

RURAL CANADIAN YOUTH EXPOSED TO PHYSICAL  
VIOLENCE: RESILIENCE,  
DISRUPTIVE BEHAVIOUR, DEPRESSION,  
AND PTSD SYMPTOMS

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By  
Adele M. Laye

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## ABSTRACT

Exposure to physical violence is an unfortunate reality for many Canadian youth (Statistics Canada, 2003), and is associated with numerous negative effects (U.S. Department of Justice, 2000). This study aims to assist in understanding resilience in rural Canadian youth exposed to physical violence by identifying how important certain protective factors are, together with physical violence exposure, in predicting disruptive behaviour, depression, and post-traumatic stress. The protective factors examined are: sense of mastery, sense of relatedness, and positive emotional reactivity. The risk factors examined are three modes of violence exposure: hearing about, witnessing, and being victim.

The sample included 162 youth, ages 16 to 19. A demographic questionnaire and measures of personal protective factors, physical violence exposure, post-traumatic stress, depression, and disruptive behaviours was distributed in a school setting. Data was analyzed through correlations, standard multiple regressions, and stepwise multiple regressions.

Participants were exposed to high rates of physical violence. Nearly all (99%) heard about, 73% witnessed, and 58% were victim to at least one act of violence. Disruptive behaviour, depression, and PTSD symptoms were positively correlated with all modes of physical violence exposure and negatively correlated with all protective factors. Hearing reports of violence predicted depression in the total sample. For males, hearing reports of violence predicted disruptive behaviour. In females, witnessing violence predicted disruptive behaviour and PTSD symptoms, and being victim to violence predicted PTSD symptoms. Positive emotional reactivity seems to be more important in protecting youth from developing psychological symptoms than sense of mastery and sense of relatedness. The ability to regulate one's emotional reaction and recover when upset predicted disruptive behaviour, depression, and PTSD symptoms, whereas sense of mastery predicted depression and PTSD symptoms, and sense of relatedness only predicted disruptive behaviour.

This study adds to the research on physical violence exposure, protective factors, and internalizing/externalizing problems. Few studies have explored these relationships in rural or Canadian samples. The results provide insight into the impact of hearing reports of violence and differences between males and females. Future research should take these variables into account when examining the effects of physical violence exposure on youth.

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## LIST OF ABBREVIATIONS

BYI-II – Beck Youth Inventories Second Edition for Children and Adolescents

CPSS – Child PTSD Symptoms Scale

CREV – Children’s Report of Exposure to Violence

DSM-III-R – Diagnostic Statistical Manual Third Edition Revised Version

DSM-IV – Diagnostic Statistical Manual Fourth Edition

RSCA – Resiliency Scales for Children and Adolescents

PTSD – Posttraumatic Stress Disorder

## CHAPTER ONE

### Introduction

#### *Overview of the Problem*

Exposure to violence is an unfortunate reality for many Canadian children and youth. In 2003, they were victims of 61% of all sexual assaults reported to police and 21% of all physical assaults (Statistics Canada). The rate of violent victimization in 2004 was 1.5 to 19 times greater for young people between the ages of 15 and 24 than any other age group (Statistics Canada). Inner-city youth are at an even higher risk of violence exposure considering the rates of violent crime are greatest in neighbourhoods with a high percentage of low-income families/earners (Statistics Canada, 2001) and living in an urban area and having a low household income increases the risk of victimization (Statistics Canada, 2004).

The negative effects of exposure to violence can be devastating. Children exposed to violence “often experience heightened levels of depression and feelings of hopelessness, anxiety, fear, rage, and aggression” (p. 21; U.S. Department of Justice, 2000). They have difficulty making friends, accomplishing developmental tasks, and participating in everyday activities. They are also at higher risk of becoming offenders themselves, being re-victimized, having school, work, or relationship difficulties, and developing physical or mental health problems.

