# POSTTRAUMATIC STRESS DISORDER IN A SAMPLE OF CONDUCT DISORDERED YOUTH

by

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Posttraumatic Stress Disorder in a Sample of Conduct Disordered Youth

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## ABSTRACT

This study explored the existence of posttraumatic stress disorder (PTSD) in delinquent male youths, as well as the co-occurrence of PTSD and conduct disorder (CD) in the same population. Eighty male youths who were in custody awaiting trial were evaluated using the Retrospective Assessment of Traumatic Events Interview Schedule (RATE) and the Traumatic Stress Schedule (TSS) to establish their histories of traumatic experiences, including physical, sexual, and psychological abuse. PTSD symptomatology was assessed using the PTSD module of the Anxiety Disorders Interview Schedule - Revised (ADIS-R). As well, subjects completed the Youth Self-Report (YSR), a measure which was supplemented with items to assess CD. It was found that the majority of these youths had experienced multiple traumatic events. The level of traumatization was positively associated with the presence and severity of PTSD. Thirty-six subjects (45%) met the DSM-III-R criteria for PTSD. Twenty-one (26.25%) other subjects met partial criteria for the disorder. Both level of traumatization and severity of PTSD were positively associated with internalizing and externalizing as measured by the YSR. The likelihood of PTSD was best predicted by the number of traumatic events experienced and internalizing. Severity of PTSD was also positively associated with self-destructiveness and CD severity. Seventy subjects (87.5%) met the DSM-III-R criteria for CD. Thirty-three (41.25%) of these subjects were comorbid for PTSD. The YSR was useful in detecting group differences, with PTSD/CD subjects exhibiting significantly more symptoms of internalizing

and self-destructiveness than CD only subjects. The high rate of PTSD and the co-occurrence of CD and PTSD has practical relevance for understanding and treating delinquent youth.

# DEDICATION

Dedicated in the memory of

my father,

who died unexpectedly

during the write-up

of this thesis.

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# CHAPTER I

# INTRODUCTION

Until recently, the role of psychological trauma as a precursor of mental and behavioural disorders has been a neglected area of research (van der Kolk, 1984). While wars, concentration camps, civilian and natural disasters have, from time to time, inspired research about the impact of traumatic stress, only in the past two decades has "the ubiquity and pervasiveness of posttraumatic states in psychiatry become recognized" (van der Kolk, 1984, p. x). For the most part, this recognition is the result of the emotional and behavioural problems of Vietnam veterans (Orr, Pitman, Lasko, & Herz, 1993). Increasingly the psychological impact of other traumatic events have been recognized, and studied.

Unfortunately, in our world today, there is no lack of traumatic events. The "nightly news" has made us witness to the devastating impact of weather disasters, other natural and man-made disasters, transportation disasters, and senseless murders. As well, everyday, countless more are victimized who do not receive such media attention. Rape, incest, battering, other criminal assaults, serious accidents, and the diagnosis of life-threatening illness are all too common.

The psychological aftermath of traumatic events can be considerable. The American Psychiatric Association (APA)

outlined some of the effects in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; APA, 1980), when it officially added the syndrome of posttraumatic stress disorder (PTSD) to its nosology. The diagnostic criteria used to define this disorder clustered into four categories. The first criterion included the stressor event itself. Symptomatic categories reflected reexperiencing phenomena, numbing of responsiveness or reduced involvement in the outside world, and a miscellaneous category reflecting a variety of autonomic, dysphoric, and cognitive symptoms. The revised edition (DSM-III-R, APA, 1987) expanded the definition of a stressor, increased the total number of possible symptoms, and reorganized some of the symptom subsets. As a core symptom, guilt was dropped while irritability, psychogenic amnesia, and a sense of foreshortened future were added (Davidson & Foa, 1991b). The number of avoidance symptoms required for the diagnosis was increased from one to three.

In addition to the core symptoms of PTSD, associated symptoms of anxiety and depression are common (APA, 1987). As well, angry, aggressive, and acting out behaviours may occur. It is the latter that is of interest in the present research, in particular the relationship between PTSD and conduct disorder in adolescent youth.

The first section of this chapter describes PTSD as defined in the DSM-III-R[1]. This is followed by a section devoted to PTSD in children and adolescents. A third section addresses the problem of missed diagnosis or "underdiagnosis". A fourth section describes conduct disorder (CD), including a brief synopsis of its relationship to attention deficit hyperactivity disorder (ADHD). The final sections propose a link between PTSD and CD, followed by a synopsis of the current investigation.

## Posttraumatic Stress Disorder: Definition and Diagnosis

In the DSM-III-R (APA, 1987), PTSD is described as a constellation of characteristic symptoms that develop in response to the occurrence of a stressor or traumatic event "outside the range of usual human experience, and which would be markedly distressing to almost anyone" (p. 250)[2]. The DSM-III-R criteria do not specify the stressor or event but natural disasters (e.g., floods), accidental disasters (e.g., car accidents with physical

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[1]When the present study was conceptualized and when data were collected, the DSM-III-R (APA, 1987) was the psychiatric nosology widely in use. Its successor, the DSM-IV (APA, 1994) has now been published. That edition (i.e., the DSM-IV) was first printed in May of 1994, however, it is only now, in the Fall of 1994, that it has begun to be used consistently.

[2]The DSM-IV (APA, 1994) criteria for PTSD clarified and expanded the definition of a stressor. In the DSM-IV, the stressor is defined in two parts: (1) exposure to a traumatic event in which the individual "experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others" (p. 427); and (2) their response to that event "involved intense fear, helplessness, or horror" (p. 428).

injury), and torture qualify. The most common traumata involve either serious threat to one's life, physical integrity, family or close friends; sudden destruction of one's home or community; or witnessing another seriously injured or killed as a result of an accident or physical violence. The DSM-III-R criteria exclude "common" traumata such as simple bereavement, chronic illness, business losses, and marital conflict, although several authors suggest that this may be unjustified (Breslau & Davis, 1987; Davidson & Foa, 1991a; Raifman, 1983; Robins, 1990; Solomon & Canino, 1990). Some argue that the subjective experience of the stressor may be more critical than its unusualness (Breslau & Davis, 1987; Davidson & Foa, 1991a; Horowitz, Weiss, & Marmar, 1987; e.g., death of a pet). It is also important to note that individuals may be traumatized by events at which they are not actually present (Saigh, 1991) and by events they perpetrate themselves (Yager, Laufer, & Gallops, 1984; Yehuda, Southwick, & Giller, 1992). Thus, a wide range of events can potentially lead to the disorder.

To meet diagnostic criteria for PTSD as defined by the DSM-III-R, in addition to the stressor criterion (Criterion A), an individual must experience a variety of symptoms which are posited to result from exposure to this stressor. These symptoms are listed in Table 1 and cluster into three distinct types: (1) four symptoms relating to reexperiencing the trauma (Criterion B); (2) seven symptoms relating to avoidance of stimuli associated with

Table 1

DSM-III-R Diagnostic Criteria for Posttraumatic Stress Disorder.

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A. The experience of an event that is outside the range of usual human experience and that would be markedly distressing to almost anyone.

B. The traumatic event is persistently reexperienced in a least one of the following ways:
   1. recurrent and intrusive distressing recollections of the event (in young children, repetitive play in which themes or aspects of the trauma are expressed)
   2. recurrent distressing dreams of the event
   3. sudden acting or feeling as if the event were recurring (including flashback episodes)
   4. intense psychological distress at exposure to events that symbolize or resemble an aspect of the traumatic event, including anniversaries of the trauma

C. Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:
   1. efforts to avoid thoughts or feelings associated with the trauma
   2. efforts to avoid activities or situations that arouse recollections of the trauma
   3. inability to recall an important aspect of the trauma (psychogenic amnesia)
   4. markedly diminished interest in significant activities (in young children, the loss of recently acquired developmental skills)
   5. feeling of detachment or estrangement from others
   6. restricted range of affect
   7. sense of foreshortened future

D. Persistent symptoms of increased arousal (not present before the truama), as indicated by at least two of the following:
   1. difficulty falling or staying asleep
   2. irritability or outbursts of anger
   3. difficulty concentrating
   4. hypervigilance
   5. exaggerated startle response
   6. physiologic reactivity upon exposure to events that symbolize/resemble an aspect of the traumatic event

E. Duration of symptoms of at least one month.

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Note. From the DSM-III-R (APA, 1987, pp. 250 - 251).

the trauma or general numbing of responsiveness (Criterion C); and (3) six symptoms of persistent increased arousal (Criterion D). To qualify for the diagnosis, an individual must evidence at least one reexperiencing, three avoidance, and two arousal symptoms. These associated symptoms must also last at least one month (Criterion E)[3].

Reexperiencing is the hallmark of PTSD and the chief symptom that distinguishes it from other psychiatric disorders (March, 1990). Reexperiencing can occur in any sensory mode (Brett & Ostroff, 1985; Pynoos & Eth, 1984), although it is most commonly experienced through intrusive thoughts and/or images during wakefulness and/or as nightmares during sleep (e.g., Fitzpatrick & Boldizar, 1993; Realmuto et al., 1992). Although rare, flashbacks and other dissociative phenomena may also occur in which the individual actually acts or feels as if the event is recurring (APA, 1987). Intense psychological distress is experienced at events which remind one of, or symbolize the event. Reexperiencing phenomena are believed to be attempts to process and resolve the event or relive and master the feelings caused by

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[3]In the DSM-IV (APA, 1994), physiological reactivity in response to exposure to events that resemble or symbolize the traumatic event was moved from the hyperarousal (Criterion D) cluster of symptoms to the re-experiencing (Criterion B) cluster. The duration of the disorder (Criterion E) now specifies that the disturbance must persist more than one month. A new criterion (Criterion F) was added to the DSM-IV and specifies that the disorder must cause "clinically significant distress or impairment in social, occupational, or other important areas of functioning" (p. 429).

the event (Green, 1985; Horowitz, 1986). Often the individual feels compelled to repeat or re-create the trauma or some aspect of it in literal or disguised form (Green, 1985; Herman, 1992b). Freud called this recreation the repetition compulsion.

Avoidance symptoms include efforts to avoid stimuli associated with the traumatic event or a general numbing of responsiveness. The individual may make deliberate attempts to avoid thoughts or feelings associated with the event or activities or situations that remind him/her of the event. In severe cases, there may be psychogenic amnesia for the event or some of its aspects. An individual may also complain of reduced interest in usual activities, restricted affect, and feelings of detachment or estrangement from others. There may be a sense of danger or foreshortened future. Avoidance symptoms are believed to ward off intrusive phenomena (Green, 1985; Horowitz, 1986); however if severely "numbed," the individual may relinquish all initiative (Herman, 1992b). Avoidance symptoms are typically more prominent when the disorder is severe (Pynoos et al., 1987) or chronic (Breslau & Davis, 1992).

Persistent increased arousal is characterized by sleep difficulties and startle reactions. The individual may complain of difficulty concentrating while at the same time be in a constant state of hypervigilance. Some report changes in aggression ranging from increased irritability to unpredictable explosions of anger

and violence. Intense physiologic reactivity occurs in response to events that resemble the traumatic event.

Associated symptoms of anxiety and depression are common (APA, 1987). Impulsive or unpredictable behaviour can occur. Psychoactive substance use disorders are frequent complications. "Psychic numbing" and phobic avoidance of activities or situations may interfere with interpersonal relationships or result in occupational or recreational impairment. Emotional lability and depression may result in self-defeating behaviour and/or suicidal actions.

The DSM-III-R indicates that symptoms associated with PTSD "usually begin immediately or soon after the trauma... but may develop after a latency period of months or years" (APA, 1987, p. 249). If symptoms continue for more than three months, the risk for a chronic course increases significantly (McFarlane, 1988; Solomon, Mikulineer, & Habershairn, 1990, cited in McFarlane, 1991). Furthermore, once the disorder has become chronic, it rarely exists as an isolated disorder (e.g., Davidson & Foa, 1991a).

Some studies indicate that preexisting psychopathological conditions, personality traits (e.g. Schnurr, Friedman, & Rosenberg, 1993), and environmental conditions (e.g., Emery, Emery, Shama, Quiana, & Jassani, 1991) can predispose one to the development of PTSD. Evidence comes from both military samples

(e.g., Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Rabinowitz, Margalit, Mark, Solomon, & Bleich, 1990; Schnurr et al., 1993) and community samples (Breslau, Davis, Andreski, & Perterson, 1991; Helzer, Robins, & McEvoy, 1987; Schwarz & Kowalski, 1992). However, other studies have not found such a relationship (Fontana & Rosenheck, 1993; Foy, Sipprelle, Ruegar, & Carroll, 1984; McCranie, Hyer, Boudewyns, & Woods, 1992; Resnick, Foy, Donahoe, & Miller, 1986; Watson, Kucala, Manifold, Juba, & Vassar, 1988; Watson, Kucala, Manifold, & Vassar, 1989), suggesting that the relationship between preexisting conditions and the development of PTSD has not been reliably established (Emery et al., 1991; for reviews see Fontana & Rosenheck, 1993; Watson et al., 1989). The disorder can and does develop in people without any such preexisting conditions (e.g., Gellers, Foy, Donahoe, & Goldfarb, 1988), particularly if the stressor severity is extreme (APA, 1987; Sutker, Uddo-Crane, & Allain, 1991). In a review of empirical literature, March (1990) concluded that few factors other than traumatic stressors increase the risk of PTSD. PTSD is most likely to arise following events that are sudden and unpredictable, life-threatening, and involve human design (March, 1990), with the likelihood and severity of PTSD increasing as a function of the severity or intensity of the stressor (March, 1990; Shore, Tatum, & Vollmer, 1986). Personal characteristics and environmental factors may be more important at lower levels of exposure (Breslau & Davis, 1987; Green, Lindy, & Grace, 1985; McCranie et al., 1992).

PTSD prevalence rates vary and are likely the result of exposure to differing events, exposure to traumatic events differing in intensity, and differences in the victims themselves. In a community sample, Helzer et al. (1987) estimated the prevalence rate of PTSD to be 1%. In a sample of 1007 randomly selected 21 - 30 year old members of a health organization in Detroit, Breslau et al. (1991) found an overall prevalence rate of 9.2%. The lifetime prevalence of exposure to traumatic events was 31.9% and the rate of PTSD in those exposed was 23.6%. In a general outpatient sample unselected for sex, diagnosis, or type of trauma, Davidson and Smith (1990) found that 81.5% of their sample had a positive history for at least one traumatic event and of those traumatized, 22.2% met the criteria for past or current PTSD. Another 9.2% met criteria for past or current PTS symptoms, for a total of 34.4% with a history of either past or current symptoms of PTSD.

## PTSD in Childhood and Adolescence

The DSM-III-R indicates that the disorder can occur at any age. However, most of what we know about PTSD has been derived from studies of adult trauma victims, most notably victims of war. There have been few studies of children and even fewer of adolescents. As such, much less is known about the presentation of PTSD in children and adolescents than its adult counterpart.

However, Levy (1945, cited in Pynoos et al., 1987) "suggested that children exhibit traumatic responses similar to those of adults" (p. 1057). The DSM-III-R appears to have adopted this view, although it qualifies some age-specific features, largely as a result of the work of Lenore Terr (Lyons, 1987; McNally, 1991; Vogel & Vernberg, 1993). Perhaps the most important distinction suggested is a marked change in orientation toward the future (i.e., sense of foreshortened future) in which children and adolescents have diminished expectations of living a normal lifespan, marrying, having children and a career (Terr, 1983). Other age-specific features do not necessarily represent different symptoms but rather different ways of expressing them. For example, numbing may be expressed in children by the child being less verbal than he/she was prior to a traumatic event (Frederick, 1985). Reliving experiences may be expressed in traumatic play or behavioural reenactments (Terr, 1983, 1985, 1991), and distressing dreams of the event may, after a few weeks, evolve into more generalized nightmares of monsters, for example (APA, 1987), or dreams with themes of death (Terr, 1983, 1985). Other symptoms may be difficult for children to report (e.g., constriction of affect and diminished interest in significant activities).

Increasing attention has been paid to trauma and PTSD in children and youth in the past decade (e.g., Eth & Pynoos, 1985; Lyons, 1987; McNally, 1991; Terr, 1991; Udwin, 1993; Vogel & Vernberg, 1993). It is now well established that children and adolescents exhibit PTSD and in a similar form as that seen in

adults. In recent reviews evaluating the DSM-III and DSM-III-R criteria among children, McNally (1991) noted that most of the currently listed symptoms of PTSD were reported both frequently and consistently. Pynoos et al. (1987), examining the factor structure and internal consistency of the DSM-III criteria in children, found three factors consistent with the listed criteria. These included a combination of intrusive reexperiencing and avoidance features; a factor of fear and generalized anxiety; and a factor of impaired concentration, sleep, and nightmares.

High rates of PTSD have been observed in children and adolescents exposed to natural disaster (Frederick, 1985; Lonigan, Shannon, Finch, Daugherty, & Taylor, 1991), man-made disaster (Frederick, 1985; Green et al., 1991; Handford et al., 1986), war-related trauma (Arroyo & Eth, 1985; Kinzie, Sack, Angell, Manson, & Rath, 1986; Realmuto et al., 1992; Sack et al., 1993; Saigh, 1991; Snodgrass et al., 1993), violent crime (Malmquist 1986; Nader, Pynoos, Fairbanks, & Frederick, 1990; Pynoos & Eth, 1984, 1985; Pynoos et al., 1987; Pynoos & Nader, 1988; Schwarz & Kowalski, 1991; Terr, 1979;), medical-related trauma (Nir, 1985; Stoddard, Norman, Murphy & Beardslee 1989), child physical abuse (Adam, Everett, & O'Neil, 1992; Frederick, 1985; Green, 1985; Kiser, Heston, Millsap, & Pruitt, 1991), child sexual abuse (Adam et al., 1992; Deblinger, McLeer, Atkins, Ralphe, & Foa, 1989; Frederick, 1985; Kiser et al., 1988; McLeer, Deblinger, Atkins, Foa, & Ralphe, 1988; McLeer, Deblinger, Henry, & Orvaschel, 1992; Rowan & Foy, 1993; Wolfe, Gentile, &

Wolfe, 1989), and transportation disasters (Milgram, Toubiana, Klingman, Raviv, & Goldstein, 1988; Yule 1992; Yule & Udwin, 1991; Yule & Williams, 1990). In some studies of children who witnessed parental sexual assault (Pynoos & Nader, 1988) or parental murder (Malmquist, 1986) all children were classified as having PTSD. These research reports confirm that children are exposed to traumatic events and develop psychological symptoms of distress as a result.

Exposure to violence is most likely to trigger PTSD in children (Frederick, 1985; McNally, 1993, cited in Vogel & Vernberg, 1993). Although there is some indication that the overall functioning of the parents and the atmosphere in the home (i.e., irritable) are related to the number of symptoms, particularly in adolescents (Green et al., 1991; McFarlane, 1987b), like their adult counterparts, there appears to be a "dose-response effect" whereby level of exposure is related to the likelihood and severity of symptoms (Fitzpatrick & Boldizar, 1993; Lonigan et al., 1991; Nader et al., 1990; Pynoos et al., 1987; Realmuto et al., 1992). As well, if the child is above school age, the psychological sequelae tends to be more severe (Frederick, 1985; for reviews of age differences in response to various disasters see Green et al., 1991; Lyons, 1987; Vogel & Vernberg, 1993), possibly because they are more likely to be more fully aware of the circumstances surrounding traumatic events (Frederick, 1985). Furthermore, although symptoms of anxiety and depression tend to abate (Sack et al., 1993; Shore et al., 1986),

both clinical descriptive (e.g., Terr, 1983, 1985, 1991) and more systematic studies (Kinzie, Sack, Angell, & Clark, 1989; McFarlane, 1987a; 1987b; Nader et al., 1990; Sack et al., 1993; Yule & Williams, 1990) have demonstrated that symptoms of PTSD in children persist, with symptoms still prominent in some, 8 to 12 years post trauma exposure (Kinzie et al., 1989; Realmuto et al., 1992; Sack et al., 1993).

To this author's knowledge, there has not been any epidemiological research on PTSD in the general population of children and adolescents. Most studies have used samples of children or adolescents with known trauma and most studies have examined only one type of trauma. However, the incidence of PTSD in children and adolescents tends to be higher than that observed in adults. Frederick (1985) surveyed the incidence of PTSD in children (18 years and under) experiencing different traumas (disasters, child molestation, and physical abuse) and observed a rate of PTSD of 77% compared to 57% in adults. Similarly, Khamis (1993) found the prevalence of PTSD to be higher among adolescents injured in the Intifada than among adults.

Furthermore, children and adolescents appear to be victimized more than are adults. In a review of several national surveys in the United States, Finkelhor & Dziuba-Leatherman (1994) found that children and adolescents suffer more conventional crimes and family violence, as well as some forms of

victimization unique to children (e.g., family abduction, sibling assault). For example, adolescents are assaulted, raped, and robbed at rates two to three times higher than adults. Therefore, combined with the recognition that physical and sexual abuse can produce PTSD, a large proportion of children probably experience traumatic events that could potentially lead to the development of PTSD (Lyons, 1987; McLeer et al., 1992). Thus, the rate of PTSD in the general population of children could be quite high.

Despite the similarities between adult and childhood PTSD however, PTSD has only recently been recognized as an important diagnosis to consider when evaluating child and adolescent psychiatric patients (McLeer et al., 1988). As such, the existence of PTSD in many children may have gone unrecognized. For example, Deblinger and her associates (Deblinger et al., 1989), in a retrospective study of 87 sexually abused, physically abused, and nonabused psychiatrically hospitalized children, found that while only three subjects had been diagnosed with PTSD on their units, 33 met the diagnostic criteria for PTSD. The vast majority received one or more of the following diagnoses: adjustment disorder, conduct disorder, oppositional disorder, depression and/or attention deficit disorder with hyperactivity. Similarly, Doyle and Bauer (1989), in a sample of emotionally disturbed youth in a group home, found that, upon reassessment, 10 youths could be diagnosed with PTSD but only one had been previously diagnosed as such. Krener (1985), in a review of 22 cases of treated incest victims, found that while most were diagnosed with

adjustment disorder, several actually met diagnostic criteria for PTSD. Similar findings have emerged in studies of adults (e.g., Craine, Hensen, Colliver, & MacLean, 1988; Kinzie et al., 1990). These studies suggest that many children with PTSD are inadequately assessed and, unless specifically evaluated for PTSD, a diagnosis of PTSD may be missed.

The consequences of a missed diagnosis could have very serious and life long consequences. Because PTSD tends to persist in children (e.g., Terr, 1991), and be associated with a variety of emotional and behavioural problems, the disorder could affect a child's development in several domains (McLeer et al., 1988). Deleterious effects have been documented on children's interpersonal relationships, mood, memory, learning, and impulse control, as well as a host of other behaviours (for reviews see Armsworth & Holaday, 1993; Udwin, 1993; Vogel & Vernberg, 1993). Perhaps most important, however, it is apparent that the "missed diagnosis" or misdiagnosis of PTSD will have important treatment implications. "Inappropriate treatment,...[may be] given, if any at all" (Frederick, 1985, p. 89).

## The "Missed Diagnosis" of PTSD

A number of factors impede the detection of both traumatic events and PTSD. These factors relate to the children and their parents, diagnostic assessment practices, as well as problems associated with PTSD, including diagnostic overlap with other

clinical phenomena, high rates of comorbidity, increased aggression and criminal activity, and characterological change.

