willard, J., Perez-Strumolo, L., Festa, J., Lillian, L.B., Bockian, N., Cytryn, A., & Green, L. (1995). The prevalence of post-traumatic stress disorder in veterans with spinal cord injury. *SCI Psychosocial Process*, 8, 145-149.
- Resick, P.A. (1987). *The impact of rape on psychological functioning*. Unpublished manuscript, University of Missouri, St. Louis.
- Resick, P.A. (1993). The psychological impact of rape. Special Section: Rape. *Journal of Interpersonal Violence*, 8, 223-255.
- Resick, P.A., & Schnicke, M.K. (1996). *Cognitive processing therapy for rape victims: A treatment manual*. Newbury Park, CA: Sage Publications.
- Rothbaum, B. O., Foa, D. B., Riggs, D. S., Murdock, T., & Walsh, W. (1992). A prospective examination of post-traumatic stress disorder in rape victims. *Journal of Traumatic Stress*, 5, 455-475.
- Rowan, A.B., & Foy, D.W. (1993). Posttraumatic stress disorder in child sexual abuse survivors: A literature review. *Journal of Traumatic Stress*, 6, 3-20.
- Rozin, P., & Fallon, A.E. (1987). A perspective on disgust. *Psychological Review*, 94, 23-41.
- Steil, R., & Ehlers, A. (2000). Dysfunctional meaning of posttraumatic intrusions in chronic PTSD. *Behaviour Research and Therapy*, 38, 537-558.
- Tanzman, E.S. (1992). Unwanted sexual activity: The prevalence in college women. *College Health*, 40, 167-171.
- Thornhill, N.W., & Thornhill, R. (1990). An evolutionary analysis of psychological pain following rape. III: Effects of force and violence. *Aggressive Behavior*, 16, 297-320.

Weathers, F.W., Blake, D.D., Krinsley, K.E., Haddad, W., Ruscio, A.M., Keane, T.M., & Huska, J.A. (1999). Reliability and validity of the clinician-administered PTSD scale. Manuscript submitted for publication.

Weathers, F.W., Keane, T.M., & Davidson, J.R.T. (2001). Clinician-Administered PTSD Scale: A review of the first ten years of research, *Journal of Depression and Anxiety*, 13, 132-156.

Wegner, D.M. (1989). *White bears and other unwanted thoughts: Suppression, obsession and the psychology of mental control*. New York: Viking.

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition*. Stanford, CA: Stanford University Press.

APPENDIX

	Page
1. The Appraisals Interview	123
2. The Sexual Assault and Rape Appraisals (SARA)	133

Assault-related Appraisals Semi-structured Interview

Prior to administering the Appraisals interview, participants are put at ease, the purposes of the project and the confidential nature of their participation is reviewed, they are given the study consent form, and any questions they may have about their participation are answered.

Assault-related Appraisals Semi-structured Interview

2.1 Date

Subject ID



PART A

1. Could you please describe your sexual assault (rape) experience for me?

ASSAULT INFORMATION

1. How many people participated in the assault? _____
2. Where did the assault occur?
 1. My residence
 2. Other residence
 3. Car or vehicle
 4. Assailant's residence
 5. Alley, street, or abandoned building
 6. Other (specify) _____
3. How old were you at the time? _____
4. How old was the assailant at the time? _____
5. What was your relationship with the assailant?
 1. Stranger
 2. Acquaintance
 3. Coworker
 4. Friend
 5. Date
 6. Lover
 7. Ex-lover
 8. Ex-husband or estranged husband
 9. Spouse
 10. Relative (specify) _____
 11. Other (specify) _____
6. Had you ever had a sexual relationship with the assailant before the assault?
NO YES
7. Do you think the assailant was under the influence of drugs or alcohol?
NO YES UNSURE
8. Were you under the influence of drugs or alcohol at the time of the incident?
NO YES Unconscious
9. Did the assailant threaten you with a weapon?
NO YES (specify) _____
10. Did the assailant verbally threaten you?
NO YES (specify) _____
11. Did the assailant restrain you?
NO YES (specify) _____
12. Did he reassure you in any way (e.g., tell you that he would not harm you)?
NO YES
13. Did he hit you?
NO YES (specify) _____
14. What sexual acts did the assailant perform?