However, not all youth exposed to violence develop such problems (Fergusson & Horwood, 2003; Werner & Smith, 1992). Research has consistently found that it is unusual for more than half of children exposed to risk factors to develop serious disabilities or persistent problems (Rutter, 1985; Werner & Smith, 1992). Numerous studies have explored the protective factors associated with positive outcomes for those facing harsh conditions (Carr & Vandiver, 2001; Fisher, Storck, & Bacon, 1999; Gerrard & Buehler, 2004; Hanlon, Bateman, Simon, O’Grady, & Carswell, 2004; Printz, Shermis, & Webb, 1999). Some researchers are specifically exploring the protective factors associated with positive outcomes in children and youth exposed to violence. Protective factors such as spirituality (Jones, 2007), attitude toward school (Kennedy & Bennett, 2006), family support (Jones; Ozer, 2005), parental monitoring (Kliewer, Murrelle, Prom, Ramirez, Obando, Sandi, et al., 2006), and perceived classmate support (Benhorin & McMahon, 2008) have been found to buffer the effects of exposure to violence. Yet, there is also evidence that exposure to violence is a “particularly potent precursor” (p.127; Youngstrom, Weist, & Albus, 2003) of internalizing and externalizing problems, suggesting that the protective

factors that guard against other risk factors do not provide the same protective effect for those exposed to violence. Considering this inconsistency and the potentially life-altering harmful effects of exposure to violence, more research in this area is needed.

### *Significance of Research*

In order to effectively address the negative effects of exposure to violence, a clear understanding of youth resilience to violence exposure is needed. Resilience is defined as the dynamic process surrounding positive adjustment under challenging life conditions that protects against the negative effects of adversity (Luthar, Cicchetti, & Becker, 2000; Rutter, 1985). The current study highlights key individual traits that may guard youth against the negative effects of exposure to violence. Through this and other related research, interventions and preventative programs that target these important protective factors can be developed and implemented. Such advancements to programming would assist children and youth in building resilience so that they are less likely to suffer from the harmful effects of violence exposure (i.e., depression, posttraumatic stress, conduct problems, and re-victimization). Programs that target important protective factors would be especially beneficial to schools located in high violence neighbourhoods, so that most, if not all, children and youth who are at risk of violence exposure are given the opportunity to build resilience.

### *Purpose of the Study*

The purpose of this research is to develop a better understanding of resilience in rural Canadian youth exposed to physical violence. Physical violence is defined as deliberate acts intended to cause physical harm against a person (Cooley, Turner, & Beidel, 1995). These acts include beating someone up (i.e., punching, kicking or biting someone so badly that they were hurt), chasing or threatening someone, robbing or mugging someone, and shooting or stabbing someone. Violence that is experienced or witnessed in the home, school, and neighbourhood is included in the definition, but this study does not discriminate between these environments.

Rather than characteristics of the family, which has been studied extensively (Gorman-Smith, Henry, & Tolan, 2004; Richters & Martinez, 1993), or other environmental factors which are difficult to target in school programming, the focus of this research is on personal characteristics that protect youth. The protective factors examined are sense of mastery, sense of relatedness, and positive emotional reactivity. These protective factors are of particular interest because they have been associated with internalizing/externalizing problems (Prince-Embury,

2008a) but have not been considered in this area of research. In addition, each of these personal traits could be fostered through school programming. Sense of mastery is the ability to interact with and benefit from cause-and-effect relationships in the environment (Prince-Embury, 2008a). It includes optimism, self-efficacy, and adaptability. Sense of relatedness is defined as the experience of trust, comfort with others, perceived access to support, and tolerance of differences. Positive emotional reactivity is the ability to modulate, manage, and tolerate emotional arousal. The purpose of this study is to identify how important these characteristics are, together with exposure to physical violence, in predicting disruptive behaviour, depression, and post-traumatic stress in male and female youth.

Although understanding the effect of violence exposure on the development of internalizing and externalizing problems and disorders is important, this study only examined symptoms of these problems. Therefore, symptoms of posttraumatic stress, depression, and disruptive behaviours were measured and analyzed, rather than PTSD, types of depression such as Major Depression, or types of behaviour disorders such as Conduct Disorder. Posttraumatic stress and depression were included because of the amount of research already supporting the relationship between exposure to violence and these internalizing problems (Cooley-Quille, Boyd, Frantz, & Walsh, 2001; Gorman-Smith & Tolan, 1998). Disruptive behaviour was examined because it is a combination of the externalizing problems aggression and delinquent behaviours (Bose-Deakins & Floyd, 2004) which have both been found to be related to exposure to violence (Benhorin & McMahon, 2008; DuRant et al., 2000; Brown, Henggeler, Brondino, & Pickrel, 1999).