*Parent/Teacher and Child Factors*

It is well reported that both parents and teachers often underestimate their children's suffering or deny the impact of distressing or traumatic events (Breton, Valla & Lambert, 1993; Burke, Borus, Burns, Millstein, & Beasley, 1982; Burke, Moccia, Borus, & Burns, 1986; Earles, Smith, Reich, & Jung, 1988; Handford et al., 1986; McFarlane, 1987a, 1987b; McNally, 1991; Terr, 1983; Yule & Williams, 1990). As well, parental unfamiliarity with PTSD symptoms may mean that parents also misinterpret symptoms, for example, misconstruing avoidance symptoms or "numbed silence" as stoic behaviour (McNally, 1991). Therefore, a child may not come to the attention of mental health professionals.

Children and adolescents, too, may not talk with their parents and others about their distress, possibly out of fear of upsetting them (Green, 1985; Yule & Williams, 1990), possibly out of fear of being perceived as psychologically "weak" (Everstein & Everstein, 1993; Powers & Eckenrode, 1988), or quite possibly because they find it difficult to describe their emotional states (Frederick, 1985; Green et al., 1991). The fact that children also often do not report traumatic events (Cavaiola, & Schiff, 1988; Powers & Eckenrode, 1988) further contributes to the potential for

underdiagnosis. Indeed, several authors have suggested that if one does not specifically ask about traumatization, it will most likely not be mentioned by the victim, and consequently, the diagnosis of PTSD will be missed (Carlson & Rosser-Hogan, 1991; Davidson & Smith, 1990; Kinzie et al., 1990; McFarlane, 1991; McLeer et al., 1988; Perry, Difede, Musngi, Frances, & Jacobsberg, 1992; Rose, Peabody, & Statigeas, 1991).

*Assessment Strategies*

Even if brought to the attention of health care providers, a diagnosis may be missed. For example, Yule and Williams (1990) point out that symptoms may be missed because of the inability of commonly-used screening instruments or general questionnaires to capture the disorder. Adam and his associates (Adam et al.,1992) made similar observations. Furthermore, even if some symptoms are picked up, others, even in adults, are difficult to assess (Green et al., 1991). Avoidance symptoms, for example, may impede their detection (Epstein, 1993) and psychogenic amnesia, by definition, is difficult to assess. Failure on the part of clinicians to both appreciate the potential impact of traumatic events and to recognize PTSD symptoms further contribute to the potential for a missed diagnosis (Benedek, 1985; Goodwin, 1985; Kinzie et al., 1990; Krystal, 1984). Lyons (1987) suggests that the primary emphasis in making a determination of PTSD should be based upon the results of a diagnostic interview but, if some

symptoms are difficult to report, and others difficult to recognize or assess, the disorder may still be missed.

*Diagnostic Overlap*

The diagnostic overlap between PTSD and other clinical phenomena and disorders is considerable and may contribute to the problem of missed diagnosis or misdiagnosis. Like the other anxiety disorders, PTSD is characterized by the presence of fear and avoidance, and symptomatically, it has much in common with panic disorder, phobic anxiety, generalized anxiety disorder, and obsessive-compulsive disorder (Davidson & Foa, 1991a; Jones & Barlow, 1990; Mellman & Davis, 1985). The primary distinction between PTSD and the other anxiety disorders appears to be in the phenomenon of reexperiencing and in the existence of a recognizable external stressor that would be "distressing to almost anyone" (Breslau & Davis, 1987).

In addition to the anxiety disorders, symptoms associated with PTSD also overlap with other Axis I and Axis II disorders (see Davidson & Foa, 1991a). PTSD shares characteristics with dissociation in that dissociative symptoms are common after acute trauma and, to some extent, persist as an important part of chronic PTSD in the form of psychogenic amnesia or flashbacks (Bremner et al., 1992; Carlson & Rosser-Hogan, 1991; Davidson, Kudler, Saunders, & Smith, 1989). The numbing and associated symptoms of PTSD also resemble symptoms seen in major depressive disorder

in that there is loss of interest in usual activities, sleep disturbance, cognitive dysfunction, and possibly guilt in both (Green et al., 1985). In addition, the extreme negative symptoms of schizophrenia may resemble the avoidance and withdrawal seen in PTSD (Stampfer, 1990) and the intrusive images of PTSD may resemble hallucinations (Green et al., 1985). With respect to Axis II disorders, reenactments may resemble acting out behaviours seen in personality disorders (Green et al., 1985; Lindy, Grace, & Green, 1984). Schizotypal disorders are characterized by estrangement and alienation, paranoid disorder by suspiciousness and distrust, borderline personality disorder by episodes of explosive behaviour (Lindy et al., 1984), and antisocial personality disorder by recklessness, irritability, and aggression (APA, 1987). In particular, PTSD appears to have a relationship with antisocial personality disorder (Barnard, Hankins, & Robbins, 1992; Glover, 1992; Green et al., 1985; Hodge, 1992) and borderline personality disorder (Earl, 1991; Herman, Perry, & van der Kolk, 1989; Landecker, 1992; Lindy et al., 1984; Ogata, Silk, & Goodrick, 1990).

*Comorbidity*

In addition to symptom overlap, recent reports have also suggested that individuals who meet the diagnostic criteria for PTSD also seem to meet criteria for a number of other DSM-III-R disorders. For example, in clinical studies of veterans with PTSD, the vast majority, when questioned, recount symptoms of multiple

psychiatric disorders. The most frequently reported include alcoholism and other substance abuse disorders, antisocial personality disorder, and life time history of major depression (see Keane & Wolfe, 1990, for a review; McFarlane, 1992; Sierles, Chen, McFarland, & Taylor, 1983). Comorbid social phobia (Escobar et al., 1983), somatization disorder (Sierles et al., 1983), and avoidant and passive-aggressive personality disorders (Sherwood, Funari, & Piekarski, 1990) also have been reported. In fact, Sierles et al. (1983) found that, in their sample of 25 combat veterans hospitalized for treatment of PTSD, in only four was the diagnosis of PTSD the sole diagnosis. Similar findings are emerging in populations of nonveterans (e.g., Helzer et al., 1987; Kilpatrick, Saunders, Veronen, Best, & Von, 1987).

In children and adolescents, high rates of comorbidity have also been observed. For example, Doyle & Bauer (1989) found that PTSD was the sole diagnosis for only two of ten traumatized youths. Seven had dual diagnoses on Axis I and one had three diagnoses on Axis I. Additional diagnoses included conduct disorder, depression, and attention deficit hyperactivity disorder (ADHD). Thus, the diagnosis of one disorder could preclude the diagnosis of another, especially if a heirarchical decision tree is used. However, the diagnosis of one disorder could mask the diagnosis of another.

*Course of the Disorder*

A diagnosis of PTSD may be missed due to the course of the disorder. Several authors (e.g., van der Kolk & Ducey, 1984) have observed that individuals with chronic PTSD "continue to live in the emotional environment of the traumatic event, with ... [persistent] perceptual heightening of stimuli signalling threat" (van der Kolk & Ducey, 1984, p. 30). Although individuals exposed to traumatic events also react to these events with the adoption of a new style of adaptation characterized by a restriction of affective involvement with the environment (i.e., emotional withdrawal), because their autonomic nervous system continues to react to some stimuli as if there were a continuation of threat, this activation also leads to anxiety, irritability, and preparedness for "fight or flight."

Green (1985) made similar observations with respect to children. He noted that once a child has been exposed to an overwhelming or traumatic event, they live in constant fear of its recurrence. In a state of hypervigilance, they are extremely sensitive to external events that symbolize or resemble the trauma. These "traumatic signals" can reactivate old feelings associated with the traumatic event (e.g., helplessness, anxiety, and panic), thereby initiating defensive activity, or a readiness for "fight or flight." Anniversaries of traumatic events and environmental events (e.g., smells, noises, climatic conditions) that remind the individual of traumatic experience(s) may also serve as triggers

(Horowitz, 1976), as may constellations of affect and object relations (Lindy and Titchener, 1983). Thus, there may be periods of quiescence, periods of intrusion and an exacerbation of symptoms or "fight or flight," and periods of numbing (Horowitz, 1976, 1986). Depending upon the stage of the disorder, a diagnosis easily could be missed.

Diagnosticians may miss symptoms depending on whether an individual presents with acute or chronic PTSD. For example, Famularo, Kinscherff, and Fenton (1990) examined the symptom profiles of 24 children diagnosed according to the DSM-III criteria with PTSD secondary to experiences of "severe maltreatment" (i.e., physical or sexual abuse, or both). He and his associates found that children with an acute form (duration < 4 months) of PTSD presented more frequently with spontaneous acting as though the trauma were recurring upon real or symbolic re-exposure, difficulty falling asleep, nightmares, hypervigilence, exaggerated startle response, and generalized anxiety/agitation. On the other hand, children presenting with a chronic form (symptoms persisting continuously at least 8 months) reported more symptoms of detachment, restricted range of affect, thoughts that life will be too hard, dissociative episodes, and sadness. Famularo et al. interpreted their findings by suggesting that, although the differences between these two subtypes were only quantitative (vs. qualitative), the symptom profile of the acute form in childhood is most consistent with heightened anxiety/agitation, whereas the

chronic type is characterized more by depression and/or detachment.

*Related Problems*

Problems with diagnosis may also be related to problems associated with PTSD that mask the disorder. The DSM-III-R notes that symptoms of anxiety and depression frequently accompany the disorder and that impairment may be either mild or severe and affect many aspects of life. The disorder also carries risks of a chronic course; increased morbidity, mortality, physical and psychiatric disturbances; and impairment in interpersonal and occupational function (Davidson & Foa, 1991a). For example, in chronic combat-related PTSD, symptoms of anxiety, anger, hostility, marital distress/instability, divorce, depression, irritability, impulsivity, alcohol abuse, unemployment, suicidal thoughts, and suicidal actions have been described, along with the core PTSD diagnostic symptoms (Foy, Donahoe, Carroll, Gallers, and Reno, 1987; Hyer et al., 1986; Solursh, 1989). Studies have suggested a similar relationship in children (e.g., Green et al., 1991; Wolfe et al., 1989).

Studies of child victims of both recognizable stressors and physical and sexual abuse indicate that a diagnosis of PTSD is accompanied by a broad range of psychological disturbance, with a substantial number exhibiting both internalizing and externalizing behaviour disorders (Frederick, 1985; Friedrich, Urquiza, &

Beilke, 1986; Saigh, 1989, 1991; Wolfe et al., 1989). Symptoms commonly reported include anxiety and fear, somatic complaints, intrusive thoughts and images, guilt and depression, suicidal ideation and gestures, problems in sexual and interpersonal adjustment, learning and behaviour problems associated with distractibility and hyperarousal (for reviews see Armsworth & Holaday, 1993; Green et al., 1991; Lipovsky, 1991; McNally, 1991; Udwin, 1993; Vogel & Vernberg, 1993), avoidant or dissociative symptoms (Deblinger et al., 1989; Famularo et al.,1990), and increased irritability and aggressive acting out behaviours (Friedrick & Luecke, 1988; Goodwin, 1985, 1988; Green, 1985; Kiser et al., 1988, McLeer et al., 1988; Terr, 1991). In fact, McLeer et al. (1988), in their review, noted that "the overlap between symptoms of behavioural undercontrol (externalized) and overcontrol (internalized) can be considerable, with many children manifesting a mixed symptom picture" (p. 650). These same symptoms may be part of what we currently classify as other disorders.

The internalizing and externalizing behaviour problems appear to be related to PTSD. In a series of studies of Lebanese children and adolescents exposed to war-related trauma, Saigh (1989, 1991) found that subjects with PTSD scored higher than both non-clinical and clinical controls on measures of anxiety, depression, and misconduct. McLeer et al. (1988), in a sample of sexually abused children, found that while scores on self-reports of depression, anxiety, and self-esteem did not differ significantly

in this clinical population, children meeting criteria for PTSD exhibited significantly more disturbed profiles than nonPTSD subjects on both the internalizing and externalizing scales of the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983). In a larger prospective study, she and her associates (McLeer et al., 1992) replicated these findings. Thirty-three percent of the sexually abused children and adolescents had T-scores on the CBCL greater than 70 on the internalizing scale and 28.4% had T-scores greater than 70 on the externalizing scale. These scores were significantly different from non-clinical populations and, for boys, on the externalizing scale, mean scores were also significantly different (i.e., higher) than clinical populations. The authors pointed out that with respect to the latter, this is "indicative of the severity of symptomatology in PTSD and underscores how behaviourally disruptive the disorder is, particularly among boys" (p. 877).

*Aggression and Criminal Behaviour*

The DSM-III-R (APA, 1987) also indicates that individuals diagnosed with PTSD often report higher levels of aggression than in their premorbid state. This change in aggression may range from mild (e.g., irritability) to severe (e.g., unprovoked outbursts of anger or violence). Although a tendency to act in an aggressive or violent manner is not explicitly defined as a criterion for a PTSD diagnosis, the "implication is that those with PTSD may be at

greater risk to act violently" (Collins & Bailey, p. 204), particularly if they are male.

Research in the area of aggressive and violent behaviours as they relate to PTSD has focused predominantly on combat veterans. Several studies agree that there may be some combat-specific relationship between PTSD and subsequent aggression and violence (e.g., Escobar et al., 1983; McFall, MacKay, & Donovan, 1991; Wilson &. Zigelbaum, 1983; Yager et al., 1984; cf. Boman, 1986; Shaw, Churchill, Noyes, & Loeffelholz, 1987). For example, Wilson and Zigelbaum (1983), in a sample of 114 Vietnam veterans, found that violent criminal acts (primarily assault) were positively associated with the severity of PTSD and the intensity and duration of combat experience. Significantly, they found no relationship between criminal behaviour and premorbid antisocial personality traits.

Similar results are emerging in samples of nonveterans (e.g., Collins & Baily, 1990; Steketee & Foa, 1987; Stratton, Parker, & Snibbe, 1984). For example, Collins and Bailey (1990), in a sample of 1140 males recently imprisoned in North Carolina, found that those diagnosed as suffering from PTSD (2.3%) were 4.6 times more likely than non-PTSD subjects to be currently incarcerated for homicide, rape, or assault and 6.7 times more likely to have had an arrest for a violent offense in the year previous to their incarceration, even when demographic variables, antisocial personality, and problem drinking were controlled.

Importantly, most of these subjects did not develop PTSD from combat-related stressor events. Furthermore, in an attempt to determine causal ordering, they found that, of those who reported one or more symptoms of PTSD and who had at least one arrest for a violent offense, 85% reported their first symptom of PTSD occurred in the same, or preceeding, year of their arrest. These authors suggested that their findings support the hypothesis that PTSD may be causally linked to the occurrence of violence.

Little is known about the aggressive proclivities associated with child and adolescent PTSD. Burke et al. (1982) followed a sample of 64 children who, as part of a school program, had been assessed six months prior to a natural disaster (severe winter storm and subsequent flood in Revere, Mass.) and again six months after the storm. Based upon the Conners Parent Questionnaire, Burke et al. found post-disaster significant increases on an aggressive conduct subscale (composed of items such as "bullying," "mean," "fights constantly," "picks on other children"), an externalizing behaviour composite score (consisting of both the aggresive conduct subscale and an impulsive-hyperactive subscale), and an antisocial subscale (composed of items such as "stealing from parents," and "stealing from school"). Although boys also evidenced a significant increase on the anxiety subscale, PTSD symptomatology was not assessed. Similarly, Adams and Adams (1984), using community-based statistical information, found a 2.4% increase in juvenile criminal "bookings," a 10% increase in charges of disorderly conduct, and

a 23.7% increase in vandalism/malicious mischief seven months after the Mount St. Helens volcano disaster. Again, however, PTSD symptomatology was not assessed.

This author is not aware of any study that has specifically addressed aggression and violence in samples of children or youth with PTSD. Saigh (1989, 1991) found higher levels of misconduct in samples of children and youth exposed to war-related trauma and suffering PTSD compared to controls but did not specifically address aggression. Kiser et al. (1988), using the CBCL, found that parents expressed significant concerns about aggression in their young sexually abused boys with PTSD but did not specifically assess aggression and their sample was very small (N = 10; 5 boys and 5 girls). Other reports give only clinical accounts of disruptive, aggressive, and defiant behaviours (Doyle & Bauer, 1989; Goodwin, 1985; Pynoos & Eth, 1985; Terr, 1985; Yule & Williams, 1990). For example, Doyle & Bauer (1989) noted physical and verbal aggression and property destruction in a sample of adolescents who had been traumatized by physical, sexual, and/or emotional abuse, neglect, abandonment, and/or the witnessing of violence. Terr (1985) told of a once-friendly boy who began to pick fights with other children and argue with his mother after having been kidnapped.

However, an association between childhood neglect and abuse with aggressive, antisocial, and criminal behaviour in adolescence and adulthood has been documented in numerous studies (see

Garbarino & Plantz, 1986; Paperny & Deisher, 1983; Widom, 1989b for reviews). These studies strongly suggest that, in addition to increased psychiatric morbidity, a history of traumatization increases the likelihood that an individual will become a perpetrator of crime, violence, or abuse. Evidence comes from longitudinal follow-ups (Burgess, Hartman & McCormack, 1987; McCord, 1983; Pollock et al., 1990; Widom, 1989a, 1989b) and studies of offender populations (Araji & Finkelhor, 1986, cited in Hodge, 1992; Barnard et al., 1992; Coid, 1992; Dutton & Hart, 1992; Lewis et al., 1985; Lewis et al., 1988). Specific studies also link trauma with later aggressive behaviour (Dodge, Bates, & Pettit, 1990; Friedrich & Luecke, 1988). Therefore, if a history of trauma is related to aggression, delinquency, and criminal behaviour, and trauma and PTSD are related, PTSD also may be related to aggression, delinquency, and criminal behaviour. Although evidence is emerging to support this hypothesis in samples of adults (e.g., Collins & Bailey, 1990), this author is unaware of any study that has specifically investigated this possibility in children and youth.

A relationship between trauma, PTSD, and conduct disturbances, aggression, and violence, however, is suggested in one recent study, a follow-up study of adolescents exposed to sex-ring related trauma (Burgess et al., 1987). In this study, the authors found a relationship between childhood sexual abuse, especially repeated abuse, and later drug abuse, juvenile delinquency, and criminal behaviour. Although PTSD was not

specifically investigated, the authors suggested that these victims suffered a chronic form of the disorder. PTSD-type symptoms included high levels of anxiety, fears, and intrusive thinking. In the older victims, flashbacks also were observed. With respect to their behaviour, these adolescents had difficulty in relationships, engaged in both verbal and physical fights, and disobeyed rules. They were either attention seeking or withdrawn and avoidant of others. Those who had been abused for a longer period of time and who were involved in pornography and the recruitment of other children were also significantly more aggressive, unresponsive to authority, and resistive to societal mandates for personal control. They were more likely to have trouble with the law, run away from home, steal, break and enter, deliberately destroy property, engage in physical assault without provocation, and use a weapon.

*Character Change*

Finally, research on adult individuals with PTSD indicate that in many there is significant characterological change (e.g., Krystal, 1984; Lindy & Titchener, 1983) and, in particular, that character pathology is secondary to trauma (Lindy et al., 1984; Lindy & Titchener, 1983). Furthermore, several authors, noting traumatic histories in adults with personality disorders, have suggested that personality disorders result from developmentally mediated or "complex" PTSD (e.g., Glover 1992; Herman 1992a). Although the posttraumatic personality would likely depend on the nature of the pretraumatic personality structure, the stage of ego

development at the time at which the trauma occurs, and the recovery environment, it seems that traumatic events can transform normal personalities in pathological directions (Green, 1985).

Similarly, Terr (1983, 1985, 1991), based on her extensive studies of young people exposed to trauma, suggested that there may be significant character change. In addition, she proposed an expanded list of diagnostic criteria for PTSD and differential criteria for Type I and Type II disorders depending on the nature of the trauma (Terr, 1991). Type I disorders follow single unanticipated events and Type II disorders follow longstanding or repeated traumas such as child physical or sexual abuse. According to Terr, four characteristics describe all PTSD patients (visualization, reenactment, fear, and futurelessness). However, individuals exposed to repeated trauma (Type II), attempting to cope with ongoing stresses, develop additional problems (denial or psychic numbing, rage, and depression) that may become personality styles for these patients. In Type II disorders, the more pervasive use of defense mechanisms lead to the profound character change. These defenses include "massive denial, repression, dissociation, self-anesthesia, self-hypnosis, identification with the aggressor, and aggression turned against the self" (p. 15). Associated symptoms include emotional numbing, depression and detachment from others, and rage. Emotional numbing may take the form of lack of empathy, failure to define emotions, and avoidance of intimate relationships. With respect to rage, reenactments of anger may occur so frequently that stable

patterns of aggressiveness are established. When massive denial and denial-related behaviours cluster together, the result is personality disorder. Tentative support for her proposal comes from Famularo et al. (1990), who found that detachment, restricted range of affect, and depression characterized physically and/or sexually abused children with chronic PTSD.

In summary, given these descriptions, it is possible to see how a diagnosis of PTSD may be missed. PTSD appears to masquerade as other clinical phenomena and psychiatric disorders and, depending on the prominent symptoms or behaviours displayed, or the stage of the disorder, the disorder may be missed. In fact, Terr (1991) states that "if one looks only at the clinical manifestations of trauma in a given day in the life of the traumatized child, one could diagnose conduct disorder, borderline personality, major affective disorder, attention deficit hyperactivity, phobic disorder, dissociative disorder, obsessive-compulsive disorder, panic disorder, adjustment disorder ... and not be wrong" (p. 10). However, these diagnoses miss the point that external forces created the symptoms and internal changes in the first place.

Conduct Disorder

The reports cited above suggest that, in addition to contributing to missed diagnosis, problems relating to general misconduct, acting out behaviours, aggression, and violence are

often associated with trauma and PTSD. Therefore, conduct problems and perhaps conduct disorder (CD) may be associated with trauma and PTSD.

Patterns of behaviour which have been labeled "conduct disorder" include verbally and physically aggressive behaviours and those in which the basic rights of others and societal norms or rules are violated (APA, 1987). The wide range of behaviours that comprise this category include fighting, destruction of property, truancy, lying, stealing, cruelty to both animals and people, and running away, among others. Firesetting is a rare but very dangerous symptom, and physical aggression, which is common, at later ages "may take the form of rape, assault, or, in rare cases, homicide" (APA, 1987, p. 53). The criminal behaviour of CD youth could range from shoplifting to murder. As a syndrome or constellation of symptoms distinct from isolated antisocial acts, however, CD is marked by repetitive patterns of antisocial rule-breaking and disruptive behaviours, of which at least three behaviours must be present at least six months.

Most children with conduct disorders are boys with academic and social difficulties (Jellinek & Herzog, 1988). They often come from lower SES backgrounds and are part of a family system marked by parental psychopathology (Biederman, Munir, & Knee, 1987; Lahey et al., 1988; Loeber, Lahey, & Thomas, 1991; Reeves, Werry, Elkind, & Zametkin, 1987; Schachar & Wachsmuth, 1991), aversive parenting styles (Lytton, 1990), aversive

interchanges (Dadds, Sanders, Morrison, & Rebgetz, 1992; Reid & Patterson, 1989; Sanders, Dadds, Johnston, & Cash, 1992), conflict, coercion, anger, and aggression (Dadds et al., 1992; Patterson, 1982). Many have experienced disturbed or punitive childrearing methods (Loeber & Schmaling, 1985; Lytton, 1990) or harsh, inconsistent discipline (Loeber & Dishion, 1983; Reid & Patterson, 1989). Their early histories often include parental marital discord or divorce (Reid & Patterson, 1989; Schachar & Wachsmuth, 1991), early institutional living and frequent shifting of parental figures (APA, 1987; Doyle & Bauer, 1992), domestic violence (Kruttschnitt & Dornfeld, 1993; Schachar & Wachsmuth, 1991), physical abuse (Coons, 1986; Kazdin, 1987a), neglect (Loeber et al. 1991), and rejection (Quay, Routh, & Shapiro, 1987). Thus, they often come from aversive environments and homes with significant levels of family dysfunction. The DSM-III-R (APA, 1987) lists several of these environmental and family characteristics as predisposing factors in the development of the disorder.