Vaginal intercourse	NO	YES	Attempted
Oral intercourse	NO	YES	Attempted
Anal intercourse	NO	YES	Attempted
Other sexual acts (specify)	_____		

2. Do you think you were raped? YES NO
3. To what extent did you feel you were at risk of being physically hurt or injured during the assault/rape?
1- not at all 2- slightly 3- moderately
4- a great deal 5- I was certain that I would be hurt or injured
4. To what extent did you feel your life was in danger during the assault/rape?
1- not at all 2- slightly 3- moderately
4- a great deal 5- I was certain that I would be killed

PART B: APPRAISALS OF THE SEXUAL ASSAULT (RAPE)

I am going to begin by asking you some questions about the meaning of the sexual assault (rape) for you.

Self: Has this event had any influence on how you view yourself or on the kind of person you think you are? For example, do you think your view of yourself or of your character has changed as a result of this experience?

Using a scale from 0 to 100, where 0 is not at all, and 100 is completely or totally, please rate the degree to which you perceive this change to be **negative** and **important**. _____

World: Has this event had any influence on how you view your world, other people, or your relationships with others? For example, do you think your view of your world, other people, or your relationships with others, has changed as a result of this experience?

Using a scale from 0 to 100, where 0 is not at all, and 100 is completely or totally, please rate the degree to which you perceive this change to be **negative** and **important**. _____

Future: Has this event had any influence on how you view your future? For example, do you think your view of your future has changed as a result of this experience? [If incomplete: "Does this event have any implications for your future?"]

Using a scale from 0 to 100, where 0 is not at all, and 100 is completely or totally, please rate the degree to which you perceive this change to be **negative** and **important**. _____

PART C: APPRAISALS OF THE SEXUAL ASSAULT (RAPE) SEQUELAE

Now I am going to be asking you some questions about the meaning, for you, of some of the events and experiences that may have occurred around the time of, or following your sexual assault (rape).

Interpretations of other people's reactions in the aftermath of the event:

Did anyone react to you, after learning about your sexual assault (rape) experience, in a particularly negative or upsetting way? For example, did any family members, close friends, a romantic partner, health care workers, or anyone else react to you in a particularly negative or upsetting manner upon learning about your sexual assault (rape)? Could you please describe their reaction/s?

What does it mean to you that _____ reacted to you in this way? [If incomplete, ask] For example, has _____'s reaction had any influence on how you view yourself or your character, your world, other people, your relationships with others, or your future? [Repeat this question for each negative/upsetting reaction]

Using a scale from 0 to 100, where 0 is not at all, and 100 is completely or totally, please rate the degree to which their reaction/s suggest/s something **negative** and **important** about you, your world, other people, your relationships with others, or your future. _____

Interpretations of initial PTSD symptoms:

Often following a traumatic event such as a sexual assault or a rape, people experience a number of different psychological symptoms. I am going to show you a list of a number of symptoms that assault/rape victims commonly experience. Could you please place a tick mark next to those symptoms you experienced shortly after the assault/rape (in the column marked INITIAL), and those you are currently experiencing (in the column marked CURRENT)?

SYMPTOM	INITIAL	CURRENT
1. Upsetting thoughts about the assault/rape that come into your head when you don't want them to?		
2. Bad dreams or nightmares about the assault/rape?		
3. Reliving the assault/rape, acting or feeling as if it was happening again?		
4. Feeling EMOTIONALLY upset when you are reminded of the assault/rape (for example, feeling scared, angry, sad, guilty, etc.)?		
5. Experiencing PHYSICAL reactions when you are reminded of the assault/rape (for example, breaking out in a sweat, heart beating fast)?		
6. Not being able to remember an important part of the assault/rape, even though you were conscious at the time?		
7. Having much less interest in things you used to enjoy doing?		
8. Feeling distant or cut off from people around you?		
9. Feeling emotionally numb (for example, being unable to cry or unable to have loving feelings)?		
10. Having trouble falling or staying asleep?		
11. Being more irritable or having outbursts of anger?		
12. Having difficulty concentrating (for example, drifting in and out of conversations, losing track of a story on television, forgetting what you read)?		
13. Being overly alert (for example, checking to see who is around you, being uncomfortable with your back to a door, etc.)?		
14. Feeling jumpy or easily startled? (for example when someone walks up behind you)		

Which of these symptoms is bothering you the most right now?