### *Research Questions*

#### *First Research Question*

What is the relationship between exposure to physical violence, as measured by the Children's Report of Exposure to Violence (CREV; Cooley, Turner, & Beidel, 1995), and symptoms of three types of internalizing/externalizing problems: depression and disruptive behaviour, as measured by the Beck Youth Inventories Second Edition for Children and Adolescents (BYI-II; Beck, Beck, & Jolly, 2001), and posttraumatic stress, as measured by the Child PTSD Symptom Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001).

Although there is research to support all of these relationships (Benhorin & McMahon, 2008; Gorman-Smith & Tolan, 1998; Myers & Thompson, 2000; Weaver, Borkowski, &

Whitman, 2008), there are also studies that question some of these relationships (i.e., Cooley-Quille et al., 2001). For example, not all studies have found a relationship between depression and exposure to violence (Cooley-Quille et al., 2001). In order to better understand the negative effects of exposure to physical violence, it is important to explore these relationships further with a Canadian sample. Determining which of these internalizing and externalizing problems will be most highly correlated with exposure to physical violence is also of interest.

### *Second Research Question*

What is the relationship between symptoms of internalizing/externalizing problems [i.e., depression and disruptive behaviours, as measured by the BYI-II (Beck, Beck, & Jolly, 2001) and posttraumatic stress, as measured by the CPSS (Foa, Johnson, Feeny, & Treadwell, 2001)], and the protective factors of sense of mastery, sense of relatedness, and positive emotional reactivity, as measured by the Resiliency Scales for Children and Adolescents (RSCA; Prince-Embury, 2006)?

Previous research has found strong negative correlations between the protective factors of sense of mastery, sense of relatedness, and positive emotional reactivity and internalizing and externalizing problems (i.e., depression, disruptive behaviour, and anxiety; Prince-Embury, 2008a). However, because the scale that measures these protective factors is fairly new (i.e., developed in 2006), there have been few studies examining these relationships.

### *Third Research Question*

How important are the demographic variables (sex and school), protective factors (sense of relatedness, sense of mastery, and positive emotional activity), as measured by the RSCA (Prince-Embury, 2006), and the different modes of exposure to physical violence (hearing about, witnessing, or victim), as measured by the CREV (Cooley, Turner, & Beidel, 1995), when used together in predicting disruptive behaviour, as measured by the BYI-II (Beck, Beck, & Jolly, 2001)?

For example, is being a witness or being a victim to violence more predictive of disruptive behaviour? This research question is based on the research exploring the differing effect of direct (i.e., victim) and indirect (i.e., witness) violence exposure (Kitzmann et al., 2003; O'Donnell et al., 2002; Weaver, Borkowski, & Whitman, 2008). Findings suggest that both types of exposure have similar negative effects, but direct victimization may have more damaging

effects than indirect exposure (Ward et al., 2007; Weaver, Borkowski, & Whitman, 2008). However, the results are quite mixed; and therefore, more research is needed.

Previous research has identified numerous protective factors associated with positive outcomes in those exposed to violence (O'Donnell, Schab-Stone, & Muyeed, 2002; Ozer, 2005). However, these three potentially important protective factors have not yet been examined. More research is also needed on whether sex affects how well physical violence exposure and protective factors predict disruptive behaviour. Are there differences between males and females?

#### *Fourth Research Question*

How important are the demographic variables (sex and school), protective factors (sense of relatedness, sense of mastery, and positive emotional reactivity), as measured by the RSCA (Prince-Embury, 2006), and the different modes of physical exposure to violence (hearing reports, witnessing, or being victim), as measured by the CREV (Cooley, Turner, & Beidel, 1995), when used together in predicting depression, as measured by the BYI-II (Beck, Beck, & Jolly, 2001)? Similar to research question three, it was predicted that all of the protective factors will predict lower levels of depression and that differentiating between the types of violence exposure would increase the predictability of depression. This question also looks to clarify whether the effect of physical violence exposure and protective factors on depression will differ for males and females.