Conduct disorder is also a large and serious problem. It affects between 1.5% and 5.5% of the children in the general population (Costello, 1989) and is the basis for one-third to one-half of clinical referrals among children, especially when combined with aggression (Kazdin, 1987a). In addition, the social and economical costs associated with CD make it an important public health problem (Earls, 1989). The prognosis for children with conduct disorder is poor. Reviews of treatment studies of CD

have shown that successful reduction of CD symptoms is uncommon and, where reported, often is not replicated (Kazdin 1987b; Loeber & LeBlanc, 1990). Furthermore, the DSM-III-R (APA, 1987) notes such complications as "school suspension, legal difficulties, substance use disorders, venereal diseases, unwanted pregnancy, high rates of physical injury from accidents, fights (and retaliation by victims), and suicidal behaviour" (p. 54). Yeager and Lewis (1990) also found a high rate of mortality in this group, further suggesting that they are a population at risk for early unnatural death.

Moreover, conduct disorder is strongly associated with adult psychopathology. Robins (1978) reviewed follow-up studies of childhood behaviour disorders and concluded that aggressive behaviour, especially when associated with school failure, is predictive of later criminality. In addition, she found that nearly one-half of seriously antisocial children are antisocial as adults. Only those with a less aggressive, milder form tend to improve over time (Rappoport & Ismond, 1984).

Congruent with an association between conduct disorder and antisocial personality, individuals with CD, like antisocial personalities, also actively avoid boredom, enjoy novelty and thrills, and respond less well than others to punishment (Strauss & Lahey, 1984). They have poor interpersonal problem-solving skills (Kazdin, Esveldt-Dawson, French, & Unis, 1987; Patterson, 1982; Sanders et al., 1992), attribute hostile intentions to others (Dodge

et al, 1990; Dodge, Price, Barchorowski, & Newman, 1990), and fail to use verbal expressions of disagreement or verbal methods to resolve conflicts (Taylor & Harry, 1991). The DSM-III-R (APA, 1987) notes that they may engage in callous behaviour with no concern for the well being, wishes, or feelings of others. They may also lack appropriate feelings of guilt and remorse.

However, many children exhibiting conduct disorders also typically report feeling unhappy, unliked, and of being treated less fairly than others (Quay, 1979). Self-esteem is usually low, although the individual may project an image of "toughness" (APA, 1987). Poor frustration tolerance, irritability, temper outbursts, and provocative recklessness are frequent characteristics, symptoms which are remarkably similar to descriptions of people who suffer PTSD. Furthermore, while it was believed that feelings of anxiety or fear were uncommon (Quay, 1979), symptoms of anxiety and depression may in fact be quite common (APA, 1987; Geller, Chestnut, Miller, Price, & Yates, 1985; Kashani et al., 1987; Kovacs, Paulauskas, Gatsonis, & Richards, 1988; Sanders, et al., 1992; Stewart, de Blois, Meardon, & Cummings 1980). As such, while conduct disorder is defined exclusively by signs of antisocial behaviour, the diagnosis may neglect the profound emotional disturbance in these youth.

Likewise, CD is frequently associated with ADHD (Hamden-Allen, Stewart & Beeghly, 1989; Munir, Biederman, & Knee, 1987; Szatmari, Boyle, & Offord, 1989), a disorder reflecting symptoms

of inattention, impulsivity, and overactivity (APA, 1987). Like conduct disordered children and youth, individuals with ADHD frequently suffer from low self-esteem, labile mood, low frustration tolerance, temper outbursts, academic underachievement, and school failure (APA, 1987). As well, factors predisposing one to the disorder include neurological problems, disorganized or chaotic environments, and possibly child abuse or neglect. The co-occurrence of these two disorders is strongly associated with greater aggression and antisocial activity (Lahey et al., 1988; Walker, Laley, Hynd, & Frame, 1987), a more severe form of CD (Loeber & Schmaling, 1985; Moffit, 1990; Walker et al., 1987), and increased criminal or delinquent behaviour (Reznick & Freeman, 1985). In addition, children who exhibit a mixed symptom picture (of ADHD and CD) are more likely to come from broken homes, have parents with antisocial psychopathology and alcoholism (August & Stewart, 1983), and to become antisocial and alcoholic in adulthood themselves (Gittelman, Mannuzza, Shenker & Bonagura, 1985; Hechtman & Weiss, 1986; Lambert, 1988; Weiss, Hechtman, Milroy, & Perlman, 1985).

The relationship between ADHD and CD is complex and likely does not reflect a single underlying disorder. ADHD may be a risk factor for the development of CD or symptoms of ADHD may be secondary to other processes, possibly traumatic events.

Are Conduct Disorder and PTSD Related?

When a youth is labeled conduct disordered, this designation is primarily a description of external behaviours. The diagnosis does not reflect internal distress. However, Frederick (1985) suggests that conduct disturbances should alert one to the possibility of trauma and PTSD. In this regard, actions which may come to be labeled conduct disordered may constitute a form of "acting out" emotional problems.

To date no research reports have been found in the literature describing the systematic application of the PTSD formulation to a sample of CD youth. However, interest in this population has some clinical basis. By definition, PTSD requires the experience of a traumatic event as its etiologic agent. The DSM-III-R (1987) specification of CD includes a reference to harsh environmental conditions as a predisposing factor in the development of CD. Clinical support comes from the observation that CD children often come from broken homes or dysfunctional families (e.g., Reid & Paterson, 1989) and experienced harsh and/or punitive environments (e.g., Loeber & Schmaling, 1985). Thus, one may posit a social-environmental factor in both disorders, raising the question of overlapping versus differentiating features.

Clinical support also comes from the observation that CD children and youth manifest several symptoms commonly associated with PTSD. Poor frustration tolerance, impulsivity, irritability,

recklessness, temper outbursts, anger, aggression, antisocial behaviour, lack of empathy, detachment, and symptoms of anxiety and depression describe both disorders. Thus, they share several characteristics associated with a variety of internalizing and externalizing disorders, general misconduct and aggression.

Moreover, some of these same symptoms may promote CD behaviour. For example, the high levels of hostility and anger observed in sufferers of both CD (e.g., Dodge et al., 1990; Holaday, Armsworth, Swank, & Vincent, 1992) and PTSD (Hyer et al., 1986; Riggs, Dancu, Gershuny, Greenberg, & Foa, 1992; Talbert, Braswell, Albrecht, Hyer, & Boudewyns, 1993; Woolfolk & Grady, 1988) may promote behaviours that express these affects. Likewise, symptoms of estrangement or detachment from others and restricted affect (i.e., extreme avoidance symptoms) would allow for CD behaviour. With a lack of empathic or affectionate bonds with others, and little or no feelings, acts that do not consider the feelings of others and violate societal norms might be expected. Intrusive symptoms could cause one to act without intervening reflectiveness (i.e., impulsively).

Furthermore, evidence that indicates that individuals with CD exhibit a hostile attributional bias suggests that they exhibit a tendency to attribute hostile intent to acts most others would see as benign, accidental, or ambiguous (Dodge et al., 1990; Finlay-Jones, 1991). Finlay-Jones (1991) suggest that one reason for this is that they have been treated with hostility in the past and have

learned to expect it. Another possibility is that they attribute hostile intentions to others "as a post hoc justification for their own aggressive acts" (Finlay-Jones, 1991, p. 851). However, it is also possible that these children and adolescents are aggressive because they see threats around them that others do not, a symptom common to PTSD (e.g., Green, 1985). In this regard, Dodge (1990) suggested that early traumatic experiences (such as physical abuse) may lead to the development of stable patterns of autonomic overactivity ("hypervigilance") and of stable social information processing (e.g., hostile attributional bias) that then increase the risk of CD. A hostile attribution bias and the perception of threat could also account for the observations that children with peer relationship problems and aggressive behaviour replicate these behaviours across settings and with new individuals (e.g., Coie & Kupersmidt, 1983; Dodge et al., 1990).

The high rate of comorbidity between CD and ADHD also suggests a relationship. Emphasizing the topographical similarity of ADHD and PTSD suggests that they may be variants of the same condition. The behavioural symptoms that define ADHD (inattention, impulsivity, and hyperactivity) are also included in the diagnostic definition of PTSD, represented in the hyperarousal cluster of symptoms. Moreover, Kiser et al. (1991), noting that a group of physically and sexually abused children and youth with PTSD were more hyperactive than those without PTSD, suggested that symptoms such as distractability, difficulty concentrating, restlessness or impulsivity may represent visualizations, startle

responses, preoccupations about or the replaying the trauma, driven by trauma-related anxiety rather than ADHD. Finally, McLeer et al. (1992), using the Kiddie Schedule for Affective Disorders and Schizophrenia for School Age Children - Epidemiologic Version (K-SADS-E) with a subgroup of their sample of sexually abused children, found that while the predominant diagnosis was PTSD, this was followed in 33.3% by ADHD and in 25.9% by CD. With respect to the former (i.e., ADHD), they suggested that this finding was interesting because ADHD tends to be more prevalent among boys, whereas most of their sample and most victims of sexual abuse, are female.

Defensive activity also may play a role in the relationship between CD and PTSD. If a child has a fragile sense of self and difficulty in maintaining self-esteem, delinquent and/or aggressive behaviour may create an experience of personal power and invulnerability and a sense of mastery over previous trauma (Green, 1985). In the case of traumatizing familial physical and/or sexual abuse, acting-out behaviours may also reflect the defense mechanism of "identification with the aggressor" (Green, 1985; Barnard et al., 1992). Here the child, needing to protect himself from acute fear and anxiety, which is associated with a significant person, such as a parent, introjects the characteristics of the feared person who is perceived by the child as an attacker and upon whom the child is dependent. As a result, the child emulates the assaulter or aggressor. Where the threat to the child has been real as in the case of physical or sexual abuse, the relevance to

behaviours such as assault or rape are apparent. Furthermore, these behaviours begin early. For example, Friedrick and Luecke (1988) found that sexually abused children (mostly boys) aged four to 11 engaged in sexually aggressive behaviour that paralleled their own victimization. Most were also diagnosed with CD or oppositional defiant disorder (ODD; APA, 1987).

Wilson and Zigelbaum (1983), building on Horowitz's theoretical model (1976), further discuss how the syndrome of PTSD may relate to both violent and non-violent forms of acting out, as well as criminal behaviour. Dissociative states, a sensation seeking syndrome, and a depression-suicide syndrome are survivor modes of coping that if a traumatized individual enters, they are more likely to act out and/or commit a criminal act. Similarly, Marciniak (1986) suggests that such phenomena as a repetitive search for action and excitement (a form of repetition-compulsion) and profound survivor guilt may explain why some people engage in behaviours that are both risky and which may have legal consequences. The same could be true of traumatized non-veterans and of traumatized children and youth.

A relationship between PTSD and CD may also have some biological basis. Van der Kolk and his collegues (van der Kolk & Ducey, 1984; Van der Kolk, Greenberg, Boyd, & Kystal, 1985), drawing on the parallels between the behavioural sequelae of inescapable shock in animals and that of humans exposed to major trauma, proposed that individuals with PTSD are in a chronic state

of CNS norepinephrine depletion. This state is analogous to the stress-induced analgesia observed in animals, a response mediated by endogenous opioids. They further proposed that reexposure to trauma may produce a paradoxical sense of control or calm due to endogenous opioide release, and that this may account for the observation that traumatized individuals seem to voluntarily reexpose themselves to potentially traumatic situations. Likewise, Nadelson (1992) proposed a similar model adding evolutionary ideas. These "addiction to trauma" hypotheses have received support in the recent pilot study by Pitman, van der Kolk, Orr, and Greenberg (1990). In this study, the observation of combat scenes on videotape (segments from the movie Platoon) induced an analgesic response in combat veterans with PTSD but not in matched controls. This analgesic response was reversed by Noloxone which blocks the action of endorphins. The same evidence, therefore, may be an important component of what motivates trauma victims to engage in a host of risk-taking and sensation-seeking behaviours (van der Kolk, et al., 1985), as well as behaviours that victimize others (Barnard et al., 1992). If engaging in these behaviours produce an "endorphin high", they may be positively reinforced (Barnard et al., 1992).

Also citing endorphin mediated phenomena and adding to this the application of catastrophe theory, Glover (1992) similarly proposed a psychobiological model to account for some of the behaviours seen in PTSD. He further suggested that, based on these models, there may be a possible link through childhood

trauma to antisocial personality disorder (APD). The same models can be applied to children and youth with CD.

According to Glover, numbing of responsiveness represents a psychobiological response to overwhelming stress mediated by a conditioned hypersecretion of endogenous opiates. He cites research that opiates reduce emotional reactivity and the psychophysiological experience of stress. Opiates also evoke responses symptomatic of the numb state seen in the chronically traumatized with PTSD (e.g., apathy, detachment, social withdrawal). Access to the experience of pleasure in previously enjoyed activities is similarly reduced, as is access to feelings of any type. In particular, Glover notes that a principal feature of the emotionally numb individual is the absence of feelings of "intimacy, tenderness, and care and concern for self and others" (p. 647).

Because of their indifference and lack of concern for others, as well as their lack of relatedness to others, Glover asserts that emotionally numb individuals may evidence "flippant and socially inappropriate behaviours" (p. 645). Moreover, because they experience little or no fear, and are indifferent to their own welfare, emotionally numb individuals engage in dangerous, sensation-seeking, and risk-taking behaviours (e.g., drug use, self-inflicted pain). Therefore, they experience a "rush" without perceiving their behaviour as dangerous and with little, or very attenuated fear. Vindictive rage, too, may be experienced with

excitement because it is the only time these individuals feel alive. Thus, in contrast to achieving a sense of calm, a host of aggressive or self-destructive behaviours are used primarily to achieve excitement and break through the dullness of being emotional numb.

Catastrophe theory models are used to describe impulsive behaviour and the relationship of emotional numbness or nonresponsiveness to overload behaviour states such as rage. According to these models, gradually changing forces lead to abrupt changes in behaviour when the emotionally numb person experiences overstimulation or excessive stress. A "catastrophic jump" into an overload response not only bypasses the middle-range of behaviour but also bypasses the middle-range of affective responses where feelings are usually accessed (including feelings of care and concern for others). Therefore, in the expression of rage and violence, the individual also experiences none of the usual constraints. With a return to an emotionally numb state, he/she presumably also would not feel any remorse. Thus, the tendency for CD children to be impulsive, reckless, sensation-seeking, and aggressive may be the result of stress-induced emotional numbness rather than the result of neurological or attention deficit disorders.

In summary then, behaviours associated with conduct disorder may represent defensive activity associated with PTSD or attempts to master traumatic events, ward off anxiety, or gain

control. For example, reenactments (e.g., physical aggression or self-destructive behaviour) may represent one attempt at mastery of a previously abusive experience (Green, 1985) and seeking extremes states of excitement through drugs and risk taking behaviour may represent attempts to override numbness. Symptoms of impulsive behaviour or depression may represent repeated failure to overcome stress (Lipkin, Scurfield, & Blank, 1983) or a lack of integration of affective experience with resulting extreme reactivity to the environment without intervening reflectiveness (van der Kolk & Ducey, 1984). Lack of empathy may represent extreme emotional constriction, and numbing or pervasive lack of affective awareness may represent a defense against being affectively overwhelmed. Rage and subsequent aggressive acts may represent a means of supplanting fear and overcoming paralysis, or an identification with the aggressor as a means to relieve tension, cope with feelings of helplessness, or counteract painful affects (Green, 1985). Aggressive behaviours also may stem from intrusive recollections of past traumas and the subsequent acting upon these recollections to protect the self. Attributions of hostile intentions to others may be related to the perception of threat seen in PTSD, and the failure to use verbal expressions of disagreement or verbal methods to resolve conflict, may be related to the impulsivity and proneness to react without reflection also seen in PTSD. In fact, attributions of hostile intent and possible flashbacks to previous trauma may trigger seemingly unprovoked, irrational aggressive acts. Accusations of lying may reflect dissociative states, common after acute trauma, wherein behaviours displayed in a dissociative

state are later disavowed. Finally, the lack of response to rewards and reinforcement may reflect diminished interest in significant activities, and defiance to authority, avoidance of activities that arouse painful recollections.

## Conclusions

PTSD appears to exist in children and adolescents, and in a form similar to that seen in adults. Furthermore, it appears to have serious consequences. The PTSD sufferer, whether child or adult, runs the risk of chronicity, morbidity, fatality, increased physical and psychiatric disturbance, and impairment in interpersonal functioning. In addition, while anxiety and depression are common, PTSD also appears to increase the risk of acting out behaviours, aggression, and conduct disturbances.

PTSD, however, is rarely diagnosed in children or adolescents. Because PTSD may masquerade as and coexist with many other disorders, PTSD may be routinely misdiagnosed. Symptom overlap creates difficulty with recognition and diagnosis of the disorder and may be the reason why it eludes many clinicians. Conduct disorder is a likely case for "mistaken identity," because at present it is a "catchall" diagnosis for problem youth (Kazdin, 1987a).

Furthermore, just as it is possible that some youth with PTSD develop conduct disturbances, it is also possible that some

of these same youth (with PTSD) have found their way into the criminal justice system. If trauma and PTSD lead to acting out behaviours, and acting out behaviours lead to conflicts with society, then this probability is likely. As well, if Wilson and Zegelbaum (1983), among others, are correct, trauma may promote the use of defense mechanisms that predispose one to criminal behaviour.

The purpose of the present study is to examine trauma and PTSD in youth, and their possible relationship to conduct disturbances. Given sobering statistics (e.g., research on the association between conduct disorder and antisocial personality, cycles of violence, and the poor treatment prospects for CD youth), it would seem that any consideration of other diagnoses, such as PTSD, may be useful. Because PTSD may be treatable, if it is recognized it may prevent years of misery for youth who suffer the disorder, mitigate the later effects of criminal or antisocial behaviour, and prevent great expense to the tax payer.

## Present Study

Adolescents are a neglected group when it comes to the study of trauma and PTSD. This neglect exists despite data which suggest that PTSD may both persist for years and be associated with acting out, character, and other disorders (e.g., Terr, 1981, 1983, 1991). Youth with significant conduct disturbances are also a neglected group, despite the need to search for treatable causes

of the conduct problems and aggression in this group (Kazdin, 1992).

To date no research reports have been found in the literature describing the systematic application of the PTSD formulation to a sample of young offenders, or which deal with the possible relationships between PTSD and conduct disorder. However, interest in this population has some clinical basis. Research on conduct disorder leaves the impression of a high rate of prior major trauma. These children and youth also manifest several symptoms commonly associated with the disorder. The observation of high levels of hostility and anger in this group, traits associated with PTSD from its earliest clinical description (Kardiner, 1941, cited in van der Kolk, 1984), further suggest a link. If PTSD increases anger and hostility in such a global way, it may promote behaviour expressive of these affects.

This author does not assert that all youth with PTSD will exhibit conduct disorder; indeed some PTSD sufferers may become very passive and withdrawn. However, PTSD in some youth, may masquerade as, or be masked by, conduct disturbances or conduct disorder. Just as in some depressed youth, depression may masquerade as or be associated with acting out behaviours (e.g., Chiles, Miller, & Cox, 1980; Geller et al., 1985; Kovacs et al., 1988), so too in some youths with PTSD, the PTSD may masquerade as acting out behaviours. If high rates of past truama and PTSD in young offenders can be found, it would at least raise

the possibility of a link between major trauma, PTSD, and disruptive behaviour disorders.

Given this possible relationship, questions to be addressed in the current study include the following: Is there a clinically significant subgroup of youth who have come into contact with the law who have been traumatized and exhibit significant PTSD symptoms or disorder? To what extent have they been traumatized? Is there a relationship between the extent of traumatization and the severity of a posttraumatic response? Is there a relationship between the severity of posttraumatic stress and the severity of a CD? What other characteristics describe these youth?

## Hypotheses

### *Hypotheses One and Two (Main Hypotheses)*

In general, it is expected that there will be a clinically significant subgroup of incarcerated youth who have been traumatized and who exhibit significant PTSD symptoms and disorder. It is expected that there will be a positive correlation between the level of traumatization and the severity of PTSD.

### *Hypotheses Three Through Six (Hypotheses Relating to PTSD)*

There will be a positive correlation between severity of PTSD and four outcome variables. In particular, there will be a

positive correlation between severity of PTSD and (a) internalizing disorders, (b) externalizing disorders, and (c) self-destructiveness as measured by the Youth Self Report (YSR; Achenbach & Edelbrock, 1987) and (d) a positive correlation between the severity of PTSD and the severity of CD.

*Hypotheses Seven and Eight (PTSD vs. Conduct Disorder)*

Compared to conduct disordered youth who do not have a history of trauma or PTSD, those with PTSD will have higher scores on the self-destructive and internalizing scales of the YSR.

*Hypotheses Nine Through Twelve (Hypotheses Relating to Traumatization)*

There will be a positive correlation between the level of traumatization and (a) internalizing disorders, (b) externalizing disorders, (c) self-destructiveness, and (d) severity of CD.

*Hypotheses Thirteen Through Sixteen (Hypotheses Relating to Trauma Type)*

Subjects with an extensive trauma history (i.e., Type II or repeated abuses) will have higher scores than subjects with a minimal trauma history (i.e., Type I traumas or infrequent/less severe abuse) on the (a) internalizing, (b) externalizing, and (c) self-destructive scales of the YSR, and (d) a more severe CD.

# CHAPTER II

# METHOD

## Subjects

The subjects for the present study were adolescent males, aged 13 to 18 years, who were detained in remand at Willingdon Youth Detention Centre (WYDC). WYDC is located in Burnaby, B.C. and it is the only secure facility for youth incarcerated or remanded into custody in British Columbia's Lower Mainland. All subjects in the present study were at the pretrial stage of legal proceedings.

## Procedure

This study met the ethical guidelines established by the Simon Fraser University Ethics Review Board. The study was also approved by a research committee of the WYDC (Director - Gordon Hogg) and the B.C. Corrections Branch (Ministry of the Attorney General).

Ninety-six consecutive admissions to WYDC were referred to this study. Seven (7.29%) youths were not seen because they were discharged from the facility prior to interview. Six (6.25%) refused participation. Two (2.08%) other youths were eliminated because they could not reliably understand or communicate in English. One (1.04%) was removed from the analyses due to

inconsistent reporting. Consequently 80 subjects were interviewed and comprise the present study.

Each potential subject was interviewed individually and privately in one of two interview rooms. The interviewer introduced herself and explained that the research was being undertaken to find out about some of the experiences youth may or may not have had while growing up and some of the thoughts or feelings they may have experienced as a result of these events. Examples of prototypic events were given to the potential subject, and he was asked if he would be willing to participate.

If a youth expressed a willingness to participate, he was asked to read the document entitled "Information Sheet for Subjects" (see Appendix A). However, as the youths' reading ability varied, the researcher usually read the document as the subject followed along. If he agreed to participate, he was then asked to sign the subject consent form (see Appendix A) indicating his agreement to participate and his understanding that he could withdraw his consent at any time. Prior to signing, however, the contents of the first document were discussed and the key points of the waiver were explained. Opportunities were given to ask questions and further explanations were given as necessary.