INITIAL SYMPTOMS:

When you first had these symptoms, how did you think about them? For example, did you think they indicated anything about you, your emotional or physical well being, or your future?

Did you see these symptoms as a normal part of the recovery process, or did you think they might indicate that you had permanently changed for the worse or that you were physically or emotionally unwell and might not recover?

Using a scale from 0 to 100, where 0 is not at all, and 100 is completely or totally, please rate the degree to which you believed your initial symptoms indicated that you had permanently changed for the worse, or that you were physically or emotionally unwell and might not recover. _____

CURRENT SYMPTOMS:

When you experience these symptoms now, how do you think about them? For example, do you think they indicate anything about you, your emotional or physical well being, or your future?

Do you see these symptoms as a normal part of the recovery process, or do you think they might indicate that you have permanently changed for the worse, or that you are physically or emotionally unwell and may not recover?

Using a scale from 0 to 100, where 0 is not at all, and 100 is completely or totally, please rate the degree to which you believe your current symptoms indicate that you have permanently changed for the worse, or that you are physically or emotionally unwell and might not recover. _____

PART E: POST-ASSAULT WASHING

1. Immediately after the assault (rape), did you feel an extra urge to wash or clean, because of the assault (rape)?

YES

NO

- a) **If NO**, Did you **anytime** after the assault (rape) feel an extra urge to wash or clean, because of the assault (rape)?

YES

NO

- b) When did you first feel this extra urge to wash or clean?

2. What cleaning and washing did you do at that time?

3. How many times did you wash or clean at that time?

4. How did the washing make you feel?

5. Could you describe the feelings you had, that made you want to wash?

6. Was the feeling the same, or different, to how you feel if you have touched some dirty or soiled material? Could you explain how the feeling is the same or different? Can you give me examples?

7. Did you feel dirty on the outside or the inside, or both?

OUT

IN

BOTH

8. How long after the assault (rape) did you continue to wash or clean?

9. Did this gradually decrease over time?

10. Did that feeling change or go away?

11. What, if anything brings back that feeling of dirtiness now?

12. What about memories of the assault, do they bring back that feeling of dirtiness?

13. When you get the feeling of dirtiness, do you feel an urge to wash?

YES

NO

14. Do you get the urge to wash if you feel dirty on the inside?

15. When you get the feeling of dirtiness, do you ever experience any other urges?

Sexual Assault and Rape Appraisals

The following questions ask you about your perceptions of your sexual assault/rape. Please indicate, by circling the appropriate number, the degree to which you believe the following statements are true.

0 = Not at all true
1 = Somewhat true
2 = Mostly true
3 = Completely true

- | | | | | |
|--|---|---|---|---|
| 1. My life will never be the same again. | 0 | 1 | 2 | 3 |
| 2. My symptoms mean that I am being punished for what happened to me. | 0 | 1 | 2 | 3 |
| 3. My sexual assault/rape has spoiled me for good. | 0 | 1 | 2 | 3 |
| 4. When I become upset about the assault/rape, I worry that I may have a nervous breakdown. | 0 | 1 | 2 | 3 |
| 5. The fact that I am jumpy and easily startled means that I have been damaged by my experience, and may never be well again. | 0 | 1 | 2 | 3 |
| 6. I must remain alert to signs of danger, or some other bad thing may happen to me. | 0 | 1 | 2 | 3 |
| 7. I may never be able to really enjoy life again. | 0 | 1 | 2 | 3 |
| 8. My view of my future has changed for the worse as a result of the way others reacted to me after learning about my trauma. | 0 | 1 | 2 | 3 |
| 9. Even safe situations aren't safe anymore. | 0 | 1 | 2 | 3 |
| 10. I attract disaster. | 0 | 1 | 2 | 3 |
| 11. If I were a better person, I could have prevented the sexual assault/rape from happening. | 0 | 1 | 2 | 3 |
| 12. Many of my important life goals are out of my reach. | 0 | 1 | 2 | 3 |
| 13. The fact that I am still having nightmares about the assault/rape means that I am emotionally unwell and will never be well again. | 0 | 1 | 2 | 3 |
| 14. I feel contaminated by my sexual assault/rape experience. | 0 | 1 | 2 | 3 |
| 15. My view of the world, others, and my relationships with others has changed for the worse as a result of the way others reacted to me after learning about my trauma. | 0 | 1 | 2 | 3 |
| 16. Nowhere is safe. | 0 | 1 | 2 | 3 |
| 17. The fact that my emotions are deadened means that I am a cold and unfeeling person. | 0 | 1 | 2 | 3 |