#### *Fifth Research Question*

How important are the demographic variables (sex and school), protective factors (sense of relatedness, sense of mastery, and positive emotional reactivity), as measured by the RSCA (Prince-Embury, 2006), and the different modes of exposure to physical violence (hearing reports, witnessing, or being victim), as measured by the CREV (Cooley, Turner, & Beidel, 1995), when used together in predicting symptoms of PTSD, as measured by the CPSS (Foa et al., 2001)? Again, it was expected that all three protective factors will predict lower levels of PTSD symptoms and differentiating between the different modes of violence exposure will increase the predictability of PTSD symptoms. It is also expected that there will be differences between males and females.

*Method*

A sample of 162 participants, ages 16 to 19, was included in this study. Just over half (55%) of the sample were male and 45% were female. Youth were sampled from rural schools in order to extend this body of research to communities that have been given very little attention in the literature.

A survey package consisting of a demographic questionnaire and measures of exposure to physical violence, internalizing and externalizing problems, and protective factors was distributed to the youth in a school setting. The survey took approximately 20 to 40 minutes to complete. The Children's Report of Exposure to Violence (CREV; Cooley, Turner, & Beidel, 1995) was used to measure the level of physical violence exposure. This survey has been used in previous resilience research (Jones, 2007; Kliewer et al., 2006). Symptoms of internalizing and externalizing problems were measured with two different scales. Posttraumatic stress was measured with the Child PTSD Symptom Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001). Depression and disruptive behaviours were measured with the Beck Depression Inventory for Youth (BDI-Y) and the Beck Disruptive Behaviour Inventory for Youth (BDBI-Y), respectively, from the Beck Youth Inventories Second Edition for Children and Adolescents (BYI-II; Beck, Beck, & Jolly, 2001).

The Resiliency Scales for Children and Adolescents (RSCA; Prince-Embury, 2006) was used to measure protective factors. The RSCA is composed of three scales that measure the following protective personal characteristics: sense of mastery, sense of relatedness, and positive emotional reactivity. All scales are self-report surveys with good to excellent internal consistency and test-retest reliabilities, and also have evidence to support their validity (Beck, Beck, & Jolly, 2001; Cooley, Turner, & Beidel, 1995; Prince-Embury, 2006; Prince-Embury & Courville, 2008). The order of the RSCA, BDI-Y, and BDBI-Y were counterbalanced to ensure that the order of the measures did not affect the results. The CPSS and CREV were always included as the final two measures in the package. This placement ensured that the sensitive questions in these measures did not affect the results of the other measures.

Correlation and regression analyses were used to identify relationships and determine which protective factors are predictive of positive outcomes and which modes of exposure to physical violence were predictive of negative outcomes. If a relationship was found between any of the internalizing/externalizing problems and violence exposure, two sets of regression



analyses were run. The first used stepwise multiple regression to determine how important the protective factors and the different modes of physical violence exposure (i.e., hearing about, witnessing, and being victim to violence) are in the prediction of depression, PTSD symptoms, and disruptive behaviour. The second set explored the same question, but separately for each sex in order to explore whether the importance of the protective factors and modes of physical violence differs for males and females. Due to the small sample size that resulted from splitting the sample, standard multiple regressions were used. Separate multiple regression analyses were performed for each outcome variable. Therefore, PTSD symptoms, depression, and disruptive behaviours were analyzed separately.

### *Summary*

Exposure to physical violence is an unfortunate reality for many Canadian children and youth (Statistics Canada, 2003), and is associated with numerous negative effects (U.S. Department of Justice, 2000). Although a number of protective factors have been found to buffer the effects of violence exposure (Jones, 2007; Kennedy & Bennett, 2006), there is also evidence that exposure to violence is particularly damaging (Youngstrom, Weist, & Albus, 2003). A clear understanding of youth resilience to physical violence exposure is needed to effectively address this issue and prevent the negative effects of exposure to physical violence.