Interviews lasted between 30 and 90 minutes. Each subject was administered the ADHD Interview Schedule (Reznick, 1991), the Traumatic Stress Schedule (TSS; Norris, 1990), and the

Retrospective Assessment of Traumatic Events (RATE; Gallagher, Flye, Hurt, Stone, & Hull, 1992) interview schedules. If on the TSS and/or the RATE a subject responded affirmatively to any of a variety of traumas, he was also queried about subsequent PTSD symptomology using the Anxiety Disorders Interview Schedule - Revised (ADIS-R; Di Nardo & Barlow, 1988). As well, subjects were asked to complete the Youth Self-Report (YSR; Achenbach & Edelbrock, 1987) on their own, but in the presence of the researcher. In four cases (of limited reading ability) the researcher read each item aloud while the subject followed along and recorded his responses on a separate form. Upon completion of each subject's participation, debriefing was provided and $5.00 was deposited into the subject's institutional account. Due to psychological distress, six subjects (with the subject's permission) were also referred to WYDC staff psychologists for follow-up.

Information gathered through interview was cross-validated with each subject's institutional record. This cross-validation included demographic information and traumatization history, CD history, and psychiatric history if available. As well, PTSD symptoms acknowledged during interview were cross-checked with each subject's responses on selected items on the YSR (i.e., those consistent with PTSD such as difficulty sleeping, difficulty concentrating, and nightmares). Only subjects who were consistent in their reporting of events and symptoms were included in the current study.

## Measures

### *The Traumatic Stress Schedule*

The Traumatic Stress Schedule (TSS; Norris, 1990), is a semi-structured interview designed as a short screening instrument for assessing traumatic stress in the general population. It is intended to provide a core of essential information about the occurrence and impact of several major traumatic events: loss of a loved one through accident, homicide, or suicide; having a motor vehicle accident serious enough to cause injury to one or more passengers; robbery or theft involving force or the threat of force; physical assault; rape; personal injury or property loss as a result of fire, severe weather, or disaster (either natural or technological); and being forced to evacuate or otherwise learning of an imminent hazard in the environment. The TSS also measures three types of symptoms conforming to criteria B, C, and D for PTSD as defined by the DSM-III-R; however, these sections of the TSS were dropped in the present study in favor of the use of the ADIS-R. Also dropped was the rape category because of its more thorough assessment included within the RATE. The statements "Within the past year..." which preceded each question were replaced with "Have you ever..." in order to obtain a more accurate estimate of lifetime traumatization. Information gathered included the event, when the event occurred, whether there were injuries and in some cases, whether or not the event happened

more than once. The TSS has been used in epidemiological research (Norris, 1992) and was chosen for its content coverage.

*Retrospective Assessment of Traumatic Events*

The Retrospective Assessment of Traumatic Events (RATE; Gallagher et al., 1992) is a semi-structured interview used to elicit information regarding four traumatic events; loss, physical abuse, verbal abuse, and sexual abuse. The manual lists details of areas to be covered in each category, as well as suggested specific questions to help probe the nature, frequency, duration, and intensity of the event(s). The domain of "loss" includes separations from a primary caretaker or other significant individuals through adoption, fostercare, death, divorce, abandonment, or other permanent or extended separation. Each experience is rated as either "present" or "absent". Physical and verbal abuse are each rated for frequency and intensity; the person with whom the abuse occurred; the nature of the abuse; ages of onset and duration. A more global or overall rating, however, is emphasized with the severity of abuse recorded on a five-point scale based on frequency, intensity, and duration. For physical abuse, a rating of 0 reflects no abuse or mild, infrequent corporal punishment proportional to the offending behaviour. A rating of 4 reflects extreme or very frequent physical punishment, accompanied by extreme hostility and unpredictability, leading to injuries and other specific sequelae ordinarily requiring medical attention. For verbal abuse, a rating of 0 reflects verbal discipline

that might include strong criticism, but no, or only rare use of hurtful remarks. A rating of 4 reflects extreme humiliation and shaming accompanied by a predominantly hostile attitude and often the expression of murderous or contemptuous remarks.

Sexual abuse is measured using Russell's 1987 scale of sexual exploitation and abuse. It lists 18 events ranging from nonforcible sexual kissing and intentional sexual touching of clothed genitals to rape. The RATE adds to this the class of individuals involved (intra vs extrafamilial) and the age and duration of the experience. A rating of 1 ("least severe" or mild sexual abuse) reflects forced or nonforced sexual kissing and touching of clothed genitals; 2 ("severe") reflects forced genital contact; and 3 ("very severe") reflects forced or non-forced fellatio or cunnilingus, nonforced intercourse (including anal intercourse), attempted rape, and rape.

The RATE has good interrater reliability. Kappas range from a low of .84 for the occurrence of verbal abuse to .90 for the occurrence of both physical and sexual abuse and .92 for the occurrence of loss. Intraclass correlation coefficients for the severity of abuse range from .94 for severity of sexual abuse to .97 for severity of both physical and verbal abuse. The instrument is suitable for use with adolescents (Gallagher, 1992).

Together, the TSS and RATE were used to determine each subject's traumatization history, including both the type and the

extent of traumatization. Each acknowledged trauma was scored as 1. For the purposes of the present study, however, physical abuse was said to have occurred only if it received a severity rating of 2 or greater ("moderate and/or fairly frequent" to "extreme"); verbal abuse was said to have occurred if it received a severity rating of 3 or greater ("serious" to "extreme humiliation and hostility"); and sexual abuse was said to have occurred if it received a severity rating of 2 or greater ("severe" or "very severe").

*The Anxiety Disorders Interview Schedule - Revised*

The Anxiety Disorders Interview Schedule - Revised (ADIS-R; Di Nardo & Barlow, 1988) is a structured interview designed to permit differential diagnoses among the DSM-III-R anxiety disorders, and to elicit detailed information on the anxiety disorders. Only the PTSD module was administered in the present study. The interview includes detailed questions based upon the DSM-III-R, with ratings of severity and/or frequency of each symptom based upon follow-up questioning on positive items. Because most interview items require some elaboration by the subject, clinical judgment is required in the evaluation of responses and in deciding upon further questioning. Interrater reliability between diagnoses assigned by inexperienced clinical interviewers and those assigned by clinicians with expertise in PTSD diagnosis is good (kappa=.857; Blanchard, Gerardi, Kolb, & Barlow, 1986). Subject's responses were recorded in terms of duration (recorded in days, weeks, months, or years) and intensity

or severity. Intensity or severity was recorded on a five point scale ranging from 0 ("none" or "absent") to 4 ("very severe"). Only those symptoms lasting at least one month and given a rating of 3 ("severe") or more were included as being present.

*Youth Self-Report*

The Youth Self-Report (YSR; Achenbach & Edelbrock, 1987) is the adolescent version of the extensively used Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983). It contains 112 statements which youths use to describe themselves. Subjects rate each statement on a three point Likert-type scale ranging from 0 ("not true") to 2 ("very true" or "often true") as it applies to themselves currently or within the past six months. These items comprise seven problem scales (depressed, unpopular, somatic complaints, self-destructive/identity problems, thought disorder, delinquent, and aggressive) with two broad-band groupings labeled "Internalizing" and "Externalizing". Internalizing is comprised of the depressed and unpopular sub-scales and Externalizing is comprised of the delinquent and aggressive sub-scales. Raw scores are converted to T scores with high scores (above T = 70) on the problem scales being considered abnormal and in the clinical range. The reliability and validity of the YSR has been established in a series of studies by the authors and their associates. These studies have established a median one-week test-retest *r* of .81 for total problems, with a mean decline across all scales of 1.2 points, and an eight-month test-retest *r* of .67 with a mean decline across

all scales of 0.4 points. Clinic referred adolescents score significantly higher than nonreferred adolescents on all YSR problem scales and can be adequately distinguished.

The YSR was supplemented with seven additional items, which the researcher added and which pertained to CD. The additional items ("CD items") were derived from the DSM-III-R diagnostic criteria for CD and were included to ensure adequate coverage of the disorder. They were rated in the same way as the original YSR items. In summary, the YSR, plus the CD items were used to collect: (1) demographic information including age, grade in school, and ethnic group or race; (2) information on the extent of internalizing, externalizing, and self-destructive behaviour; and (3) information on the extent of a CD consistent with the DSM-III-R (APA, 1987) diagnostic criteria for the disorder.

*ADHD Interview Schedule*

The ADHD Interview Schedule (Reznick, 1991) is a semi-structured interview designed to assess ADHD symptomatology. Several detailed probes are used to elicit information concerning attentional difficulties, impulsivity, and hyperactivity. Symptoms corresponding to ADHD as defined by the DSM-III-R are rated on a three point scale ranging from 0 ("not true") to 2 ("very true"). ADHD symptomatology is rated first retrospectively (i.e., when the subject was 4 - 10 years old) and then in terms of current symptomatology (i.e., now or within the past 6 months). A

minimum of eight symptoms are required for diagnosis. Reznick reported very high levels of interrater agreement for the diagnosis of ADHD (kappa=.95).

## Data Analyses

All data analyses were carried out using revised BMDP statistical software programs (University of California Press, 1983). Analyses using the internalizing variable were based on a transformed variable using a square root transformation to correct for skewness of the distribution.

All analyses were corrected for multiplicity. A particular test was judged significant only if it could be declared significant by the multistage Bonferroni procedure as outlined by Larzelere and Mulaik (1977). In the present research, the familywise error rate was corrected for four families of tests of the null hypothesis: one family comprising five tests of the null hypothesis; two families comprising six tests of the null hypothesis; and one family comprising eight tests of the null hypothesis.

## Missing Data

Considering the amount of data collected from each subject, there were very few missing data points. A total of 14 points from eight subjects was missing on the YSR and two subjects did not

record their ethnic group or race. Missing data points on the YSR were estimated using the sample's modal response.

# CHAPTER III

# RESULTS

## Sample Characteristics

Eighty pretrial adolescent males detained in custody completed the research protocol. Their mean age was 15.6 years (SD = 1.28, range = 13 - 18) and their mean grade level in school was 9.3 (SD = 0.99, range = 7 - 11). Most were Caucasian (N = 50, 62.5%) followed by Native Indian (N = 7, 8.75%) and Mixed Race (N = 7, 8.75%), Oriental (N = 5, 6.25%), East Indian (N = 4, 5.0%), Hispanic (N = 3, 3.75%), Black (N = 1, 1.25%) and Other (N = 1, 1.25%). Data on race or ethnic group were missing for two (2.5%) subjects.

## DSM-III-R Diagnoses and Comorbidity

### *PTSD*

A PTSD diagnosis was based on the number of clusters of symptoms for which each subject met the DSM-III-R diagnostic criteria. If the subject experienced and rated as "severe" or "very severe" one or more re-experiencing symptoms (Cluster B), three or more avoidance symptoms (Cluster C), and two or more hyperarousal symptoms (Cluster D), he received a diagnosis of PTSD and a score of three (i.e., one "point" for each diagnostic criterion met). If he met diagnostic criteria on two of the above,

he received a score of two, and if he met the diagnostic criteria on only one of the above, he received a score of one. This score was used both to assign a diagnosis of PTSD and to record the severity of the disorder (as measured by the number of clusters on which a subject met the diagnostic criteria).

Thirty-six (45%) subjects met the diagnostic criteria for PTSD as defined by the DSM-III-R. Twenty-one (26.25%) other subjects met partial criteria for the disorder. Ten (12.5%) of these subjects met the diagnostic criteria on two of the three clusters of criteria and 11 (13.75%) met the diagnostic criteria on one cluster of criteria. Overall, 57 (71.25%) subjects met at least one condition (other than the stressor criterion) necessary for a diagnosis of PTSD.

Table 2 shows the number and percentage of subjects who met the minimum number of symptoms required for a diagnosis of PTSD per cluster of symptoms, as well as the number and percentage of subjects who endorsed each symptom in excess of that required. As shown, 56 (70%) subjects met the diagnostic criteria of re-experiencing (Cluster B), 40 (50%) met the diagnostic criteria of avoidance (Cluster C), and 43 (53.75%) met the diagnostic criteria of hyperarousal (Cluster D). Also as shown, a number of subjects met more than the minimum criteria required for a diagnosis in each cluster. Therefore, not only did many subjects exhibit PTSD, but, as well, many suffered a severe form of the disorder. The average number of PTSD symptoms

Table 2

Number and Percentage of Subjects who Endorsed Each Possible Number of PTSD Symptoms per Cluster

| Symptom Cluster | Number of Symptoms | N(80) | (%) |
|---|---|---|---|
| Reexperiencing | | 56 | (70.00) |
| | one symptom* | 20 | (25.00) |
| | two symptoms | 23 | (28.75) |
| | three symptoms | 12 | (15.00) |
| | four symptoms | 1 | (1.25) |
| Avoidance | | 40 | (50.00) |
| | one symptom | 14 | (17.50) |
| | two symptoms | 8 | (10.00) |
| | three symptoms* | 23 | (28.75) |
| | four symptoms | 11 | (13.75) |
| | five symptoms | 4 | (5.00) |
| | six symptoms | 2 | (2.50) |
| | seven symptoms | 0 | (0.00) |
| Hyperarousal | | 43 | (53.75) |
| | one symptom | 19 | (23.75) |
| | two symptoms* | 22 | (27.50) |
| | three symptoms | 13 | (16.25) |
| | four symptoms | 5 | (6.25) |
| | five symptoms | 2 | (2.50) |
| | six symptoms | 1 | (1.25) |

* Minimum number of symptoms required for diagnosis per cluster.

experienced by the group as a whole was 5.07 (SD = 3.81, range = 0 - 16). However, those subjects with PTSD endorsed a mean number of 8.64 symptoms (SD = 1.99, range = 6 - 16), whereas those who met none, one, or two diagnostic criteria endorsed a mean number of 2.16 symptoms (SD = 2.03, range = 0 - 7).

Table 3 shows the number and percentage of subjects with PTSD who endorsed each type of symptom in each cluster. For the interested reader, percentages are also reported for all other (i.e., no PTSD) subjects. As shown in this table, intrusive recollections of the trauma or some of its aspects were reported by 83.3% of those who met the diagnostic criteria for PTSD. This symptom was also reported by 22.8% of the other subjects, indicating that about one quarter of the no PTSD subjects met the diagnostic criteria for PTSD on this cluster alone. Subjects who reported intrusive symptoms typically reported intrusive images, with thoughts immediately following these images. Some also reported intrusive smells or visceral reactions. Psychological distress at events that resembled the traumatic event were also common, having been reported by 77.8% of the subjects with PTSD. One quarter (25.0%) of the no PTSD subjects also reported this symptom. Psychic distress often included combinations of both fear and anger. A number of subjects also reported nightmares (52.8%) that often interfered with their ability to sleep. Few subjects reported flashbacks (11.1%). However, they were reported by four subjects with PTSD. For example, one subject who had been sexually abused clearly reported a flashback experience while becoming

Table 3

Number and Percentage of Subjects With and Without PTSD who Endorsed Each Type of PTSD Symptom per Cluster

| PTSD Symptomology | PTSD Ss. (N=36) n(%) | No PTSD Ss. (N=44) n(%) |
|---|---|---|
| Reexperiencing | | |
| Intrusive Recollections | 30(83.33) | 10(22.73) |
| Nightmares | 19(52.78) | 4(9.09) |
| Flashbacks | 4(11.11) | 0(0.00) |
| Psychic Distress | 28(77.78) | 11(25.00) |
| Avoidance | | |
| Avoid Thoughts/Feelings | 22(61.11) | 2(4.55) |
| Avoid Activities | 14(38.89) | 1(2.27) |
| Psychogenic Amnesia | 3(8.33) | 0(0.00) |
| Diminished Interest | 23(63.89) | 3(6.82) |
| Detached/Estranged | 28(77.78) | 3(6.82) |
| Restricted Affect | 23(63.89) | 3(6.82) |
| Foreshortened Future | 19(52.78) | 1(2.27) |
| Hyperarousal | | |
| Sleep Difficulty | 21(58.33) | 2(4.55) |
| Irritability/Angry outbursts | 18(50.00) | 2(4.55) |
| Difficulty Concentrating | 13(33.33) | 2(4.55) |
| Hypervigilance | 22(61.11) | 3(6.82) |
| Startle Reactions | 15(41.67) | 2(4.55) |
| Physiological Reactivity | 17(47.22) | 2(4.55) |

intimate with his girlfriend. His actions in response to this experience (a "fight or flight" response) clearly frightened him and, by his description, his girlfriend as well.

With respect to avoidance symptoms (Cluster C), most PTSD subjects reported feeling detached or estranged from others (77.8%) followed by restricted affect (63.9%), diminished interest in usual activities (63.9%), and avoidance of thoughts or feelings associated with their trauma (61.1%). Just over one half (52.8%) of the PTSD subjects also reported that they thought their future was bleak (i.e., foreshortened future), with several suggesting that they probably would not live to adulthood. Least reported symptoms included deliberately avoiding activities that arouse recollections (38.9%) and psychogenic amnesia (8.3%). Perhaps not avoiding activities that arouse recollections represents a need to relive and master the event (Green, 1985), whereas lower rates of psychogenic amnesia, which is most difficult to assess and even more difficult to report, would be expected (Green et al., 1991). Less than 10.0% of all other subjects reported any of these symptoms.

Particularly common among the hyperarousal cluster of symptoms (Cluster D) were symptoms of hypervigilance (61.1%) and sleep disturbance (58.3%). One half (50.0%) of the PTSD subjects also described being irritable or experiencing anger or temper outbursts. Physiological reactivity primarily in the form of panic attacks, increased heart rate, and tension were also common

(47.2%), as was a tendency to startle easily (41.7%). Least reported was difficulty concentrating, although just over one third (33.3%) reported this symptom significantly interfered with their life, with many complaining that it interfered with academic performance at school. Again, less than 10.0% of all other subjects reported any of these symptoms.

*CD*

A diagnosis of CD was based on a CD severity rating of six or more. This meant that the subject endorsed a minimum of three symptoms of CD required for a diagnosis as defined by the DSM-III-R and rated at least three symptoms as "very true" or "often true" of themselves. Seventy (87.5%) subjects met the diagnostic criteria for CD. The mean CD severity score was 12.35 (SD = 5.83, range = 1 - 26).

*ADHD*

A diagnosis of ADHD was determined by the number of symptoms each subject endorsed. A minimum of eight symptoms was required for a diagnosis as defined by the DSM-III-R. Twenty-one (26.25%) subjects met the diagnostic criteria for past ADHD and four (5.0%) subjects met the diagnostic criteria for current ADHD.

*Comorbid Diagnoses*

Of the 36 subjects who met the diagnostic criteria for PTSD, 33 (91.67%) had a comorbid CD. Two of these PTSD/CD subjects were also comorbid for current ADHD. Two CD subjects were also comorbid for current ADHD. Therefore, 35 (43.75%) subjects met the criteria for more than one disorder.

Table 4 shows the number of subjects who met none, one, two, or three of the diagnostic criteria for PTSD and the number who met and did not meet the diagnostic criteria for CD. As shown, only 18 (22.5%) subjects had a pure CD and only three (3.75%) subjects had a pure PTSD. An odds ratio indicates that the odds of CD (given PTSD) are three times more likely than the odds of CD, given no PTSD ($p > .10$).

Trauma History

A trauma score was determined and based on the number of traumatic events each subject acknowledged. Recall, however, that physical abuse was said to have occurred only if it received a severity rating of two or more ("moderate and/or fairly frequent" to "extreme"); verbal abuse was said to have occurred only if it received a severity rating of three or more ("serious" to "extreme humiliation and hostility"); and sexual abuse was said to have occurred only if it received a severity rating of two or more ("severe" or "very severe"). Using a simple count of the number of

Table 4

Number of Subjects Who Met Zero, One, Two, or Three of the Diagnostic Criteria for PTSD Crossed With the Number Who Met and Did Not Meet the Diagnostic Criteria for CD

| | PTSD diagnostic criteria met | | | |
|---|---|---|---|---|
| | none | one | two | three |
| CD | 18 | 9 | 10 | 33 |
| no CD | 5 | 2 | 0 | 3 |

traumas and averaging across subjects revealed that the mean number of traumas experienced by each subject was 6.2 (SD = 2.94, range = 1 - 13). This average is somewhat misleading, however, because a history of abuse, by definition, often involves more than one occurrence.

Traumas were further divided into Type I and Type II traumas. Type I traumas were defined as those events that represented single episode traumas (e.g., motor vehicle accidents). Type II traumas were defined as repeated or ongoing physical abuse, verbal abuse, and/or sexual abuse that met the minimum severity criteria outlined above. Reports of trauma were universal. All subjects (N = 80, 100%) experienced at least one Type I trauma. Fourty-five (56.25%) subjects also experienced at least one form of Type II trauma.

Tables 5 through 8 show the number and percentage of subjects who experienced each type of trauma. Tables 5, 6, and 7 document Type I traumas. Table 8 documents Type II traumas.

Table 5 shows the number and percentage of subjects involved in various accidents and/or disasters. This table also documents the type of accident or disaster and whether or not there was significant injury as a result. As shown in this table, motor vehicle and other accidents were common. Over one half of the subjects (51.25%) had been in a motor vehicle accident. Even more had been in other kinds of accidents. Not shown in this table

Table 5

Number and Percentage of Subjects Who Experienced Various Types of Accidents and/or Disasters

| Trauma Type | | N(80) | (%) |
|---|---|---|---|
| MVA | | 41 | (51.25) |
| injury: | minor | 23 | (28.75) |
| | significant (broken bones, loss of consciousness, etc). | 14 | (17.50) |
| Other Accident/Disaster | | 46 | (57.50) |
| type: | second MVA | 2 | (2.50) |
| | accident with other vehicle (e.g., motorbike, snowmobile) | 11 | (13.75) |
| | hit by vehicle | 21 | (26.25) |
| | significant fall | 8 | (10.00) |
| | disaster (fire) | 2 | (2.50) |
| | other | 2 | (2.50) |
| injury: | minor | 19 | (23.75) |
| | significant | 23 | (28.75) |
| Other Accident/Disaster | | 11 | (13.75) |
| type: | accident with other vehicle | 1 | (1.25) |
| | hit by vehicle | 2 | (2.50) |
| | significant fall | 6 | (7.50) |
| | other | 2 | (2.50) |
| injury: | minor | 4 | (5.00) |
| | significant | 7 | (8.75) |

but indicated in a subsequent analysis were data that indicated that 61 (76.25%) subjects were involved in one or more accidents. Twenty-seven (33.75%) subjects were involved in two accidents and 10 (12.5%) were involved in three. Only two subjects had been involved in disasters, both involving fires.

Table 6 consists of violence-related traumata and also documents the type and the presence of physical injury. As shown in this table, like accidents, exposure to violence-related traumata were common. Not shown in this table but revealed in a subsequent analysis were data that indicated that 67 (83.75%) subjects were exposed to some form of violence. Fourty-six (57.5%) subjects experienced more than one violence-related traumata, many experienced several.