0 = Not at all true
1 = Somewhat true
2 = Mostly true
3 = Completely true

- | | | | | |
|--|---|---|---|---|
| 18. I will be rejected if people learn about my sexual assault/rape. | 0 | 1 | 2 | 3 |
| 19. The world is a dangerous place. | 0 | 1 | 2 | 3 |
| 20. Because of the sexual assault/rape, other people think that I am weak. | 0 | 1 | 2 | 3 |
| 21. The fact that I am still upset about the assault/rape means that I am emotionally unstable. | 0 | 1 | 2 | 3 |
| 22. No matter how much I wash, I still feel dirty on the inside. | 0 | 1 | 2 | 3 |
| 23. It is my fault that I was sexually assaulted/raped. | 0 | 1 | 2 | 3 |
| 24. If people knew about my sexual assault/rape, they would think less of me. | 0 | 1 | 2 | 3 |
| 25. If I think about the assault/rape, I will go crazy. | 0 | 1 | 2 | 3 |
| 26. Others can't be trusted. | 0 | 1 | 2 | 3 |
| 27. If I think about the assault/rape, I will have a heart attack. | 0 | 1 | 2 | 3 |
| 28. It is safer just not to get close to anyone. | 0 | 1 | 2 | 3 |
| 29. The fact that I am having symptoms related to the assault/rape means that I might go crazy one day. | 0 | 1 | 2 | 3 |
| 30. Other people think that it is my fault that I was assaulted/raped. | 0 | 1 | 2 | 3 |
| 31. Others have not treated me fairly. | 0 | 1 | 2 | 3 |
| 32. My trauma symptoms indicate that I have permanently changed for the worse and may not recover? | 0 | 1 | 2 | 3 |
| 33. My view of my future has changed for the worse as a result of this event. | 0 | 1 | 2 | 3 |
| 34. I am an easy target. | 0 | 1 | 2 | 3 |
| 35. The fact that there are some important parts of the assault/rape that I cannot remember, means that there is something wrong with my mind. | 0 | 1 | 2 | 3 |
| 36. It is dangerous to go on dates. | 0 | 1 | 2 | 3 |
| 37. If I think about the assault/rape, I will seriously damage my health. | 0 | 1 | 2 | 3 |
| 38. Other people can tell that I am damaged. | 0 | 1 | 2 | 3 |