The purpose of this research is to develop a better understanding of resilience in rural Canadian youth exposed to physical violence. Through this study and other related research, interventions and preventative programs that target these important protective factors can be developed and implemented. Such programs would be especially beneficial to schools located in high violence neighbourhoods, so that children and youth at risk of physical violence exposure are given the opportunity to build resilience.

Three personal characteristics were explored as protective factors: sense of mastery, sense of relatedness, and positive emotional reactivity. In addition, three modes of physical violence were examined: hearing about violence, witnessing violence, and being victim to violence. The first and second research questions ask about the relationships between exposure to physical violence, protective factors, and internalizing/externalizing problems. The third, fourth, and fifth research questions ask about the importance of demographic variables such as sex, the protective factors, together with the three modes of exposure to physical violence, in predicting disruptive behaviour, depression, and symptoms of post-traumatic stress.

## CHAPTER TWO

### Literature Review

#### *Overview*

This chapter summarizes the literature relating to resilience in youth exposed to violence. It begins by describing the extent to which youth are exposed to violence. The type of violence (i.e., direct versus indirect), rates, frequency, and severity of the violence exposure are discussed. Next, the literature review outlines the negative consequences associated with such exposure. Internalizing problems, such as depression, and anxiety (including posttraumatic stress), and externalizing problems, such as aggression, delinquency, drug use, and academic difficulties are the focus of this section. However, attention is given to discrepancies in the research and possible explanations for these discrepancies. Sex differences are also described. Finally, the chapter closes with a discussion of resilience and the protective factors associated with positive outcomes in youth exposed to violence. Different models of resilience are provided along with a discussion of resilience to general adversity and resilience specific to violence exposure.

#### *Children and Youth Exposed to Violence*

Experiencing and witnessing violence is an unfortunate reality for many Canadian children and youth. Statistics Canada (1999) found that 8.5% of Canadian children between the ages of 4 and 11 years witnessed physical fighting among teenagers or adults in their homes alone. In addition, the risk of violent victimization in 2004 was highest for young individuals between the ages of 15 and 24 (Statistics Canada). Exposure to violence appears to be most common among inner-city youth (Kuthar, 1999). Living in an urban area and having a low household income has been found to increase the risk of victimization (Statistics Canada, 2004). This is likely because the rates of violent crime are higher in neighbourhoods with a higher percentage of low-income families/earners, such as inner-cities (Statistics Canada, 2001). As a result, inner-city youth are at high risk of witnessing violence and experiencing violent victimization. In addition, Aboriginal individuals are two times more likely than non-Aboriginals to fall victim to a violent offence (Weinrath, 2000). Consequently, it is quite possible that Canadian Aboriginal youth who live in inner-city communities are at highest risk for becoming a victim of violence.

There seems to be a great deal of overlap between the different types of violence experienced, as children are exposed to both community and intra-familial violence (Garbarino,

Dubrow, Kostelny, & Pardo, 1992; Lynch & Cicchetti, 1998). Further, children and youth are also exposed to both direct (i.e., victim) and indirect (i.e., witness) violence in the community (Ward, Martin, Theron, & Distiller, 2007) as well as in the home (Appel & Holden, 1998; Jouriles & LeCompte, 1991). For example, many children who are exposed to domestic violence are also victims of physical abuse (Appel & Holden, 1998; Jouriles & LeCompte, 1991). The degree to which youth are exposed to both direct and indirect violence was revealed in a recent study of South African adolescents (Ward et al., 2007). Although only 1.33% of the sample reported being solely a victim of violence and 28.12% reported only witnessing violence, 68.44% of adolescents reported experiencing both types of violence.