Fifty-six (70%) subjects were witness to at least some form of violence, mostly assaults on others, with 23 (28.75%) having witnessed violence more than once. Eight (10%) subjects witnessed murder and nine (11.25%) witnessed an accident leading to death. In addition, 46 (57.5%) subjects experienced a loss of someone they knew through violent death, with over one half (56.5%) of those deaths due to murder. This may be an anomaly because several subjects experienced the loss of the same friend in a recent local murder and several were present at a gang fight in which one youth was stabbed to death. Regardless, it appears that these youth have been frequenty exposed to violence. Fitzpatrick and Boldizar (1993) observed that close to 85% of inner city, black American

Table 6

Number and Percentage of Subjects Who Experienced Each Type of Violence-Related Trauma

| Trauma Type | | N(80) | (%) |
|---|---|---|---|
| Robbed/Mugged | | 26 | (32.50) |
| injury: | minor injury | 5 | (6.25) |
| | significant injury | 4 | (5.00) |
| robbed/mugged more than once | | 8 | (10.00) |
| Witnessed Violence | | 45 | (56.25) |
| type: | accident leading to injury | 3 | (3.75) |
| | accident leading to death | 9 | (11.25) |
| | attempted murder | 5 | (6.25) |
| | murder | 8 | (10.00) |
| | attempted suicide | 1 | (1.25) |
| | suicide | 1 | (1.25) |
| | domestic violence | 6 | (7.50) |
| | other beating | 12 | (15.00) |
| victim known to individual | | 27 | (33.75) |
| witnessed violence more than once | | 23 | (28.75) |
| Violent Death | | 46 | (57.50) |
| of: | parent | 4 | (5.00) |
| | sibling | 3 | (3.75) |
| | other relative | 4 | (5.00) |
| | non-relative/friend | 35 | (43.75) |
| by: | accident | 13 | (16.25) |
| | murder | 26 | (32.50) |
| | suicide | 7 | (8.75) |
| experienced more than one violent death | | 10 | (12.50) |
| Other Trauma | | 34 | (42.50) |
| type: | beaten-up outside the home | 14 | (17.50) |
| | someone known injured | 2 | (2.50) |
| | attacked with weapon | 8 | (10.00) |
| | violent death | 2 | (2.50) |
| | other | 8 | (10.00) |
| minor injury | | 10 | (12.50) |
| significant injury | | 14 | (17.50) |

youth witnessed at least one violent act, with 43.4% having witnessed a murder.

As well, these subjects were frequent victims of violence. Twenty-six (32.5%) subjects were robbed or mugged, 30.8% of them more than once. Of those who reported "other" traumas, 64.7% reported having been beaten-up or attacked with a weapon, almost one half (41.1%) of those attacks resulting in significant injury. Furthermore, 46.25% experienced "moderate" to "extreme" physical abuse, 32.5% experienced "serious" to "extreme" verbal abuse, and 20.0% experienced "severe" to "very severe" sexual abuse. These rates are much higher than those previously reported by other researchers. In a recent review of national surveys in the United States, 1.4% to 24.6% of adolescents are robbed or mugged, 5.3% to 31.1% are beaten-up, .5% to 2.4% are physically abused, and .21% to .63% are sexually abused (Finkelhor & Dziuba-Leatherman, 1994). Thus, this incarcerated and remanded sample of youth have been exposed to a much greater amount of violent victimization than their normal age peers.

Table 7 shows the number and percentage of subjects who experienced various types of losses. As shown, almost one half (48.75%) of these subjects came from broken homes. Almost one quarter (23.75%) were abandoned. More than one half (55.0%) had been placed in foster care, 34 (42.5%) more than once. In fact, the 70 (87.5%) subjects who experienced one or more losses constitute 168 losses in total. This amounts to an average of 2.4

Table 7

Number and Percentage of Subjects Who Experienced Each Type of Loss, Including Those Placed in Foster Care More Than Once

| Losses | N(80) | (%) |
|---|---|---|
| any loss | 70 | (87.50) |
| death of a parent or guardian | 10 | (12.50) |
| divorce/separation | 39 | (48.75) |
| abandonment | 19 | (23.75) |
| adopted | 5 | (6.25) |
| parent dying | 1 | (1.25) |
| placed in foster care | 44 | (55.00) |
| once | 11 | (13.75) |
| two to five times | 18 | (22.50) |
| six to ten times | 5 | (6.25) |
| more than 10 times | 10 | (12.50) |
| separated > six months | 35 | (43.75) |
| death of sibling | 3 | (3.75) |
| born out of wedlock, never knew father | 12 | (15.00) |

losses per subject and does not speak to the number who experienced additional losses through violent death, or the number who experienced more than one out-of-home placement. Violent deaths were recorded in a separate category and out-of-home placements were scored only once, regardless of the number of times a youth had been placed. Adding in the number who experienced a loss due to violent death yields 207 total losses for the sample, for an average of 2.96 each (i.e., 46 subjects experienced a loss through violent death but seven involved a parent or sibling, yielding 39 additional losses). Add to this the 33 who had been placed in foster care more than once, including the 10 who were placed more than 10 times, and the number of psychological losses becomes even higher.

Table 8 details Type II or repeated traumas, including type and severity. As shown in this table, almost one half (46.25%) of the subjects were significantly physically abused, almost one third were verbally abused (32.5%), and almost one quarter (23.75%) suffered some form of sexual abuse. Furthermore, many of these victims experienced more than one type of abuse. Not shown in this table but revealed in a subsequent analysis were data that indicated that 25 (31.25%) physically abused subjects were also verbally abused; nine (11.25%) were also sexually abused. As noted earlier, these rates are higher than those reported in a review of national surveys in the United States (Finkelhor & Dziuba-Leatherman, 1994). They are also higher than those reported by The McCreary Centre Society (1993) in a recent

Table 8

Number and Percentage of Subjects Who Experienced Each Type and Each Severity Level of Type II Traumas

| Trauma Type | | N(80) | (%) |
|---|---|---|---|
| Physical Abuse | | | |
| severity | no abuse | 31 | (38.75) |
| | mild/infrequent | 6 | (7.50) |
| | moderate/fairly frequent | 9 | (11.25) |
| | serious/frequent | 16 | (20.00) |
| | extreme | 12 | (15.00) |
| severity rating of 2 or more | | 37 | (46.25) |
| Verbal Abuse | | | |
| severity: | no abuse | 31 | (38.75) |
| | mild/infrequent | 11 | (13.75) |
| | moderate/fairly frequent | 10 | (12.50) |
| | serious/frequent | 13 | (16.25) |
| | extreme | 13 | (16.25) |
| severity rating of 3 or more | | 26 | (32.50) |
| Sexual Abuse | | | |
| severity: | least severe | 3 | (3.75) |
| | severe | 7 | (8.75) |
| | very severe | 9 | (11.25) |
| severity rating of two or more | | 16 | (20.00) |
| perpetrator | male relative | 2 | (2.50) |
| | female relative | 2 | (2.50) |
| | other male | 14 | (17.50) |
| | other female | 1 | (1.25) |
| abused by more than one perpetrator | | 7 | (8.75) |

survey of adolescents in British Columbia and those reported by Threlkeld and Thyer (1992) in a sample of outpatients. The McCreary Centre Society found that 12.0% of adolescent males surveyed reported physical abuse, 1.0% reported sexual abuse, and 2.0% reported both physical and sexual abuse. Threlkeld and Thyer found that 20.0% of outpatient adolescent males reported physical abuse and 8.0% reported sexual abuse.

*Age at Onset of First Traumatic Experience*

Table 9 shows the number and cumulative percentage of subjects who experienced their first traumatic event at each age level. (For the age of onset of each specific trauma, see Appendix B.) As shown in Table 8, just over two thirds (67.5%) of this sample had experienced their first trauma by the age of five. Just over three quarters (77.5%) had been traumatized by the age of eight. Over ninety percent (92.5%) had been traumatized by the age of 12. Therefore, not only were these youths significantly traumatized, but most were traumatized very early in life.

*Traumatic Events Accounting For PTSD Symptomatology*

Table 10 shows the number and percentage of subjects reporting PTSD per traumatic event. As shown in this table, the 36 who reported PTSD did so in response to 65 traumatic events. Thus, most subjects with PTSD reported significant symptoms in response to more than one event. Often these involved

Table 9

Age at Time of Earliest Trauma and the Cumulative Percentage of Subjects Represented

| years | n(%) | cum.% |
|---|---|---|
| < 1 | 8(10.00) | 10.00 |
| 1 | 10(12.50) | 22.50 |
| 2 | 8(10.00) | 32.50 |
| 3 | 14(17.50) | 50.00 |
| 4 | 10(12.50) | 62.50 |
| 5 | 4(5.00) | 67.50 |
| 6 | 5(6.25) | 73.75 |
| 7 | 2(2.50) | 76.25 |
| 8 | 1(1.25) | 77.50 |
| 9 | 2(2.50) | 80.00 |
| 10 | 5(6.25) | 86.25 |
| 11 | 2(2.50) | 88.75 |
| 12 | 3(3.75) | 92.50 |
| 13 | 3(3.75) | 96.25 |
| 14 | 2(2.5) | 98.75 |
| 15 | 0(0.00) | 98.75 |
| 16 | 1(1.25) | 100.00 |

Note. cum.% = cumulative percent.

Table 10

Number and Percentage of Subjects Reporting PTSD in Response to Each Traumatic Event

| Traumatic Event | N(80) | (%) |
|---|---|---|
| Motor Vehicle Accident | 2 | (2.50) |
| Other Accident/Disaster | 2 | (2.50) |
| Robbed/Mugged | 3 | (3.75) |
| Witness Violence | 11 | (13.75) |
| Violent Death | 12 | (15.00) |
| Other Trauma (assaults) | 3 | (3.75) |
| Losses | 5 | (6.25) |
| Physical Abuse | 18 | (22.50) |
| Sexual Abuse | 9 | (11.25) |

combinations of both physical and sexual abuse, or combinations of both physical abuse and witnessing violence. However, one subject was equally traumatized by a neighbour who chased him with a gun and who later shot his dog, as he was by a loss in his life. As well, two subjects developed PTSD in response to events they had perpetrated themselves (one developed PTSD after causing an MVA that killed his passenger brother and another developed PTSD after violently raping and murdering his ex-girlfriend's mother).

It is noteworthy that most traumatic events leading to PTSD symptomology involved violence. Not apparent in this table, but revealed in subsequent analyses were data that indicated that 31 of the 36 subjects with PTSD reported symptoms in response to violence-related events. Also not shown in this table but revealed in subsequent analyses were data that indicated that 16 of the 21 subjects who reported partial symptoms, or sub-syndromal PTSD, reported these symptoms in response to violence-related events. Therefore, violence appears to have been a significant contributor to PTSD symptomatology.

Very few subjects reported symptoms in response to accidents. Few also reported symptoms in response to losses that did not involve a violent death. When a loss was reported as a precipitant of PTSD, usually it was in combination with another traumatic event. However, one subject reported a great deal of emotional distress at the loss of his foster family. Having lived

with that family for several years, he was removed from the home when the family moved to another province. His PTSD symptomatology included the replaying of the "goodbye" scene while at the same time trying to "shut out" these and other memories, nightmares about being abandoned that later evolved into nightmares about being shot, significant feelings of detachment and estrangement from others, lost interest in usual activities, restricted affect, foreshortened future, difficulty concentrating, difficulty sleeping, increased irritability, hypervigilance, and startle reactions. Clearly this description went beyond the diagnostic criteria for major depression, which he likely also suffered.

## Tests of Hypotheses

### *Test of Hypothesis One*

It was hypothesized that there would be a clinically significant subgroup of incarcerated youth who have been traumatized and who exhibit PTSD or significant symptoms of the disorder. This hypothesis was not subjected to any tests of statistical significance. However, the common occurrence of several categories of trauma and both PTSD symptoms and disorder strongly suggest that this hypothesis was supported. The prevalence of PTSD was .45 (SE = .06) so the 95 percent confidence interval for this estimate is .35 - .56. This prevalence

rate is similar to that found in treatment samples (e.g., McLeer et al., 1992).

*Test of Hypothesis Two*

It was hypothesized that there would be a positive correlation between level of traumatization and severity of PTSD. This hypothesis was confirmed ($r$ = .59, $p$ < .001). As well, this result supports the view that there is a "dose-response effect" whereby level of exposure is related to the likelihood and severity of PTSD.

*Tests of Hypotheses Three Through Six*

It was hypothesized that there would be a positive correlation between PTSD severity and four outcome variables. All hypotheses were strongly supported. As expected there was a positive correlation between PTSD severity and internalizing symptoms ($r$ = .57, $p$ < .001), externalizing symptoms ($r$ = .32, $p$ = .003), self-destructiveness ($r$ = .35, $p$ = .001), and CD severity ($r$ = .27, $p$ = .018). All tests remained significant when corrected for multiplicity.

*Tests of Hypotheses Seven and Eight*

It was hypothesized that subjects with PTSD would be more internalizing and self-destructive than subjects with CD only.

However, it was unclear where to include those subjects who did not have a pure CD or a pure PTSD (i.e., those subjects who had CD but met the diagnostic criteria for PTSD on only one or two of the clusters of symptoms - see Table 3). Therefore, a decision was made to conduct ANOVAs rather than simple two-group t-tests on these variables.

Table 11 shows the mean scores on the internalizing and self-destructiveness variables for the CD/no PTSD, CD/PTSD, CD/sub-syndromal PTSD, and CD/one PTSD criterion met groups. For internalizing, a significant ANOVA was obtained, $\underline{F}(3, 66) = 11.73$, $\underline{p} < .00005$. Subsequent t-tests showed that the PTSD/CD group was more internalizing than the CD alone ($\underline{p} < .00005$) group but, after correcting for multiplicity, no different than the CD/one criterion met ($\underline{p} = .0222$) and the CD/sub-syndromal PTSD ($\underline{p} = .0085$) groups. For self-destructiveness, a significant ANOVA also was obtained, $\underline{F}(3, 66) = 4.85$, $\underline{p} = .0041$. Subsequent tests showed that the PTSD/CD group was more self-destructive than the CD alone ($\underline{p} = .0078$) and the CD/one criterion met ($\underline{p} = .0075$) and the CD/sub-syndromal PTSD ($\underline{p} = .0022$) groups. Therefore, those subjects who met the diagnostic criteria for PTSD were more internalizing than the CD only subjects while those subjects who met the diagnostic criteria for PTSD on one or two clusters of symptoms were somewhere between the two extremes. Those subjects who met the diagnostic criteria for PTSD were clearly different from all other subjects on self-destructiveness. Tests were conducted for two families of six tests of the null hypothesis.

Table 11

Means and Standard Deviations for Internalizing and Self-Destructiveness for CD/No PTSD, CD/One PTSD Criterion Met, CD/Sub-Syndromal PTSD,and CD/PTSD Groups

| | | PTSD Diagnostic Criteria Met | | |
|---|---|---|---|---|
| | CD | One | Two | Three |
| | N(18) | N(9) | N(10) | N(33) |
| Internalizing | M = 3.39 | M = 4.29 | M = 4.09 | M = 5.29 |
| | SD = 1.31 | SD = 1.01 | SD = 1.10 | SD = 1.05 |
| Self - | M = 1.67 | M = 1.78 | M = 1.50 | M = 4.18 |
| destructive | SD = 3.05 | SD = 1.86 | SD = 1.84 | SD = 3.03 |

*Tests of Hypotheses Nine Through Twelve*

It was hypothesized that there would be a positive correlation between level of traumatization and the following four variables: (1) internalizing, (2) externalizing, and (3) self-destructiveness as measured by the YSR, and (4) severity of CD. A significant correlation in the hypothesized direction was obtained for two of these variables. There was a positive correlation between level of traumatization and internalizing ($r$ = .375, $p$ < .001) and level of traumatization and externalizing ($r$ = .303, $p$ = .006). Contrary to prediction, the correlations between level of traumatization and self-destructiveness ($r$ = .167, $p$ = .139) and level of traumatization and CD severity ($r$ = .188, $p$ = .096) were not significant.

*Tests of Hypotheses Thirteen Through Sixteen*

It was hypothesized that there would be significant differences between subjects traumatized by Type I traumas and subjects traumatized by Type II traumas on four outcome variables. In particular, it was hypothesized that those subjects who experienced Type II traumas would be more (1) internalizing, (2) externalizing, and (3) self-destructive as measured by the YSR, as well as (4) have a more severe CD. Levene tests performed on all variables indicated that the assumptions for homogeneity of variance were violated on the self-destructive variable. Therefore, the t-test performed on self-destructiveness used the separate

variance form. Three of these hypotheses were confirmed. Those who experienced Type II traumas were more internalizing, $t(78) = -4.06$, $p = .0001$; externalizing, $t(78) = -3.18$, $p = .0021$; and self-destructive, $t(72.2) = -3.37$, $p = .0012$, than those who experienced Type I traumas only. Contrary to prediction, however, those who had experienced Type II traumas did not exhibit a more severe CD, $t(78) = -1.94$, $p = .0562$. All tests remained significant when corrected for multiplicity.

Exploratory Post-hoc Analyses

An attempt was made to determine which variables best predicted a diagnosis of PTSD. Predictor variables included the following: total number of traumatic events, trauma type (including accidents, violence-related traumata, losses, and Type II traumas), internalizing, externalizing, self-destructiveness, and CD severity. The correlations among these variables are shown in Table 12. An all possible subsets regression analysis was performed and the best 10 subsets (i.e., those with the highest adjusted R-squared) at each subset size (i.e., for two predictors, three predictors, four predictors ... nine predictors) were examined to see which predictors appeared consistently. Results of this analysis revealed that internalizing and total number of traumatic events were consistently chosen in the best subsets of predictor variables at each subset size. This subset of variables was also a significant predictor of PTSD, adjusted R-squared = .42, $F(2, 77) = 29.43$, $p < .00005$. Additional variables added

Table 12

Correlations Among Predictor and Outcome Variables.

| | | | | | Traumas | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | int. | ext. | sd. | cdsev. | total | acc. | vio. | loss | II |
| ext. | .51 | | | | | | | | |
| sd. | .75 | .12 | | | | | | | |
| cdsev. | .38 | .87 | .12 | | | | | | |
| Traumas | | | | | | | | | |
| total | .38 | .30 | .17 | .19 | | | | | |
| acc. | .04 | .09 | .02 | .08 | .27 | | | | |
| vio. | .25 | .26 | .04 | .23 | .64 | .09 | | | |
| loss | .19 | .12 | .09 | .02 | .73 | .13 | .18 | | |
| II | .45 | .28 | .32 | .13 | .57 | -.02 | .18 | .27 | |
| ptsd | .55 | .24 | .41 | .15 | .54 | .15 | .31 | .28 | .49 |

Note. int. = internalizing, ext. = externalizing, sd. = self-destructive, cdsev. = CD severity, acc. = accidents, vio. = violence-related trauma, loss = losses, II = Type II traumas.

little to the amount of variance accounted for (i.e., resulted in increments in the adjusted R-squared of .01 or less).

As well, an attempt was made to determine which trauma variable(s) had the greatest impact on subjects' subsequent functioning. For each of PTSD, internalizing, externalizing, self-destructiveness, and CD severity, an all possible subsets regression analysis was performed and the best subsets of predictor variables (i.e., trauma variables) at each subset size were examined. For PTSD, the total number of traumatic events and the experience of Type II or repeated traumas were consistently chosen in the best subsets of predictor variables at each subset size. For internalizing, the experience of Type II traumas was consistently chosen in the best subsets of predictor variables. The second most frequently chosen variable was violence-related traumata. These same variables were the most frequently chosen in the best subsets of predictor variables for externalizing. The experience of Type II traumas was consistently chosen and was the single most important variable in the prediction of self-destructiveness. For CD severity, no single trauma variable was consistently chosen in the best subsets of predictor variables. The total number of traumatic events, violence-related traumata, and losses were included in the best subsets with equal frequency. All of these subsets were significant predictors of their respective outcome variable ($p$ values ranged from .0792 for CD severity to $< .00005$ for both PTSD and internalizing).

Summary

In summary, PTSD was found to exist in this group of incarcerated youth and to be associated with CD and other internalizing and externalizing disorders. There was a positive correlation between the level of traumatization and the severity of PTSD. Both level of traumatization and severity of PTSD were associated with internalizing and externalizing disorders as measured by the YSR. Severity of PTSD was also associated with self-destructiveness and severity of CD. PTSD/CD subjects were more internalizing and self-destructive than CD only subjects. Those youth who reported Type II traumas were more symptomatic than those who reported Type I traumas only. Internalizing, the total number of traumatic events experienced, and the experience of Type II traumas appeared to be important in the production of PTSD symptoms and disorder.

# CHAPTER IV

# DISCUSSION

The present research focused on the prevalence of various types of trauma and the diagnosis of PTSD in a sample of youth commonly diagnosed as conduct disordered. This sample of 80 youths were remanded into custody while awaiting trial for alleged criminal offences. The fact that they were remanded into custody suggests that they either had no family, lived in an environment of familial instability, that their alleged offenses were serious, or that they represented an undue risk to the community.

The results of this study revealed that the majority of these youths had experienced multiple traumatic events[4]. In addition to most having witnessed violence, many were the victims of violence. Many experienced significant physical abuse, verbal abuse, and sometimes sexual abuse. Many had experienced numerous losses of significant others and numerous out-of-home placements. Many were also the victims of accidents.

Fourty-five percent of this sample met the diagnostic criteria for PTSD. Many more met partial criteria, suffering sub-syndromal PTSD. These results indicate that not only are traumatic experiences commonplace in the lives of these youths but that trauma-related psychological disorders are a major concern. These

[4] For a summary of each subject's experiences, see Appendix C.

results further suggest an association between traumatic life events, PTSD, adolescent criminality, and CD.

The high rate of PTSD observed in the current study is clearly clinically significant, and rather startling. Although the rate of PTSD among the general population of youth is unknown, the prevalence of PTSD in the general adult population is 1% (Helzer et al., 1987). In adult criminal populations the rate ranges from 2.3% (Collins & Bailey, 1990) to 5.3% (Neighbours, 1990, cited in Barnard et al., 1992). The rate observed in the current study is dramatically greater.

Although quite high, the rate of PTSD observed in the current study may not be unusual for many clinical populations. Certainly higher rates than that observed in the current study have been reported in samples of children and adolescents in treatment centers. In one study, Kiser et al. (1991) reported an overall rate of 55% in a sample of physically and/or sexually abused children and adolescents in treatment. Moreover, 64.3% of those severely sexually abused, 70.8% of those both physically and sexually abused, and 90% of those physically abused for more than five years were diagnosed with PTSD. The rate of PTSD observed in the current study is similar to that observed by McLeer et al. (1992) in a sample of sexually abused children and adolescents in treatment (43.9%), yet the present study assessed a correctional population, rather than a psychiatric sample.

Moreover, if one considers the high rate of exposure to violence in this group, a variable known to produce high rates of PTSD in child, adolescent (Fitzpatrick & Boldizar, 1993; Pynoos et al., 1987; Sack et al., 1993), and adult populations (e.g., Kemp, Rawlings & Green, 1991; Yehuda, et al., 1992), a high rate of PTSD in this group might be expected. For the subjects in the present study, although many traumas accounted for the PTSD symptomatology, it is noteworthy that most involved physical violence. Of the 36 subjects who met the diagnostic criteria for PTSD and the 21 subjects who met partial criteria for PTSD, 31 of the 36 and 16 of the 21 PTSD-producing traumas involved violence. Few subjects reported PTSD symptoms solely in response to other types of traumas (e.g., accidents or losses that did not involve a violent death). McNally (1993, cited in Vogel & Vernberg, 1993) suggested that violence is the most likely cause of PTSD in children. The current research would support McNally's view.

Considering the high rate of exposure to multiple traumatic events, a high rate of PTSD might also be justified. In this regard, it is noteworthy that Collins and Bailey (1990) reported an average of .25 traumas per subject, based on the sampling of eight categories of trauma, in a sample of incarcerated adult male felons; Barnard et al. (1992) reported an average of 2.2 traumas, based on the sampling of seven categories of trauma, in a sample of convicted adult sex offenders; and Davidson and Smith (1990) reported an average of 2.59 traumas, based on the sampling of 16

traumas, in a sample of adult psychiatric outpatients. The youth in the current study reported between two and almost twenty-five times these rates of trauma with an average of 6.2 traumas per subject. Clearly the experience of numerous traumatic events increase the likelihood of PTSD.