0 = Not at all true
1 = Somewhat true
2 = Mostly true
3 = Completely true

- | | | | | |
|---|---|---|---|---|
| 39. The fact that my concentration is poor means that I may lose my job or fail at school. | 0 | 1 | 2 | 3 |
| 40. Because of the sexual assault, I am damaged and people can tell. | 0 | 1 | 2 | 3 |
| 41. Because of the sexual assault/rape, my chances of a happy future have been destroyed. | 0 | 1 | 2 | 3 |
| 42. People who know that I was sexually assaulted think that I am pathetic. | 0 | 1 | 2 | 3 |
| 43. Every time I feel as though the assault/rape is happening again I think I am going crazy. | 0 | 1 | 2 | 3 |
| 44. My view of my myself and my character has changed for the worse as a result of the way others reacted to me after learning about my trauma. | 0 | 1 | 2 | 3 |
| 45. Bad things always happen to me. | 0 | 1 | 2 | 3 |
| 46. My chances of a happy love life are poor. | 0 | 1 | 2 | 3 |
| 47. Because of the sexual assault/rape, I am damaged goods. | 0 | 1 | 2 | 3 |
| 48. I cannot trust my own judgement. | 0 | 1 | 2 | 3 |
| 49. Because of the sexual assault/rape, many of my important life goals are no longer achievable. | 0 | 1 | 2 | 3 |
| 50. If I go to sleep, I will have more nightmares. | 0 | 1 | 2 | 3 |
| 51. If I don't remain alert to signs of danger, the assault/rape may happen again. | 0 | 1 | 2 | 3 |
| 52. I am a poor judge of character. | 0 | 1 | 2 | 3 |
| 53. I may never be able to feel close to anyone again. | 0 | 1 | 2 | 3 |
| 54. If I do not control my feelings tightly, I will not be able to work and I will lose my job. | 0 | 1 | 2 | 3 |
| 55. I am not capable of defending myself. | 0 | 1 | 2 | 3 |
| 56. I should have been able to prevent the sexual assault/rape from happening. | 0 | 1 | 2 | 3 |
| 57. Others can tell that I am a victim. | 0 | 1 | 2 | 3 |
| 58. I am more vulnerable than most women to being sexually assaulted. | 0 | 1 | 2 | 3 |
| 59. I am a weak person. | 0 | 1 | 2 | 3 |
| 60. The fact that I feel distant and cut off from others means that I may lose people who are important to me. | 0 | 1 | 2 | 3 |

0 = Not at all true
1 = Somewhat true
2 = Mostly true
3 = Completely true

- | | | | | |
|---|---|---|---|---|
| 61. My view of the world, others, and my relationships with others has changed for the worse as a result of this event. | 0 | 1 | 2 | 3 |
| 62. I am a poor judge of who can be trusted. | 0 | 1 | 2 | 3 |
| 63. My chances of a happy relationship/marriage have changed for the worse because of the sexual assault/rape. | 0 | 1 | 2 | 3 |
| 64. I have little to look forward to in the future. | 0 | 1 | 2 | 3 |
| 65. There is no point in having close relationships because they are too dangerous. | 0 | 1 | 2 | 3 |
| 66. The fact that I am having unwanted thoughts/images about the assault/rape shows that I am emotionally unstable. | 0 | 1 | 2 | 3 |
| 67. Most men would commit a sexual assault, given the chance. | 0 | 1 | 2 | 3 |
| 68. My view of myself and my character has changed for the worse as a result of this event. | 0 | 1 | 2 | 3 |
| 69. If I think about the assault/rape, I will fall apart. | 0 | 1 | 2 | 3 |
| 70. My trauma symptoms indicate that I am physically or emotionally unwell and may not recover? | 0 | 1 | 2 | 3 |
| 71. I feel that I will never be clean again. | 0 | 1 | 2 | 3 |
| 72. If I think about the assault/rape, I will lose control and hurt someone. | 0 | 1 | 2 | 3 |
| 73. The fact that my concentration is poor means that I am mentally unwell. | 0 | 1 | 2 | 3 |
| 74. If I do not control my feelings tightly, I will lose my temper and offend people. | 0 | 1 | 2 | 3 |
| 75. Other people are insensitive and uncaring. | 0 | 1 | 2 | 3 |
| 76. No one will care for me again. | 0 | 1 | 2 | 3 |
| 77. When I become upset about the assault/rape, I worry that I may have a heart attack. | 0 | 1 | 2 | 3 |
| 78. The fact that I am still experiencing symptoms related to the assault/rape means that I have been permanently damaged by this experience. | 0 | 1 | 2 | 3 |
| 79. The fact that I am having unwanted thoughts/images about the assault/rape means that I don't have control of my mind anymore. | 0 | 1 | 2 | 3 |
| 80. The fact that my emotions are deadened means that I have been damaged by this experience and may never feel normal again. | 0 | 1 | 2 | 3 |