The majority of the research examining the rates of direct and indirect violence exposure in children and youth has been done in the United States (Fitzpatrick & Boldizar, 1993; Miller, Wasserman, Neugebauer, Gorman-Smith, & Kamboukos, 1990; Myers & Thompson, 2000; Overstreet, Dempsey, Graham, & Moely, 1999; Richters & Martinez, 1993; Weist, Acosta, & Youngstrom, 2001). One of these American studies found that 96% of 6 to 10 year old inner-city children had witnessed at least one violent incident and 75% had witnessed four or more violence incidents (Miller et al., 1990). A study of older youth (14 to 19 years old) living across 26 zip codes within the Detroit Metropolitan area found that 91% of the adolescents had been witnesses of violence and an astounding 85% had been victims (Myers & Thompson, 2000). However, not all studies find such high rates of victimization. Richters and Martinez (1993) found that 97% children in grades 5 and 6 had witnessed a violent event, and 59% had been victims. Similar results have been found in other studies of inner-city youth (Weist, Acosta, & Youngstrom, 2001). In fact, in a review of the literature, Margolin and Gordis (2000) concluded that one-third or more of pre-teen or teenage youth have been victims of violence and almost all children and youth have been witnesses of violence. A study of South African adolescents found similar rates of violence exposure, as 97.9% of the students reported exposure to some form of violence (Ward, Martin, Theron, & Distiller, 2007).

The type of violence that youth seem to be exposed to is often quite severe (Bell & Jenkins, 1993; Fitzpatrick & Boldizar, 1993; Overstreet et al., 1999; Shakoor & Chalmers, 1991). One study reported that 75% of students aged 10 to 19 witnessed a robbery, stabbing, shooting, and/or murder (Bell & Jenkins, 1993). More specifically, 35% had witnessed a stabbing, 39% had witnessed a shooting, and 24% had witnessed a murder. In a similar study,

Shakoor and Chalmers (1991) found almost identical results. Fitzpatrick and Boldizar (1993) reported that 70% of youth in their sample had witnessed a shooting and 43% had witnessed a murder. In a more recent study, 92% of children aged 10 to 15 reported having heard gunshots in their neighbourhood, 83% knew someone killed through violence, 55% witnessed a shooting, 43% seen a dead body in their neighbourhood, 37% were victims of physical violence, and 10% had someone threaten to end their life (Overstreet et al., 1999). These youth's exposure to violence was also quite chronic. Over half of the youth had witnessed at least three arrests or assaults and knew at least three people who were shot or killed through violence, and over 30% knew at least three people who were robbed or stabbed.

However, these were all studies of large urban communities. Less is known of the violence exposure in small urban and rural communities. Statistics Canada (2000; 2005) has provided some insight into the violence rates in rural and small urban communities as compared to large urban communities. Canadian small urban areas have higher crime rates than large urban (43% higher) and rural (58% higher) areas (Statistics Canada, 2005). In 2005, homicide rates were highest in small urban areas; however, communities with the highest homicide rates were rural areas. In addition, crime rates on reserves have been found to be two times higher than rates in urban and rural areas, and violent offences almost five times higher (Statistics Canada, 2000). However, the only study examining the actual rates of violence exposure in a rural community was completed in the United States (Sullivan, Farrell, Kliewer, Vulin-Reynolds, & Valios, 2007). Sullivan and colleagues found that approximately 50% of the youth from four rural communities in the United States had witnessed or been victim to one or more acts of violence. Based on this one study, it would seem that violence exposure is lower in rural areas than urban areas. This presents as a gap in the current research.

### *Negative Effects of Exposure to Violence*

Exposure to violence could have devastating effects on children and youth. It threatens their development, which could lead to regressive symptoms (i.e., clinging), somatic complaints, cognitive distortions, learning difficulties, impaired competence, and self-destructive behaviours such as promiscuity, substance abuse, and delinquency (Garbarino et al., 1992). Exposure to violence also affects a child's moral development and view of the world and the self (Garbarino, Kostelny, & Dubrow, 1991). A meta-analysis that examined psychosocial outcomes of children exposed to domestic violence found that 63% of exposed children have poorer outcomes than

non-exposed children, whereas only 37% have as good or better outcomes than non-exposed children (Kitzmann, Gaylord, Holt, & Kenny, 2003).