Burton, Foy, Bwanausi, Johnson, and Moore (1994) recently found a high rate of PTSD in a sample of juvenile offenders, namely, 24%. Although the rate observed in the current study is greater than that observed by Burton et al., the observed differences in rates are likely due to differences in the samples themselves, as well as the methodological procedures used. With respect to the sample differences, the youth in the Burton et al. study were adjudicated males already serving sentences, 80% of whom were either Black or Hispanic. In contrast, the youth in the current study were remanded youth, only 5% of whom were either Black or Hispanic. As well, 81% of the Burton et al. sample were gang members. Although it is unknown how many of the subjects in the current study were gang members, it is possible that gang membership plays a social support role in the experience of trauma and trauma-related symptoms. With respect to the methodological procedures used, subjects in the current study were assessed individually using semi-structured interview schedules to assess trauma history and a structured diagnostic interview schedule to assess PTSD. In contrast, subjects in the Burton et al. study were assessed in groups (i.e., 15 - 20 subjects per group) using a self-report measure of trauma exposure and a self-report symptom

checklist, measuring a wide range of psychological symptoms, to assess PTSD. Several studies suggest that self-report measures may not be sensitive enough to identify all cases of PTSD (e.g., Adam et al., 1992; McLeer et al., 1988; Yule & Williams, 1990).

Regardless of differences between the rate of PTSD observed in the current study and the rate of PTSD observed by Burton et al. (1994), both studies report high rates of the disorder. These studies combined confirm the hypothesis that many adolescents who find their way into the criminal justice system have been traumatized and exhibit PTSD as a result.

If major trauma and PTSD are as prominent among young offenders as both the current study and the study by Burton et al. (1994) suggest, why is this phenomenon only now being noticed? As described in the introduction to this thesis, retrospective and prospective research on both in-patient and out-patient samples of children and adolescents continue to report the fact that trauma and PTSD is not noticed and/or misdiagnosed in many populations (e.g., Deblinger et al., 1989; Doyle & Bauer, 1989; Kinzie et al., 1990; McFarlane, 1991). Symptom overlap may be the reason it eludes many clinicians. Moreover, some symptoms of the disorder (e.g., avoidance, numbing, and misconduct) would allow trauma and PTSD to be more easily overlooked. Kinzie et al. (1990) further cite a failure to grasp the extent and current relevance of previous traumatization, the preoccupations of clinicians, and the failure to review a checklist of PTSD symptoms in respect to each

trauma experienced as factors that contribute to its under recognition. The current study avoided many of these pitfalls by directly questioning about several categories of trauma and subsequent PTSD symptomatology with respect to each trauma experienced.

Consistent with this hypothesized clinical neglect, the current study strongly suggests that, for some of these youths, previous trauma and PTSD may have been missed. Six subjects were first referred to detention centre psychologists after their participation in the study, although all of them had received a psychological screening upon entering WYDC. Presumably, the extent and nature of their psychopathology had not been recognized. In addition, the institutional records of 13 (16.25%) subjects revealed that they had been seen for counselling in the past, or treated in psychiatric inpatient units (several, more than once), yet none of those thirteen had been diagnosed with PTSD. For those treated youths, the following diagnoses or clinical descriptions were previously noted in their institutional records: "depressed, suicidal, ADHD"; "CD with schizoid tendencies"; "depressed with aggressive outbursts"; "anger, low self-esteem, learning disabled, hyperactive"; "CD"; "depression, history of problems sleeping, frequent stomach pains, drug/alcohol problems"; "history of physical/verbal/sexual abuse and neglect as a child, pleasant on one hand, aggressive on the other". The failure of clinicians to identify PTSD is most blatantly revealed in one subject's record, which noted "ADD, depressed, chronic

anxiety, fears, not eating/sleeping properly, not feeling safe, nightmares relating to past sexual abuse, self-destructive tendencies, aggressive outbursts". One can easily see that this clinical description is a concise summary of PTSD symptomatology.

Perhaps the most important finding in the present research is that youth who suffer from PTSD in conjunction with CD can be distinguished from those youth who exhibit CD only. Those subjects with PTSD were significantly more internalizing and self-destructive as measured by scales on the YSR (Achenbach & Edelbrock, 1987). This finding has important clinical implications, suggesting that signs of depression, suicidal actions, and other symptoms should alert clinicians, social workers, and others to the possibility that children exhibiting behavioural disorders, such as conduct disorder, may have been traumatized and may be experiencing PTSD. It also suggests that the addition of a symptom questionnaire like the YSR to a screening test battery might identify those youth who may be in need of further evaluation, and/or other services that might ultimately reduce or alleviate some of their maladaptive behaviours. Finally, the relationship between PTSD and CD suggests that trauma and PTSD may have both a unique and overlapping negative impact on these youths' psychological functioning.

Thirty-three (91.76%) of the 36 subjects who met the diagnostic criteria for PTSD also met the diagnostic criteria for

CD. Another 19 who met partial criteria for PTSD met the CD diagnostic criteria. This confirms significant symptom overlap between the two disorders and a high rate of comorbidity.

One may argue that CD children and youth are at risk for being traumatized and developing PTSD by virtue of their behaviour and social relations (see Kazdin, 1992; Lauritsen, Sampson, & Laub, 1991). For example, we know that conduct disordered youth tend to have been temperamentally difficult and often impulsive children, putting them at risk for traumatization and PTSD. Furthermore, once CD children become adolescents, they have disproportionately greater contact with other antisocial youth which puts them at greater risk for being victims of crime (Lauritsen et al., 1991). Lauritsen et al. (1991) suggest that they represent ideal targets because they are less likely to call police. On the other hand, several studies suggest that misconduct and angry and aggressive behaviours are associated symptoms of PTSD (e.g., Kiser et al., 1988; Saigh, 1989, 1991) and begin after the experience of a traumatic event (e.g., Burke et al., 1982; Terr, 1985).

The current research found a strong association between the severity of PTSD and the severity of CD. However, it did not evaluate the causal relationship between these two conditions. The reader is therefore cautioned against assuming a simple cause and effect relationship between trauma, PTSD, and CD. The effects of trauma and PTSD have various psychological manifestations and

numerous sociocultural factors which are difficult to control might account for a particular problem. However, the preponderance of traumatic events early in the lives of these CD subjects lends some support to the hypothesis that trauma and/or PTSD may have predisposed these youth to the development of CD. Over three quarters of these subjects were traumatized by age eight, yet CD rarely occurs before late childhood or early adolescence (APA, 1994; Loeber et al., 1991). Furthermore, some of the institutional records of these youth contained descriptions of misconduct beginning shortly after specific traumatic events. For example, one report stated that a particular youth was well adjusted until he witnessed the fatal fall of a friend. Another report stated that a particular youth displayed few problems until molested by an adult male border living in the family home. Others report criminal behaviour (i.e., theft) in order to support drug habits accelerating in conjunction with symptoms associated with PTSD. Longitudinal research is needed and would help clarify the causal ordering of various symptoms and disorders.

Avoidance symptoms were more prominent in this group than in most studies of PTSD in children and adolescents (see e.g., Fitzpatrick & Boldizar, 1993; McLeer et al., 1988). Most of these subjects with PTSD reported feeling detached or estranged from others, followed by restricted affect, diminished interest in usual activities, and avoidance of thoughts or feelings associated with their trauma. These symptoms are important in this population of youth because these are the same symptoms that would allow for

both behaviour disorders and criminal activities. If one feels distant, estranged, or alienated from others, has little feeling or perhaps no feelings at all, lacks empathy and remorse, and has few interests, acts that do not consider the feelings of others, violate societal norms, or produce stimulation might be expected. As well, these symptoms are significant in this population because of their possible role in potentiating the social alienation common in conduct disordered persons. These symptoms may represent a chronic adaption to PTSD (see Famularo et al., 1990) and may be the symptoms associated with characterlogical change (e.g., Terr, 1991).

Both level of traumatization and severity of PTSD were associated with internalizing and externalizing disorders. These findings are not new, having been demonstrated in many studies on the effects of child abuse and in many studies of traumatized children who have PTSD (Fredrich et al., 1986; Kiser et al., 1988; McLeer et al., 1992; McLeer et al., 1988; Wolfe et al., 1989). These results suggest that trauma and PTSD have effects that impact on several aspects of life. For example, many traumatized children and youth evidence increased depressive symptomatology (e.g., Famularo et al., 1990) and increased acting out behaviours (e.g., Saigh, 1989, 1991).

The finding that degree of traumatization is associated with externalizing disorders, but not a more severe CD, was unexpected given the significant overlap of behaviours that comprise these

disorders. However, externalizing disorders include both delinquent and aggressive behaviours, only some of which constitute CD as defined by the DSM-III-R. Thus, whereas most of the subjects in the present study were conduct disordered, these results suggest that those more traumatized exhibit a fuller range of "acting out" behaviours. Perhaps through trauma-related increased irritability and impulsivity these youth engage in multiple behaviours, whereas those less traumatized or solely conduct disordered are more selective in their conduct disordered behavioural choices.

The lack of correlation between level of traumatization and CD severity, however, may also reflect the fact that most subjects were significantly traumatized and most were also classified as having CD. Consequently, the range of traumatization and the range of serious behaviour problems (i.e., CD) may not have been sufficiently large for differences to be detected. The relationship between traumatization and CD requires a larger study incorporating all levels of traumatization and CD.

That severity of PTSD is associated with severity of CD is new and underscores the possible malignant effect of PTSD on males. Recent work by McLeer et al. (1992; cf. Kiser et al., 1991) notes how behaviourally disruptive PTSD is, particularly among males, and the current research would confirm their observation. That severity of PTSD, rather than level of traumatization, is associated with severity of CD is also interesting. Much of the

research on CD makes mention of traumatic events in the histories of such youth. Many reports on delinquency also suggest a relationship. Although trauma may be related to CD, this research suggests that, for at least some youth, it is not just that they have been traumatized, but that they have a diagnosible anxiety disorder as a result. PTSD and CD may be simply comorbid disorders arising from different etiologies. However, there are multiple pathways to delinquency and CD (Huizinga, Esbensen & Weiher, 1991; Kazdin, 1992) and symptoms of one disorder also may be the associated symptoms of the other. In this regard, it is possible that some youth with no history of trauma develop CD; that some youth who have been traumatized develop CD without any intervening psychological sequelae; and that some youth who have been traumatized develop CD, but only in the presence of PTSD. With respect to the latter, PTSD may play a moderating, or aggravating, role in the development of CD in a subgroup of sufferers, thereby linking the two conditions.

The relationship between trauma, PTSD, and CD is likely very complex and only a prospective longitudinal study can provide insight into this matter. However, it is important to note that individuals labeled as conduct disordered behave in diverse ways. Some are non-compliant with adults; others get into arguments or fights with peers; and others lie, cheat, or steal. As well, some have difficulty relating to peers, whereas others are socially adept within a gang culture (Quay, 1986). Dodge (1990) states that "conduct disorder is at best a heuristic term to describe

heterogeneous phenomena with differing etiologies and courses" (p. 698).

With respect to this diversity, Loeber and Schmaling (1985) talked about three types of CD youth: exclusive stealers who engage in a range of overt antisocial behaviours and relatively little delinquency; exclusive fighters who engage in some overt antisocial behaviour and much delinquency; and a versatile group who engage in both types of offending behaviour. In their study, this versatile group scored the highest among all the groups on almost all overt and covert antisocial behaviours and in terms of delinquent acts. Of relevance in their study is the finding that this group was also more generally disturbed and more often came from families with the most abusive child-rearing practices. Therefore, given their findings, and the results of the current study, is it possible that the relationship between severity of PTSD and both externalizing disorders and CD severity is occurring amongst this "versatile" group, whereas the others are more specific in their CD choices? To answer this question, future research should investigate whether or not this versatile group also exhibits PTSD. Approaching the same issue from another direction, another possibility is to investigate whether PTSD/CD subjects engage in both types of criminal behaviours compared to those with CD only. The type of crimes committed may also be different - impulsive and wide ranging versus goal oriented.

The finding that the severity of PTSD but not the level of traumatization was associated with self-destructiveness also suggests that PTSD (regardless of trauma) is associated with self-destructive tendencies and that PTSD may link the two problems. In this sense, self-destructive behaviours (e.g., alcohol and drug use) may serve defensive functions by numbing the individual against the intrusive symptoms of PTSD, thus an avoidance behaviour as suggested by Horowitz (1986). Other self-destructive behaviours (e.g., acts of self-harm) may represent repetitive behaviours that recreate the trauma; a sort of repetition compulsion (Pynoos & Eth, 1985). They may also represent, in the case of extreme numbing or avoidance symptoms, attempts to create feelings and affective experiences (e.g., self-harm and risk-taking behaviour; e.g., Glover, 1992). However, those who suffered Type II or repeated traumas were also more self-destructive than those who suffered only Type I or single episode traumas. Therefore, the type of trauma (i.e., repeated assaults) also appears to be significant, either as a unique or additive component effect.

It is unfortunate that this study could not address the differential rates of PTSD as a result of Type I and Type II traumas. Although subjects reported PTSD symptoms sufficient enough to diagnose the disorder in response to both types of trauma, the youth in the current study were multiply traumatized, with many having had experienced both. It is noteworthy, however, that all subjects who developed PTSD, regardless of which trauma

they reported as causing the most symptoms, experienced Type II traumas. Significantly, no subject who reported PTSD experienced only Type I traumas.

When comparing those subjects who experienced Type I traumas to those who also experienced Type II traumas, the present research also found that those who experienced Type II traumas were significantly more symptomatic as evidenced by higher scores on the internalizing, externalizing, and self-destructive scales of the YSR. These are the same variables associated with a more severe PTSD, suggesting a link between trauma type and PTSD.

A post hoc analysis using all variables in the prediction of PTSD indicated that the sheer number of traumatic events, in addition to the extent or severity of internalizing behaviours, best predicted PTSD. Thus, the total number of traumatic events, regardless of type, influenced the PTSD rate observed. However, without internalizing in the subset of predictor variables, both the number of traumatic events experienced and the experience of Type II traumas were significant predictors of PTSD. Thus, perhaps the experience of Type II traumas influenced the rate of both PTSD and higher scores on self-destructiveness, or perhaps the sheer accumulation of traumas influenced the rate. With respect to the latter, there is some indication that greater cumulative stress from previous adverse events is related to more distress following a specific or serious event (e.g., Horowitz, Wilner, Kaltreider & Alvarez, 1980; McFarlane, 1988), and if level of exposure is

related to the incidence and severity of PTSD, multiple traumatic events probably constitute more exposure (i.e. an additive effect). However, Type II traumas, by definition, also includes more than one occurrence. The relative contribution of each trauma variable is difficult to determine because youth in the present study were multiply traumatized by both Type I and Type II events.

The finding that over one-half of the subjects were victims of repeated abuses and all were conduct disordered, as well as the finding that Type II traumas were significant in the production of PTSD, as well as internalizing, externalizing, and self-destructiveness, further suggests that Type II traumas are particularly malignant in accordance with Terr's hypotheses that victims of repeated abuses develop additional problems. These findings may be of importance to researchers investigating borderline and antisocial personalities. Research in these areas are beginning to demonstrate that both groups have histories of significant trauma, with some authors suggesting that the personality disorder pathology represents a "complex" or developmentally mediated PTSD (e.g., Glover, 1992; Herman 1992a). Future research should also investigate personality traits and disorders in CD youth to determine their correlates and prevalence. For example, there is some indication that boys with CD exhibit antisocial personality traits and girls with CD exhibit borderline personality traits (Eppright, Kashani, Robinson, & Reid, 1993).

In the present study, the finding that subjects who experienced Type II traumas were more externalizing than those who experienced Type I traumas only is in contrast to a recent study by Kiser et al. (1991). In a study of physically and/or sexually abused children and adolescents consecutively admitted to a day treatment program, Kiser et al. (1991) found that victims of ongoing abuse were more internalizing, depressed, and somatic, and somewhat more hyperactive as measured by the CBCL. Behaviour disorders (i.e., conduct disorder and oppositional defiant disorder), on the other hand, were more characteristic of victims of discrete or single event abuse. However, differences between the subjects studied by Kiser et al. and those studied in the present research could account for the different findings. Subjects in the Kiser et al. study were admitted to a treatment program, whereas the subjects in the present research were not a psychiatric sample, nor were they selected for a history of trauma or the existence of PTSD in the first place. It may be that coming to treatment is associated with more internalizing behaviours that dampen externalized distress. As well, subjects in the present study were multiply traumatized by both Type I and Type II traumatic events. Finally, the subjects in the Kiser et al. study consisted primarily of females, whereas the subjects in the current sample were exclusively male. Thus, there may be a sex difference with respect to how distress is played out. For example, girls tend to react to trauma with more internalized symptoms and boys tend to react with more externalized symptoms (see Vogel & Vernberg, 1993 for a review).

Limitations of the Research

The generalizability of the results may be limited by the fact that the study population did not represent a random sample. The sample comprised only adolescents held in remand for alleged criminal behaviour and only those who agreed to participate. A sampling bias may have been introduced by the most symptomatic youths being detained in custody, or alternatively, that the most symptomatic agreed to participate. Although the latter is unlikely given that only six of 96 subjects refused participation, final determination must await a larger study that also incorporates appropriate control groups consisting of nontraumatized, nondetained youths, as well as those referred for psychiatric evaluation.

With respect to external validity, these findings should hold for the population of young offenders remanded in correctional facilities in B.C.. They may also hold for youth detained in forensic facilities in other provinces and states where similar selection procedures are used. Due to selection bias the results cannot be generalized to young offenders in the general prison populations, or in the general community, however, one would expect more similarities than differences. As well, the results can not be generalized to females. Based on sex differences in the way stress is played out, one would expect traumatized females to exhibit more internalized than externalized symptoms. Thus, lower rates of comorbidity between PTSD and CD would be observed.

Because PTSD symptomatology is less pronounced in very young children (Green et al., 1991), lower rates of comorbidity would also be expected in this group. Finally, lower rates of comorbidity would be expected in samples where CD is less prevalent and in samples of less traumatized youth.

In addition to sampling bias a number of factors could have resulted in higher reporting of psychopathology than might otherwise be expected. Barnard et al. (1992) pointed out that simply being detained in a correctional facility is in itself stressful and that this may influence how "sick" subjects look. Certainly several subjects in the current study reported an exacerbation of symptoms since being detained. As well, although subjects were told that their participation would in no way affect their current situation or court experience, they may have been motivated to engage in dissimulation regarding their trauma histories and PTSD symptoms in the hopes of a more lenient or favorable trial outcome (Barnard et al., 1992; Widom, 1989a). In this regard, the use of physiological measures (e.g., heart rate and blood pressure), the most reliable and valid way of determining some PTSD symptoms (Frederick, 1994), would have greatly improved this study.

However, it is suspected that for the most part these findings are representative of these youths' actual experiences with PTSD symptoms. For example, many of the subjects in the current study volunteered information about some of their symptoms before being

asked, or elaborated on symptoms without prompting. When asked, for example, if he ever found himself thinking about the traumatic event when he didn't intend to (Criterion B1), one subject responded "well no, I think about it sometimes after a picture of it just pops into my mind, ... and after I've had a nightmare about it. I have a lot of nightmares" (Criterion B2). In response to the same question, another subject replied "No, I think about it when I want to, it's the quick pictures of it I can't control. They just last a second but happen sometimes five or six times a day (Criterion B1). Don't sleep very well either. I lie awake for hours sometimes" (Criterion D1). Another subject, in response to questioning about diminished interest in activities replied "it's not so much that I don't want to do those things anymore, it's just that I don't feel very close to those people (e.g., friends) anymore" (Criterion C5). In response to questioning about hypervigilance, another subject replied "I'm on guard all the time and if something sudden happens, my heart beats faster and I get all tense" (Criterion D6). These examples clearly suggest that subjects were reporting their actual experiences.

The interpretation of the findings of this research should also take into consideration that much of the study relied on retrospective, self-report data. Therefore, the possibility of selective recall or other perceptual distortions may have influenced subjects' responses. For example, youth currently experiencing significant symptoms of distress may be more likely to recall traumatic events that fit with their current situation, or

with their current feelings (Ireland & Widom, 1994; Realmuto et al., 1992). As well, asking subjects to enumerate traumatic events might have a "priming" effect, with youth reporting traumas they, in fact, did not experience (Fullilove et al., 1993). Both situations would lead to overestimates of the prevalence of traumatic events. However, subjects with more severe PTSD might also have more spontaneous traumatic memories (i.e., intrusive symptoms) which would facilitate voluntary recall of exposure (Realmuto et al., 1992) and since several studies have confirmed that direct questioning increases the likelihood of having a respondent report a traumatic event, direct probes are warranted in order to establish accurate counts of traumatic events (e.g., Briere & Zaidi, 1989; Carlson & Rosser Hogan, 1991; Fullilove et al., 1993; Kinzie et al., 1990; McLeer et al., 1988).

In contrast to over-reporting, a number of factors could have resulted in the under-reporting of both traumatic events and PTSD symptoms. First, the youth in the current study may have been reluctant to disclose events regarded as shameful, demeaning, or embarrassing (e.g., Powers & Eckenrode, 1988). Second, the lack of a trusting relationship with the interviewer may have led to a reticence to share personal experiences (Fullilove et al., 1993; Snodgrass et al., 1993). Third, as a function of coping, in which trauma-related denial or psychogenic amnesia may be psychologically protective, subjects would report both fewer traumatic events and fewer symptoms (Realmuto et al., 1992). Given, however, that the subjects' responding may have been more

deviant than other youths who have been traumatized but have not needed incarceration/intervention, a reliability study to compare subject responses to historical accounts from other informants would be desirable, but practically impossible to conduct.

Finally, several procedures were followed in order to determine the relaiability of subjects' responding. Information gathered during interview was cross-validated with information on each subject's institutional record. PTSD symptoms ackowledged during interview were cross-checked with each subject's responses on selected items on the YSR (i.e., PTSD items). Items on the YSR that measure the same behaviour but which were worded in the opposite direction (e.g., "I am honest" vs. "I lie or cheat") were also cross-checked for consistency. Still, having a single individual conduct the research may have biased the reporting of data. In this regard, although the researcher was blind to CD status because of its assessment on a self-report questionnaire, there is some indication that the researcher was not blind to PTSD symptoms, because of its assessment during interview. However, the absence of nonblind interviewers and more than one coder of data is found in many studies of this type (e.g., abuse research) and may be acceptable in a preliminary or exploratory investigation such as this one (Threlkeld & Thyer, 1992). Certainly future research should improve on the sampling techniques used in the current study along the lines described above.

## Summary and Conclusions

The results of this study underscore the extent to which youth detained in remand have been significantly traumatized. This study confirms the high rate of trauma (i.e. adversity) in the personal histories of CD youth widely reported in the literature (e.g., Reid & Paterson, 1989). The results further suggest a high rate of other categories of trauma and PTSD symptomatology and disorder.

The high level of exposure to multiple traumatic events and high prevalence of PTSD symptomatology and disorder is at least compatible with the hypothesis that trauma and PTSD played a significant role in the development of CD behaviour in some of these youth. Indeed, almost one half of the subjects reported experiencing a great deal of current emotional distress (i.e., PTSD) as a result of past trauma and just over 90% of those were comorbid for CD. Trauma and PTSD may play an aggravating or precipitating role in the development of CD in children rendered vulnerable by trauma, and perhaps by PTSD's impact on character development (Barnard et al., 1992). At least some CD youths are emotionally distressed and their psychopathology has practical relevance for understanding and treating their disturbed behaviour.