Exposure to violence has also been associated with numerous internalizing and externalizing problems, such as PTSD and other types of anxiety (Cooley-Quille, Boyd, Frantz, & Walsh, 2001; Myers & Thompson, 2000), depression (Gorman-Smith & Tolan, 1998), aggression (Benhorin & McMahon, 2008; Gorman-Smith & Tolan, 1998), delinquency (Li, Stanton, Pack, Harris, Cottrell, & Burns, 2002; Weaver, Borkowski, & Whitman, 2008), drug use (Kliewer, Murrelle, Prom, Ramirez, Obando, Sandi et al., 2006), and academic difficulties (Kennedy & Bennett, 2006; Nettles, Mucherah, & Jones, 2000). Li, Naussbaum, and Richards (2007) found the correlation with exposure to violence to be moderate for externalizing ( $r = .50$ ) and low, but still significant, for internalizing ( $r = .34$ ) symptoms. However, the literature regarding the effect of exposure to violence on externalizing and internalizing disorders is inconsistent. In some studies, exposure to violence was positively correlated with externalizing and internalizing symptoms and predicted higher rates of mental disorders (Li, Naussbaum, & Richards, 2007; Youngstrom, Weist, & Albus, 2003), while in others these variables were not even correlated (Brown, Henggeler, Brondino, & Pickrel, 1999).

For example, Youngstrom, Weist, and Albus (2003) found that total violence exposure predicted internalizing and externalizing scores even after controlling for the effects of demographic variables as well as risk and protective factors. However, another study found exposure to violence to be associated with delinquency and criminal offenses but not with internalizing or externalizing mental health disorders (Brown et al., 1999). Similarly, Cooley-Quille, Turner, and Beidel (1995) found that differing levels of physical violence exposure did not affect children's DSM-III-R diagnoses, and in a longitudinal study, Farrell and Bruce (1997) found that exposure to violence was not related to subsequent changes in emotional distress for 6<sup>th</sup> grade boys or girls.

Additionally, some studies find externalizing behaviours to be associated with violence exposure, but not internalizing symptoms (Cooley-Quille, Turner, & Beidel, 1995). For example, even with a small sample size, the relationship between exposure to high levels of physical violence and externalizing behaviours in children aged 7 to 12 approached significance (Cooley-Quille, Turner, & Beidel, 1995). However, the relationships between violence exposure and internalizing behaviours or disorders, such as somatic complaints, withdrawal, depressive

symptoms, and general fears did not approach significance. Then other studies find the opposite (Cooley-Quille, Boyd, Frantz, & Walsh, 2001; Ward, Martin, Theron, & Distiller, 2007). In one study, high school students exposed to high levels of physical violence reported more fears, anxiety, and internalizing behaviours such as withdrawal and somatic complaints, than those exposed to low levels of violence (Cooley-Quille et al., 2001). However, there were no differences in externalizing behaviours. To complicate things further, studies have found contradicting results regarding specific symptoms, such as depression or anxiety. For example, Overstreet and colleagues (1999) found Posttraumatic Stress Disorder (PTSD), but not depression to be associated with violence exposure, while Gorman-Smith and Tolan (1998) found a positive relationship between depression and exposure to violence.

Such inconsistent results may be due to differences in methodology, such as age of participants and choice of dependent variables. For example, some studies examine symptoms of a disorder (Fitzpatrick, 1993), whereas others examine actual disorders (Cooley-Quille, Turner, & Beidel, 1995). It is also possible that children and adolescents in some studies may be experiencing desensitization, whereas individuals in others are not. Researchers who have found no relationship have suggested that desensitization may be responsible for an unexpected lack of a relationship (see Fitzpatrick, 1993; Osofsky et al., 1993). In order to obtain a better understanding of the negative effects of violence exposure, findings relating to certain internalizing and externalizing problems will be examined separately.