The finding that 45% of this population of CD youth exhibit PTSD has important clinical implications. Most child clinic referrals comprise CD children or adolescents and it is now clear

that a significant number of them may exhibit PTSD but not be diagnosed as such. Several authors have emphasized the importance of considering PTSD when evaluating child and adolescent psychiatric patients (e.g., Famularo et al., 1990; Kiser et al., 1988; McLeer et al., 1988), but both retrospective and prospective research on inpatient and outpatient samples of children and adolescents continue to report that trauma formulations and the PTSD diagnosis is underutilized or missed (e.g., Deblinger et al., 1989; Doyle & Bauer, 1989). This study extends those findings and suggests that PTSD may be missed but an important consideration in youth, usually viewed as having CD, who have come into contact with the law. These youth, the frequent victims of unstable families, violence, physical, sexual, and emotional abuse, multiple out-of-home placements, and losses often present with PTSD which is overlooked by clinicians.

Furthermore, this study supports the notion that direct questioning about trauma and PTSD is necessary but probably infrequent in the development of diagnosis and treatment planning (e.g., Deblinger, 1989; Doyle & Bauer, 1989; McLeer et al., 1988; Rose et al., 1991). In the present study, several subjects had been seen in psychiatric services, some several times, but were not diagnosed with PTSD. Although a few may have developed PTSD after their psychiatric evaluation by others, the consequence of inadequate assessment is the misattribution of trauma-related symptoms to other mental and behaviour disorders (Fullilove et al., 1993) and the possible persistence of PTSD and associated

disorders. If trauma, PTSD, and CD often co-occur, as this study suggests, it will be difficult to treat either disorder without assessing both.

Treatment outcome studies of CD children and youth rarely identify positive results of treatment (e.g., Kazdin, 1987a). The current research suggests that if trauma, PTSD, and CD often co-occur, and if PTSD promotes conduct disordered behaviour, efforts to identify and resolve categories of trauma and trauma-related symptoms might be useful in increasing treatment effectiveness and reducing recidivism rates (Barnard et al., 1992). In general, exposure based treatments in which the individual confronts traumatic memories and/or trauma-related situations (Fairbank, Gross, & Keane, 1983, Fairbank & Keane, 1982; Riggs et al., 1992) have been useful in samples of adults with PTSD, and in at least one case study of a child with PTSD (Saigh, 1986). Although there have been few treatment studies of children and adolescents with PTSD, small group therapies that focus on education in the stress recovery process, anger and stress management techniques, and an understanding of how past trauma impacts on current behaviour have also shown positive results (Doyle & Bauer, 1989; Snodgrass et al., 1993). Furthermore, small group therapies appear to provide the additional benefit of discussion of common problems and of group problem-solving that create a sense of emotional support (Doyle & Bauer, 1989; Yule & Williams, 1990). A focus on changing cognitive perceptions regarding the cause of significant events also appears to be useful in treating children

and adolescents exposed to similar traumas (Joseph, Brewin, Yule & Williams, 1993; Joseph, Yule, & Williams, 1993) and encouraging conflict resolution associated with trauma appears to be useful in treating adolescents with impulsive behaviour (Earl, 1991). It is clear that whatever the techniques used, they will have to be tailored to the unique needs of individuals suffering both emotional and behaviour disorders.

Finally, the current research has implications for public opinion and legislation. Currently in Canada, there is a growing fear of crime. Along with that fear, the public perception seems to be that the law is too lenient on young offenders. Several groups have demanded changes to the Young Offenders Act which would make it more harsh, punitive, and stringent. Changes advocated include an automatic transfer of youth to adult court for violent offences, the lowering of age limits in the definition of young offenders (i.e., from 12 to 17 years to 10 to 16 years), and "tougher" (i.e., longer) sentences for young offenders. While any suggestion that traumatized youth should not be subject to penalties is not advocated by the present researcher, the present research suggests that, for at least some youth, cycles of violence and antisocial behaviour may be mediated by mental health problems. However, as stated by Taylor and Harry (1991), "When the former victim is also an offender he is often construed solely as an offender" (p. 829).

## APPENDIX A

Simon Fraser University

## INFORMATION SHEET FOR SUBJECTS

This form describes the proposed research, the psychological tests involved, and any risks involved in your participation.

Title of Project: A Study of Life Events, Thoughts, Feelings, and Behaviours

I am a doctoral candidate in clinical psychology at Simon Fraser University. I am interested in exploring the relationship between various life events and various thoughts, feelings, and behaviours. I hope to accomplish this by inviting a large number of individuals aged 13 to 18 to complete an interview with myself (the researcher) and a questionnaire. The interview will ask about various life events that may or may not have been experienced by you, as well as some of the thoughts or feelings you may have experienced as a result of these events. The questionnaire will ask you about various thoughts, feelings, and behaviours that also may or may not apply to you.

You may participate in this study on a volunteer basis by completing a consent form, the interview with the researcher, and the questionnaire. Upon completion of these, $5.00 will be deposited in your account. However, before deciding to participate or not, you need to be aware of the following:

1) This study is being undertaken independently of the Youth Detention Center (YDC). Your participation in the study will not affect your standing within YDC, your current situation, or your court experience.

2)Within certain limits which I will explain to you, your answers during the interview and on the questionnaire will be completely confidential. You will be asked to indicate your age, grade at school, and ethnic background on the questionnaire, but do not put your name or any other identifying information on the answer sheets. You will be assigned a number and information you provide me will be coded according to that number. No one will have access to your answers or know of your number. Your answers will be used for research purposes only and will be destroyed upon completion of the study.

3)Please be aware, however, that if you tell me you have clear and imminent plans to hurt yourself (commit suicide) or someone else, I am required to do what is necessary to protect you. This may mean I will have to tell some one in charge. I will not do this, however, without discussing this with you first and the reasons why. Also, if you tell me that you or someone else is in current danger of being hurt, by law I am required to disclose this threat. Again, however, I will not contact an official without discussing this with you first and the reasons why. Furthermore, your identity as the source of this information can remain anonymous.

4)If you choose to participate, please be aware that you may withdraw your consent to participate at any time while answering any questions. Your withdrawal from the study will in no way affect your standing or treatment in YDC.

5)While it is not my intention, it is possible that some of the questions, if they apply to you, will cause you to feel sad or distressed. I will be sensitive to this and, if it occurs, I will be available to assist you.

6)If at any time during your participation in this study, you become dissatisfied with your treatment, you can take your complaints to Dr. Roger Blackman, Chairman of the Department of Psychology, Simon Fraser University. You will be given a stamped and addressed envelope for this purpose if you desire.

7)The overall results of this study can be communicated to you at the end of the study if requested. You may be told of your own results if you request this as well.

I will discuss the information described in this document before I will allow you to participate. This is to assure that you understand its contents. I will also answer any questions you may have regarding your participation. If you agree to participate, at the end of your participation, I will again be available to answer any questions or address any concerns you have. Your comments will also be most welcome.

Thank you for your cooperation and contribution to this study.

Kathleen Rogers, M.A.,
Clinical Psychology Graduate Student,
Simon Fraser University,
Supervised by: Dr. Robert G. Ley

Simon Fraser University

# INFORMED CONSENT BY SUBJECTS TO PARTICIPATE IN A RESEARCH PROJECT OR EXPERIMENT

Note: The University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of subjects. This form and the information it contains are given to you for your own protection and full understanding of the procedures, risks and benefits involved. Your signature on this form will signify that you have received the document described below regarding this project, that you have received an adequate opportunity to consider the information in the document, and that you voluntarily agree to participate in the project.

Having been asked by Kathleen L. Rogers of the Psychology Faculty/School/(Department) of Simon Fraser University to participate in a research project experiment, I have read the procedures specified in the document entitled:

INFORMATION SHEET FOR SUBJECTS

I understand the procedures to be used on this experiment and the personal risks to me in taking part.

I understand that I may withdraw my participation in this experiment at any time.

I also understand that I may register any complaint I might have about the experiment with the chief researcher named above or with

Dr. Roger Blackman,

Dean/Director/(Chairman) of the Department of Psychology Simon Fraser University.

Copies of the results of this study, upon its completion, may be obtained by contacting:

Kathleen Rogers, Department of Psychology, Simon Fraser University

I agree to participate by completing an interview with the researcher and by completing a questionnaire.

(state what the subject will do)

as described in the document referred to above, during the period: _____

at Youth Detention Centre

(place where procedures will be carried out)

NAME (Please print): _____

ADDRESS: _____

SIGNATURE: _____ WITNESS: _____

DATE: _____

Once signed, a copy of this consent form and a subject feedback form should be provided to you.

Simon Fraser University

**INFORMATION SHEET FOR PARENTS/GUARDIANS**

This form describes the proposed research, the psychological tests involved, and any risks involved in participation in this research.

Title of Project: A Study of Life Events, Thoughts, Feelings, and Behaviours

I am a doctoral candidate in clinical psychology at Simon Fraser University. I am interested in examining the relationship between various life events and various thoughts, feelings, and behaviours. I hope to accomplish this by inviting a large number of individuals aged 13 to 18 to complete an interview with myself (the researcher) and a paper and pencil questionnaire. The interview and questionnaire will ask about various life events that may or may not have been experienced by the minor for whom your consent to participate is being sought.

The minor may participate in this study only with your consent. With your consent, he will also be asked to read a document describing the study and he will be asked if he wishes to participate in the research. If he agrees to participate, I will ask him to complete an interview with me, and the questionnaire. He will be paid $5.00 for his participation.

Before deciding whether or not to allow the minor to participate, I would like you to be aware of the following:

1) This study is being undertaken independently of Youth Detention Center (YDC). Participation in the study will not affect the minor's standing within YDC, his current situation, or his court experience.

2)Information obtained from the minor will be completely confidential with one exception (see #3 below). He will be asked to indicate his age, grade at school, and ethnic background on the questionnaire, but will be advised not to put his name or any other identifying information on any of the answer sheets. He will be assigned a number and information he provides me will be coded according to that number. No government department, agency, or other individual will have access to his answers or know of his number. His answers will be used for research purposes only and will be destroyed upon completion of the study.

3)The minor's right to confidentiality will be maintained at all times with one exception. As specified by the B.C. Ethical Standards of Psychologists, and the B.C. Family and Child Service Act, confidential information will be disclosed when, and to the extent, that the researcher decides that such disclosure is necessary to protect against a clear risk of harm being inflicted by the minor on himself or another (i.e., suicide or homicide risk), or when the researcher has reasonable grounds to believe the minor or another child is in need of protection (i.e., is currently being abused). The minor will be informed of these limits prior to allowing him to participate in the study.

4)Should you consent to allow the minor to participate, please be aware that your consent may be withdrawn at anytime. The above described procedures will be stopped at the time of your request.

5)While it is not intended, it is possible that some of the questions, if they apply to the minor, will cause him to become sad or distressed. I will be sensitive to this and, if it occurs, I will be available to assist him.

6)If at any time during your participation in this study, you become dissatisfied with your treatment, you can take your complaints to Dr. Roger Blackman, Chairman of the Department of Psychology, Simon Fraser University. You will be given a stamped and addressed envelope for this purpose if you desire.

7)The overall results of this study can be communicated to you at the end of the study if requested.

If you have any questions or concerns, please do not hesitate to contact me. I can be reached at 291-3354.

Thank you for your time and cooperation.

Kathleen Rogers, M.A
Clinical Psychology Graduate Student,
Simon Fraser University,
Supervised by: Dr. Robert G. Ley

Simon Fraser University

# INFORMED CONSENT FOR MINORS AND CAPTIVE AND DEPENDENT POPULATIONS BY PARENT, GUARDIAN AND/OR OTHER APPROPRIATE AUTHORITY

Note: The University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of subjects. This form and the information it contains are given to you to ensure your full understanding of the procedures, risks and benefits involved. Your signature on this form will signify that you have received the document described below regarding this project, that you have received an adequate opportunity to consider the information in the document, and that you voluntarily agree to allow the subject(s) for whom you are responsible to participate in the project.

As (parent/teacher/doctor/etc.) _____

of (name of child/patient/other) _____

I consent to the above-named engaging in the procedures specified in the document titled:

INFORMATION SHEET FOR PARENTS/GUARDIANS

to be carried out in the following place(s): Youth Detention Centre

at the following time(s): _____

in a research project supervised by: Dr. Robert G. Ley

of: the Department of Psychology, Simon Fraser University

I certify that I understand the procedures to be used and have fully explained them to (name of child/patient/other):

_____

In particular, the subject knows the risks involved in taking part. The subject also knows that he/she has the right to withdraw from the project at any time. Any complaint about the experiment may be brought to the chief researcher named above or to Dr. Roger Blackman Dean/Director/Chairman, Psychology Faculty/School/Department, Simon Fraser University.

I may obtain a copy of the results of this study, upon its completion, by contacting:

Kathleen Rogers, Department of Psychology, Simon Fraser University

NAME (Please print): _____

ADDRESS: _____

_____

SIGNATURE: _____ WITNESS: _____

DATE: _____

Once signed, a copy of this consent form should be provided to you.

## APPENDIX B

Table 13

Age at Time of First Motor Vehicle Accident.

| years | n(%) | cum. % |
|---|---|---|
| 1 | 3(7.32) | 7.32 |
| 2 | 0(0.00) | 7.32 |
| 3 | 1(2.44) | 9.76 |
| 4 | 0(0.00) | 9.76 |
| 5 | 1(2.44) | 12.20 |
| 6 | 1(2.44) | 14.63 |
| 7 | 1(2.44) | 17.07 |
| 8 | 0(0.00) | 17.07 |
| 9 | 1(2.44) | 19.51 |
| 10 | 0(0.00) | 19.51 |
| 11 | 4(9.76) | 26.83 |
| 12 | 1(2.44) | 29.27 |
| 13 | 5(12.20) | 41.46 |
| 14 | 5(12.20) | 53.66 |
| 15 | 10(24.39) | 78.05 |
| 16 | 6(14.63) | 92.68 |
| 17 | 3(7.32) | 100.00 |

Note. cum.% = cumulative percent.

Table 14

Age at Time of First Other Accident

| years | n(%) | cum.% |
|---|---|---|
| 3 | 1(2.17) | 2.17 |
| 4 | 1(2.17) | 4.35 |
| 5 | 2(4.35) | 8.70 |
| 6 | 0(0.00) | 8.70 |
| 7 | 2(4.35) | 13.04 |
| 8 | 6(13.04) | 26.09 |
| 9 | 4(8.70) | 34.78 |
| 10 | 5(10.87) | 45.65 |
| 11 | 1(2.17) | 47.83 |
| 12 | 6(13.04) | 60.87 |
| 13 | 4(8.70) | 69.57 |
| 14 | 4(8.70) | 78.26 |
| 16 | 5(10.87) | 100.00 |

Note. cum.% = cumulative percent.

Table 15

Age at Time of Second Accident

| years | n(%) | cum.% |
|---|---|---|
| 2 | 1(9.09) | 9.09 |
| 3 | 1(9.09) | 18.18 |
| 4 | 1(9.09) | 27.27 |
| 5 | 0(0.00) | 27.27 |
| 6 | 0(0.00) | 27.27 |
| 7 | 0(0.00) | 27.27 |
| 8 | 2(18.18) | 45.46 |
| 9 | 1(9.09) | 54.55 |
| 10 | 0(0.00) | 54.55 |
| 11 | 1(9.09) | 63.64 |
| 12 | 1(9.09) | 72.73 |
| 13 | 1(9.09) | 81.82 |
| 16 | 5(45.46) | 100.00 |

Note. cum.% = cumulative percent.

Table 16

Age at Which First Robbed/Mugged

| years | n(%) | cum.% |
|---|---|---|
| 6 | 1(3.85) | 3.85 |
| 7 | 0(0.00) | 3.85 |
| 8 | 0(0.00) | 3.85 |
| 9 | 1(3.85) | 7.69 |
| 10 | 1(3.85) | 11.54 |
| 11 | 2(7.69) | 19.23 |
| 12 | 3(11.54) | 30.77 |
| 13 | 5(19.23) | 50.00 |
| 14 | 5(19.23) | 69.23 |
| 15 | 4(15.39) | 84.62 |
| 16 | 2(7.69) | 92.31 |
| 17 | 2(7.69) | 100.00 |

Note. cum.% = cumulative percent.

Table 17

Age at Which First Witnessed Violence

| years | n(%) | cum.% |
|---|---|---|
| 3 | 2(4.44) | 4.44 |
| 4 | 1(2.22) | 6.67 |
| 5 | 1(2.22) | 8.89 |
| 6 | 0(0.00) | 8.89 |
| 7 | 0(0.00) | 8.89 |
| 8 | 2(4.44) | 13.33 |
| 9 | 2(4.44) | 17.78 |
| 10 | 2(4.44) | 22.22 |
| 11 | 3(6.67) | 28.89 |
| 12 | 1(2.22) | 31.11 |
| 13 | 4(8.89) | 40.00 |
| 14 | 10(22.22) | 62.22 |
| 15 | 9(20.00) | 82.22 |
| 16 | 6(13.33) | 95.56 |
| 17 | 2(4.44) | 100.00 |

Note cum.% = cumulative percent.

Table 18

Age at Which Experienced First Violent Death

| years | n(%) | cum.% |
|---|---|---|
| < 1 | 1(2.17) | 2.17 |
| 1 | 1(2.17) | 4.35 |
| 2 | 0(0.00) | 4.35 |
| 3 | 0(0.00) | 4.35 |
| 4 | 0(0.00) | 4.35 |
| 5 | 0(0.00) | 4.35 |
| 6 | 0(0.00) | 4.35 |
| 7 | 1(2.17) | 6.52 |
| 8 | 2(4.35) | 10.87 |
| 9 | 2(4.35) | 15.22 |
| 10 | 2(4.35) | 19.57 |
| 11 | 3(6.52) | 26.09 |
| 12 | 2(4.35) | 30.44 |
| 13 | 8(17.39) | 47.83 |
| 14 | 6(13.04) | 60.87 |
| 15 | 8(17.39) | 78.26 |
| 16 | 6(13.03) | 91.30 |
| 17 | 4(8.70) | 100.00 |

Note. cum% = cumulative percent.

Table 19

Age at Time of Other Significant Trauma

| years | n(%) | cum.% |
|---|---|---|
| 5 | 1(2.94) | 2.94 |
| 6 | 0(0.00) | 2.94 |
| 7 | 3(8.82) | 11.77 |
| 8 | 1(2.94) | 14.71 |
| 9 | 1(2.94) | 17.65 |
| 10 | 2(5.88) | 23.53 |
| 11 | 3(8.82) | 32.35 |
| 12 | 2(5.88) | 38.24 |
| 13 | 6(17.65) | 55.88 |
| 14 | 6(17.56) | 73.53 |
| 15 | 5(14.71) | 88.24 |
| 16 | 4(11.77) | 100.00 |

Note. cum.% = cumulative percent.

Table 20

Age at Time of Death of Parent or Guardian

| years | n(%) | cum.% |
|---|---|---|
| < 1 | 1(10.00) | 10.00 |
| 1 | 1(10.00) | 20.00 |
| 2 | 0(0.00) | 20.00 |
| 3 | 1(10.00) | 30.00 |
| 4 | 0(0.00) | 30.00 |
| 5 | 0(0.00) | 30.00 |
| 6 | 0(0.00) | 30.00 |
| 7 | 0(0.00) | 30.00 |
| 8 | 0(0.00) | 30.00 |
| 9 | 0(0.00) | 30.00 |
| 10 | 1(10.00) | 40.00 |
| 11 | 3(30.00) | 70.00 |
| 12 | 1(10.00) | 80.00 |
| 13 | 1(10.00) | 90.00 |
| 14 | 0(0.00) | 90.00 |
| 15 | 1(10.00) | 100.00 |

Note. cum.% = cumulative percent.

Table 21

Age at Time of Parental Divorce or Separation

| years | n(%) | cum.% |
|---|---|---|
| 1 | 3(7.69) | 7.69 |
| 2 | 3(7.69) | 15.39 |
| 3 | 5(12.82) | 28.21 |
| 4 | 3(7.69) | 35.90 |
| 5 | 3(7.69) | 43.59 |
| 6 | 3(7.69) | 51.28 |
| 7 | 1(2.56) | 53.85 |
| 8 | 2(5.13) | 56.41 |
| 9 | 1(2.56) | 61.54 |
| 10 | 5(12.82) | 74.36 |
| 11 | 2(5.13) | 79.49 |
| 12 | 5(12.82) | 92.31 |
| 13 | 3(7.69) | 100.00 |

Note. cum.% = cumulative percent.

Table 22

Age at Time of Abandonment

| years | n(%) | cum.% |
|---|---|---|
| < 1 | 2(10.53) | 10.53 |
| 1 | 2(10.53) | 21.05 |
| 2 | 3(15.79) | 36.84 |
| 3 | 1(5.26) | 42.11 |
| 4 | 1(5.26) | 47.37 |
| 5 | 0(0.00) | 47.37 |
| 6 | 1(5.26) | 52.63 |
| 7 | 0(0.00) | 52.63 |
| 8 | 1(5.26) | 57.90 |
| 9 | 1(5.26) | 63.12 |
| 10 | 1(5.26) | 68.42 |
| 11 | 1(5.26) | 73.68 |
| 12 | 2(10.52) | 84.21 |
| 13 | 1(5.26) | 89.47 |
| 14 | 0(0.00) | 89.47 |
| 15 | 2(10.52) | 100.00 |

Note. cum.% = cumulative percent.

Table 22

Age at Time of Adoption

| years | n(%) | cum.% |
|---|---|---|
| < 1 | 3(60.00) | 60.00 |
| 1 | 0(0.00) | 60.00 |
| 2 | 1(20.00) | 80.00 |
| 3 | 1(20.00) | 100.00 |

Note. cum.% = cumulative percent.

Table 23

Age When First Placed in Foster Care

| Years | n(%) | cum.% |
|---|---|---|
| 1 | 2(4.55) | 4.55 |
| 2 | 2(4.55) | 9.09 |
| 3 | 2(4.55) | 13.64 |
| 4 | 1(2.27) | 15.91 |
| 5 | 1(2.27) | 18.18 |
| 6 | 2(4.55) | 22.73 |
| 7 | 1(2.27) | 25.00 |
| 8 | 3(6.82) | 31.82 |
| 9 | 2(4.55) | 36.36 |
| 10 | 0(0.00) | 36.36 |
| 11 | 3(6.82) | 43.18 |
| 12 | 8(18.18) | 61.36 |
| 13 | 8(18.18) | 79.55 |
| 14 | 5(11.36) | 90.91 |
| 15 | 2(4.55) | 95.45 |
| 16 | 1(2.27) | 97.73 |
| 17 | 1(2.27) | 100.00 |

Note. cum.% = cumulative percent.

Table 24

Age at Which First Separated From Parent More Than Six Months

| years | n(%) | cum.% |
|---|---|---|
| 1 | 1(2.86) | 2.86 |
| 2 | 2(5.71) | 8.57 |
| 3 | 1(2.86) | 11.43 |
| 4 | 3(8.57) | 20.00 |
| 5 | 1(2.86) | 22.86 |
| 6 | 2(5.71) | 28.57 |
| 7 | 0(0.00) | 28.57 |
| 8 | 2(5.71) | 34.29 |
| 9 | 3(8.57) | 42.86 |
| 10 | 0(0.00) | 42.86 |
| 11 | 3(8.57) | 51.43 |
| 12 | 5(14.29) | 65.71 |
| 13 | 4(11.43) | 77.14 |
| 14 | 5(14.29) | 91.43 |
| 15 | 2(5.71) | 97.14 |
| 16 | 1(2.86) | 100.00 |

Note. cum.% = cumulative percent.

Table 25

Age at Onset of Physical Abuse

| years | n(%) | cum.% |
|---|---|---|
| < 1 | 4(10.81) | 10.81 |
| 1 | 3(8.11) | 18.92 |
| 2 | 3(8.11) | 27.03 |
| 3 | 4(10.81) | 37.84 |
| 4 | 6(16.22) | 54.05 |
| 5 | 3(8.11) | 62.16 |
| 6 | 3(8.11) | 70.27 |
| 7 | 2(5.41) | 75.68 |
| 8 | 5(13.51) | 89.19 |
| 9 | 1(2.70) | 91.89 |
| 10 | 1(2.70) | 94.59 |
| 11 | 1(2.70) | 97.30 |
| 12 | 0(0.00) | 97.30 |
| 13 | 1(2.70) | 100.00 |

Note. cum.% = cumulative percent.

Table 26

Age at Onset of Verbal Abuse

| years | n(%) | cum.% |
|---|---|---|
| < 1 | 3(8.33) | 8.33 |
| 1 | 1(3.85) | 15.38 |
| 2 | 1(3.85) | 19.23 |
| 3 | 3(8.33) | 30.77 |
| 4 | 2(7.69) | 38.46 |
| 5 | 5(19.23) | 57.69 |
| 6 | 5(19.23) | 76.92 |
| 7 | 1(3.85) | 80.77 |
| 8 | 1(3.85) | 84.62 |
| 9 | 2(7.69) | 92.31 |
| 10 | 2(7.69) | 100.00 |

Note. cum.% = cumulative percent.

Table 27

Age at Time of First Episode of Sexual Abuse

| years | n(%) | cum.% |
|---|---|---|
| 2 | 1(6.25) | 6.25 |
| 3 | 0(0.00) | 6.25 |
| 4 | 1(6.25) | 12.50 |
| 5 | 3(18.75) | 31.25 |
| 6 | 3(18.75) | 50.00 |
| 7 | 0(0.00) | 50.00 |
| 8 | 1(6.25) | 56.25 |
| 9 | 1(6.25) | 62.50 |
| 10 | 1(6.25) | 68.75 |
| 11 | 0(0.00) | 68.75 |
| 12 | 2(12.50) | 81.25 |
| 13 | 1(6.25) | 87.50 |
| 14 | 1(6.25) | 93.75 |
| 15 | 1(6.25) | 100.00 |

Note. cum.% = cumulative percent.

## Appendix C

Summary of Subject's Experiences

1 MVA at age 7; witnessed friend's accidental death by hanging at age 9; parental divorce at age 11; hit by a car while riding a bicycle at age 12; placed in 12 different foster care homes and never returned home since age 12; parents alcoholic and taken away from mother because "she didn't want me".

2 Fell off bike at age 8 and broke collar bone; beaten-up several times outside the home; parental divorce at age 11; physical abuse by father led to mouth injury and broken teeth after being thrown against some furniture; occasional verbal abuse.

3 Physical abuse by father from an early age caused several bruises to the face and head; occasional verbal abuse; parental divorce at age 11; left home after the parental divorce and ended up in two different group homes.

4 MVA at 6 months of age led to cracked skull, brain swelling, and hospitalization; parental divorce in infancy; snowmobile accident at age 11 led to broken leg; threatened by a group of 18-20 youths with baseball bats at a bus stop and mugged at age 13; placed in foster care twice since age 12.

5 Parental separation at age 3; mother beat him in about face and head with badminton racket; placed in two different foster care homes at age 8; at age 12, uncle (and Godfather) killed in a MVA; at age 13, sister paralyzed in a MVA.

6 Born-out-of-wedlock; lived with father for three years in Central America between the ages of 3 and 6; beaten with leather belt by father; occasional degrading verbal abuse by mother; MVA at age 14.

7 Abandoned by alcoholic parents at age 2 and made a ward of the court; lived in several foster homes for the next few years, and in the same foster home for 8 years before being taken away at age 15 due to the foster family leaving the Lower Mainland (says "I developed an attitude problem after that"; subject also keeps returning to the subject of his "parents" [i.e., the foster parents] through-out the interview and showed observable signs of significant distress); informed of father's death at age 15; at age 16 was hit by a car while riding a bicycle (was unconscious and required stitches and hospitalization), witnessed an individual get shot in a "drive by" shooting while visiting L.A., witnessed a youth get shot for a Raiders jacket in Vancouver, and was attacked with a knife causing injury in a street fight.

8 MVA at age 5 led to three lost teeth and cuts requiring stitches; parental divorce also at age 5; mini-bike accident at age 9 led to unconsciousness, numerous cuts from broken plexiglass, and hospitalization; approached by three youths with knives and jacket stolen at age 13; in three group homes since age 12; occasional physical and verbal abuse.

9 Parental separation at age 4; fairly frequent physical abuse by mother since age 4, as well as verbal abuse that often include scatological language; at age 11, friend died in motor-bike accident; witnessed several people get beat-up.

10 Alcoholic parents; placed in several foster homes since one year of age ("parents kept getting me back") due to physical and verbal abuse at home since infancy. Abuse included being attacked with a "2x4", bar, hose, belt, end of buckle, screw driver, and knife; unconscious at age 5 from hit with "2x4" and scar on face from attack with knife.

11 Father alcoholic; parental divorce at age 6; abandoned by mother at age 8 and lived in 12 foster homes or with father ever since; severe physical abuse by father included being beaten with belt, burned with cigarettes and having his nose and arm broken; severe verbal abuse also by father included threats to kill him; significant fall at age 8 led to unconsciousness; witnessed "curb stomping" at age 15; friend stabbed causing death at age 16.

12 MVA at age 3 led to serious injuries and hospitalization for all family members; parental divorce at age 13; occasional physical and verbal punishment; mugged at age 14 and left with cuts and broken nose; witnessed friend being beaten with baseball bat leading to hospitalization at age 14; hit by drunk driver at age 15; at age 17, friend shot to death.

13 Parental divorce at age 2; ran away from home at age 14 in stolen car (in which he was in an accident) after being chased by mother with schizophrenia with knife; severe and long standing physical and verbal abuse by mother included being attacked with broom handle, knife, and several other objects causing numerous scars over large parts of his body, and occasionally being tied up and verbally and physically assaulted; at age 16, friend stabbed to death.

14 Adopted in infancy; placed in several foster homes since age 8 due to severe physical and verbal abuse by mother included being attacked with several weapons causing several bruises and, on one occasion, his head to be split open ("kept getting dragged back home"); left drifting in a boat at age 10; MVA at age 11; left for the streets at age 12; frequent and severe sexual abuse by three different males at ages 12, 13, and 15 included attempted rape.

15 Hit by car at age 3; parental neglect and occasional physical and verbal abuse by mother led to chipped teeth and broken knuckles; left home for the streets at age 10 and remained there until placed in foster care at age 13; mugged while living on the streets at age 11; MVA that injured several passengers also at age 11; at 12, both brother and cousin suicided; MVA at age 15 in stolen car; at age 16, friend stabbed to death; at age 17, witnessed a stabbing leading to death.

16 Fairly frequent physical abuse by father included being attacked with extension and telephone cords, spoons; frequent verbal abuse; witnessed MVA causing death at age 14; mugged and robbed with extreme physical force at age 16.

17 Dirt bike accident at age 13 led to minor injuries; physical assault also at age 13 caused significant injury; placed in foster care at age 14 due to family conflict (says "I got mixed up in crime because of people in the group home").

18 At age 11, father stabbed to death by the subject's stepmother; occasional physical and verbal abuse by mother.

19 At age 11, father hit by a car and killed; at age 13, suffered third degree burns to arm, stomach and hand after spilled gasoline ignited; attacked with crowbar requiring stitches in street fight at age 15; witnessed stabbing at age 15; occasional physical and verbal punishment by mother.

20 Fell off back of motorcycle at age 2 causing cut requiring 16 stitches to head; witnessed domestic violence against mother from early age; physical abuse by alcoholic father until age 5 when parents divorced; physical abuse by alcoholic stepfather since age 10 included being whipped with an extension cord leading to cuts and scars; at age 6 was thrown on the ground by 4 or 5 older youths for chocolate bar; abducted and beat-up by three older boys at age 12; MVA at age 12; hit by car at age 13.

21 Suffered concussion and was hospitalized at age 5 after being pushed against a steel pole; at age 9, a friend was hit by a car and killed; at age 10, a friend was abducted, tortured, stabbed to death and dumped at grounds belonging to UBC; longstanding history of very frequent physical abuse by father causing cuts and bruises; very frequent verbal abuse by mother included threats to kill; witnessed individual get hit by car at age 15.

22 At one year of age, subject's father drowned; first placed in foster care at age 3; hit by a truck at age 5 causing broken bones and bruised internal organs; frequent physical abuse by stepfather led to cuts and bruises and included being attacked with a hammer at age 7; frequent verbal abuse by stepfather included being told he was not wanted; sexual abuse by stepfather involved forced fellatio at age 6; left home for the streets at age 12; robbed several times on the street; witnessed man significantly injured in fight at age 15.

23 Frequent physical and verbal abuse by mother and stepfather included being burned; significant fall at age 10 caused broken leg, dislocated joint, unconsciousness and hospitalization; at age 11, best friend killed in a car accident; secondary burns to face due to Halloween prank at age 15; MVA at age 15 caused injury to two passengers; beaten-up and seriously injured at age 15; witnessed fight causing significant injury.

24 Frequent physical abuse by stepfather between ages 6 and 9 included being beaten with a belt or piece of wood, punched in the stomach and kicked; frequent humiliating abuse by mother between 5 and 9; placed in foster care at age 9 and never returned home; witnessed friend ride his bike over a cliff in Stanley Park resulting in his death at age 13; beaten-up several times.

25 MVA in infancy; at age 7, friend of the family committed suicide and neighbour chased him a gun and shot his dog; significant fall at age 8 led to broken ribs; accident on mini bike at age 9 led to cuts and hospitalization; witnessed individual hit by truck and thrown about 50 feet at age 10; mother (alcoholic and manic depressive) and father (heroin addict) abandoned him at age 11 resulting in foster care placement; witnessed stabbing at age 13; mugged and hit with baseball bat at age 14 caused cuts requiring stitches and unconsciousness.

26 Very severe sexual abuse by live-in boarder, beginning at age 2 and continuing until age 7, included forced fellatio and, beginning at age 5, anal intercourse; placed in about 10 foster homes since age 6; occasional verbal abuse by group home staff beginning at age 7; father died of heart attack at age 12.

27 Parental divorce at age 3; frequent physical and verbal abuse by father, mother, and stepfather; hit by car at age 16; also at age 16, friend suicided; at age 17, friend stabbed resulting in death.

28 Lived in Nicaragua during wartime; hit by car at age 10 resulting in unconsciousness, broken leg with bone protruding through skin, and hospitalization; at age 13, cousin suicided and subject stabbed requiring stitches and hospitalization.

29 Father died at age 3; hit by car at age 8; witnessed mother being beat-up at age 8; moderate verbal abuse by stepfather between ages 10 and 11; stabbed at age 13.

30 Witnessed friend die in accidental drowning at age 16.

31 Placed in "Plea" home and group home at age 14; MVA in stolen vehicle at age 15.

32 Very severe sexual abuse between ages 5 and 14 included forced genital contact and fellatio beginning at age 5 and anal intercourse beginning at age 12; MVA involving minor injury at age 11.

33 Adopted at birth; mother schizophrenic and father alcoholic; severe physical and verbal abuse by both parents, beginning at age 4 and continuing until age 12 when a neighbour "rescued" him, included being chased with a butcher knife and gun, having a hot sandwich mushed in his face, being beaten with a belt, and being punched in the stomach; first placed in foster care at age 12; MVA requiring hospitalization at age 5; hit by car while riding a bicycle at age 11; bit by dog in face and requiring stitches at age 11; fell off horse requiring stitches at age 12; parental divorce at age 13; abandoned at age 15; MVA causing unconsciousness and requiring hospitalization at age 16; witnessed friend die an accidental death.

34 Born-out-of-wedlock; during infancy, natural father killed in Cambodia; witnessed violence in Cambodia between age 5 and 6; immigrated to Canada at age 6; mother and stepfather divorced at age 12; attacked at age 16; MVA and robbed/mugged at age 17.

35 MVA at age 1; occasional physical and verbal abuse by both parents caused bumps and swelling; burn injury required hospitalization at age 7; parental divorce at age 9 ("started getting into trouble after they split"); hit by transit bus at age 12; placed in several foster homes beginning at age 12; father died of heart attack at age 13.

36 Parental divorce at age 4; significant fall off rock embankment at age 12 required hospitalization; fall out of moving car at age 14 caused only minor injury; at age 15, friend suicided; MVA in stolen car at age 16.

37 Hit by car at age 4 resulting in unconsciousness and hospitalization; very severe sexual abuse began at age 5 and included forced fellatio, cunnilingus and attempted intercourse by female perpetrator and forced fellatio by male perpetrator; hit by car at age 10 causing back and head injury and hospitalization; witnessed drowning at age 10; mugged/robbed at age 12; witnessed stabbing causing death at age 13; friend suicided at age 13.

39 Abandoned by father at age 3; some physical and verbal abuse by mother and stepfather between ages 2 and 12; mother and stepfather divorced at age 12; hit by car while riding a bicycle at age 14; attacked with knife at age 14; witnessed friend's beating for jacket at age 15; friend stabbed causing death at age 16.

40 At age 14, witnessed friend's beating requiring hospitalization; friend died after being hit by a car at age 14; significant fall caused unconsciousness at age 15; MVA at age 15; mugged/robbed for a jacket at age 16.

41 Abandoned by parent at age 2; adopted at age 21/2; extreme physical and verbal abuse at the hands of his adoptive parents included having his hands placed on a hot stove; violently raped in a park at age 9; left home to live on the streets at age 12 and was subsequently placed in several foster homes; mugged at age 13; witnessed friend get hit by a semi-truck and die at age 13; MVA at age of 14 caused a fractured skull.

42 Parental divorce at age 2; exposed to forest fire at age 5; sexually abused at age 6; robbed at age 14; chased by a man with a gun at age 16.

43 Hit by car at age 9 resulting in concussion and stitches to the head; witnessed assault causing injury at age 12; placed in foster care briefly at age 13.

44 Parental divorce at age 6; moderate physical abuse between ages 6 and 13 resulted in bruises and swelling; verbal abuse included scatological language; at age 9, uncle suicided; left home for the streets at age 13; MVA at age 15 resulted in broken nose; mugged, robbed and beaten-up at age 15; witnessed individual get shot at from a vehicle at age 16; beaten with baseball bat at age 16; forced genital contact at age 16.

45 Moderate physical and verbal abuse began in infancy; immigrated to Canada from Vietnam at age 6; MVA at age 15 resulted in his brother's death (subject was driving in stolen car).

46 Finger cut off in skating accident at age 7; MVA at age 9 resulted in minor injuries.

47 Parental divorce at age 3; alcoholic mother died at age 11; MVA at age 12 resulted in cuts, unconsciousness, and hospitalization; aunt beaten to death at age 13; first placed in foster care at age 13.

48 Born-out-of-wedlock and never knew father; moderate verbal abuse by mother.

49 Severe physical and verbal abuse, primarily by mother's boyfriend, lasted for years and resulted in cuts, bruises, and welts; accidental second and third degree burns to feet at age 9 resulted in stay in hospitalization; hit by car while riding a bicycle at age 12; robbed with force at age 12; MVA at age 13; witnessed a female friend attempt to hang herself at age 14; subject shot with pellet gun at age 14.

50 Parental divorce at age 1; mother threw subject into water at age 4 resulting in near drowning; severe sexual abuse by mother's boyfriend between ages 4 and 6;extreme physical abuse by mother's boyfriend between ages 6 and 13; severe verbal abuse by mother included calling the subject "you little Niger" (mother is Caucasian); witnessed woman threatening suicide with a gun to her head at age 10; robbed and beaten-up in Detroit at age 13; at age 13, friend stabbed to death; witnessed stabbing at age 14.

51 At age 10, father died.

52 Parental divorce at age 4 and subject has not seen his father since.

53 Parental divorce at age 3; moderate physical and verbal abuse by father on visits with him included being tied up with an extension cord; hit by car at age 10 resulting in broken leg and foot; witnessed the accidental drowning of his best friend at age 11; sexually abused by baby-sitter at age 12; at age 14, friend died of drug overdose; MVA at age 16.

54 Placed in temporary foster care at age 12; beat-up with injury at age 14.

55 Witnessed spousal abuse of mother from age 4; at age 8, friend died of head injuries as a result of an accident; stabbed with a jackknife at age 8; parental divorce at age 10; placed in temporary foster care at age 13.

56 Witnessed severe domestic abuse beginning at age 8; victim of severe physical and moderate verbal abuse also beginning at age 8; placed in foster care at age 9; parental divorce at age 10; beat-up by two individuals at age 12.

57 Abandoned by mother at birth and lived with grandparents; returned to mother at age 10; extreme verbal abuse by mother included telling the subject she wished she had had an abortion; returned to grandparents at age 11; witnessed a friend get run over by a car and die at age 13; MVA at age 13 resulted in several injuries; MVA at age 15.

58 Parental divorce at age 2 and subject has not seen father since; extreme physical and severe verbal abuse by mother included being tied naked to a bed (rope scars evident) and having cold water poured over him, attempted drowning, bruises etc.; placed in permanent foster care at age 5; sexual abuse by one foster father; placed in more than twenty different foster homes; mugged/robbed at age 9.

59 Father abandoned the family when subject was born and divorced the subject's mother at age 6; witnessed brother get hit by a car at age 9; moderate physical and verbal abuse by alcoholic stepfather began at age 11; placed in foster care at age 13; beat-up at age 13; mugged/robbed at age 14; at age 15, friend shot to death by group of youths, MVA in stolen car at age 16.

60 Robbed/mugged gang style (made to kneel, spat at) and kicked by group of teens at P&E at age 10; parental divorce at age 12; motorcycle accident at age 12 resulted in unconsciousness and internal bleeding; beating by several teens for "Bull's" jacket at age 13 resulted in unconsciousness and hospitalization; MVA at age 15 resulted in minor injury; parent currently in hospital with terminal illness.

61 Parental divorce at age 5; infrequent but excessive physical punishment led to cuts and bleeding; extreme verbal abuse by father; accident at age 12 led to cracked skull, concussion and hospitalization; at age 14, beaten-up and friend lethally shot.

62 Physical and verbal abuse by father resulted in broken bones; first placed in foster care at age 13; at age 13, began to witness individuals get beat-up on several occasions; MVA at age 14; sexually assaulted by three different males while living on the streets at age 15; hit by vehicle at age 16.

63 Years of severe physical abuse by father using several weapons resulted in several injuries; witnessed years of domestic abuse causing several injuries against mother; parental divorce at age 10 resulted in subject being moved back and forth between parents; at age 14, witnessed friend accidentally but fatally shoot himself; left home to live on the streets at age 15; MVA in stolen car at age 16 resulted in open leg injury; hit by car at age 16 resulted in cuts, concussion, and hospitalization; placed in foster care from street at age 16; friend suicided at age 17.

64 Parental divorce at age 10; at age 11, witnessed individual get shot in Central America; mugged/robbed at age 14.

65 Extreme physical abuse by alcoholic father began in infancy (when the subject was thrown against a wall for crying) and continued with the use of several different weapons and several injuries and broken bones until age 15; left home for the streets at age 15; placed in foster care at age 15; attacked with weapon (machetti) in movie at age 11; hit by car at age 14 resulting in hospitalization; motor cycle accident at age 14 resulted in broken nose,arm, and jaw, torn muscles and hospitalization; also at age 14, friend shot by Chinese gang and witnessed stabbing; witnessed shooting and "curb stomping" this year.

66 Sexually abused by male at age 6; attempted abduction at age 7; sexually abused by second male at age 8; accident with mini-bike at age 10 led to nonlife threatening injury; in several foster and group homes since age 11; witnessed brother severely beaten-up at age 15; at age 16, friend stabbed to death in street fight.

67 Abandoned by mother and adopted at age 41/2 months; taken from adoptive home and placed in foster care as a result of extreme physical abuse at age 6; placed in numerous foster homes through-out life; witnessed friend accidently kill himself when he jumped off a building and landed on a fork lift at age 8; dirt bike accident at age 8 resulted in broken bones, unconsciousness and hospitalization; mugged/robbed at age 14.

68 Fall from a bridge at age 3 resulted in broken arm; parental divorce at age 12; witnessed three people brutally beat-up a youth at age14; death of three fiends at age 14 (one was hit by a car, one died in a MVA, and one fell off a cliff while hiking).

69 Parental divorce at age 12; mugged/robbed at age 15.

70 Born-out-of-wedlock and never knew father; some physical abuse and severe verbal abuse by mother began at age 6; fall from second story roof at age 8 resulted in unconsciousness and hospitalization; mugged/robbed at age 13; hit by car resulting in some injury but no hospitalization at age 14; two instances of sexual abuse at age 14; witnessed stabbing death of friend at age 15.

71 Extreme physical and severe verbal abuse by both parents began at age 4 and included being attacked with weapons (rolling pin, coat hanger, bottles, broom) resulting in several injuries; stabbed at age 15 resulting in punctured kidneys and hospitalization; witnessed stabbing at age 16; victim of drive-by shooting as well as other shooting (at a dance) at age 17.

72 Mugged and robbed of jacket at age 12; witnessed stabbing at age 14; friend stabbed resulting in his death at age 14; attacked with knife at age 14 resulting in cuts to the face; accidental drug overdose at age 14 resulted in hospitalization.

73 MVA with minor injury at age 13; witnessed violent rape and stabbing death at age 17.

74 Parental divorce at age 7; at age 13, abandonment by mother when a new boyfriend entered her life resulted in the subject living on the streets and periodically with father; motor cycle accident at age 15 resulted in broken bones and hospitalization; robbed/mugged for jacket at age 15; MVA at age 17 resulted in unconsciousness and hospitalization; placed in foster care at age 17.

75 Dirt bike accident at age 11 resulted in broken bones but no hospitalization; parental divorce at age 13; MVA with minor injury at age 15.

76 Hit by car at age 4; removed from home and placed in foster care at age 4; placed in numerous foster care homes through-out life; MVA at age 6; mugged/robbed and beaten-up for jacket, hat and money at age 15; friend suicided by hanging at age 15.

77 Placed in foster care at age 2 due to extreme physical and verbal abuse by parents. Abuse continued on visits for the next 4 years. Sexual abuse by father that began at age 4 and lasted until age 6 included anal penetration and genital injury from fellatio; sexual abuse by second perpetrator began at age 6; subject ran into moving car while riding his bicycle at age 7; MVA at age 16.

78 Born-out-of-wedlock and never knew father; severe physical and verbal abuse by stepfather between ages 6 and 13; hit by car while riding a bicycle at age 8 resulted in head and leg injury; sexually assaulted by baby-sitter at age 10; mugged/robbed and beaten into unconsciousness at age 14.

79 Born-out-of-wedlock and never knew father; experienced earthquake at age 8; severe physical and verbal abuse by stepfather resulted in several injuries; left home to live on the streets at age 14; placed in foster care at age 15.

80 Friend fatally shot at age 13; MVA at age 14 resulted in broken bones and hospitalization; placed in temporary foster care at age 14.

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