### *Internalizing Problems*

*Anxiety & Depression.* The majority of the research on the effect of violence exposure on internalizing problems uses anxiety and/or depression as outcome variables. Although violence exposure is fairly consistently associated with symptoms of PTSD and anxiety disorders in general (Cooley-Quille et al., 2001; Fitzpatrick & Boldizar, 1993; Myers & Thompson, 2000; Overstreet et al., 1999), findings relating to depression are mixed. In a study of youth exposed to high rates of violence, 33% of the sample displayed a pattern of symptoms that was consistent with the DSM-IV criteria for PTSD (Overstreet et al., 1999). Researchers have also found that being a victim of and witness to violence are both associated with symptoms of PTSD (Fitzpatrick & Boldizar, 1993). Further, exposure to violence in general is predictive of PTSD symptoms (Cooley-Quille et al., 2001; Myers & Thompson, 2000) and separation anxiety symptoms (Cooley-Quille et al., 2001). Correlations between exposure to violence and these

internalizing problems were quite high, with  $r = .42$  for posttraumatic stress symptoms, and  $r = .50$  for separation anxiety symptoms (Cooley-Quille et al., 2001). In fact, when exposure to violence was combined with other risk factors such as discrimination, life events, neighbourhood disadvantage, and number of family members in the home, it explained unique variance in the prediction of PTSD, suggesting that it was the strongest predictor. In a longitudinal study, Ozer (2005) also found that recent exposure to violence uniquely predicted an increase in PTSD and anxiety symptoms from grade 7 to grade 8 after controlling for seventh-grade functioning.

With respect to depression, Gorman-Smith and Tolan (1998) found that exposure to violence was associated with increases in depression over a 1-year time period, even after controlling for previous levels of depression. However, Cooley-Quille and colleagues (2001) did not find a difference in reports of depression between high school students exposed to high levels of violence and those exposed to low levels of violence. Instead, they found that those exposed to high levels of violence reported more fears, anxiety, and internalizing behaviours such as withdrawal and somatic complaints. It may be that these mixed results are due to the type of violence experienced. Fitzpatrick (1993) separated those who witnessed violence from those who were victims of violence and found that victims reported high levels depressive symptoms, whereas chronically witnessing violence was not related to depression. Surprisingly, witnessing violence had the opposite effect than expected and predicted lower levels of depression, while being victim to violence predicted higher levels of depression. It is possible that victimization leads to depression because the direct experience of violence negatively affects one's thoughts about self, life, and the future. However, someone who witnesses violence rather than experience it directly might not internalize negative beliefs about self, life, and the future because the acts are not directed toward the witness.

### *Externalizing Problems*

*Aggression.* Numerous studies have found exposure to violence, either as a victim or a witness, to be significantly associated with aggression and violence among children and adolescents (Attar, Guerra, & Tolan, 1994; Benhorin & McMahon, 2008; DuRant, Altman, Wolfson, Barkin, Kreiter, & Krowchuk., 2000; Gorman-Smith & Tolan, 1998; Halliday-Boykins, & Graham, 2001; Shahinfar, Kupersmidt, & Matza, 2001). In some studies correlations were as high as  $r = .45$  (DuRant et al., 2000). In fact, lifetime exposure to violence was found to be one of the strongest correlates related to frequency of violence and carrying weapons (DuRant

et al., 2000). Similarly, Borum (2000) found two of the four key risk factors associated with violence in youth to be victimization to maltreatment or abuse and community crime and violence. Violence exposure has also been found to be a risk factor of adolescent aggression (Attar, Guerra, & Tolan, 1994; Benhorin & McMahon, 2008; Hollister-Wagner, Foshee, & Jackson, 2001). In a recent study, Benhorin and McMahon (2008) found that higher levels of exposure to violence predicted more aggressive behaviour according to self, peer, and teacher reports. There is also evidence that victimized individuals continue to engage in aggressive behaviours in adulthood. Scarpa and Haden (2006) found violent victimization to be correlated with aggressive behaviour in a study of young adults (i.e., 18 to 22 years old).

A study of a large sample of urban children found that violence exposure not only increased aggression, but also increased normative beliefs about aggression and aggressive fantasy (Guerra, Huesmann, & Spindler, 2003). In addition, the effect of violence exposure on aggression in older children was mediated by the effect that violence exposure had on social cognition. Laudau (2002) also found a positive relationship between violence exposure and violent behaviours and attitudes. In a study of highly aggressive, incarcerated adolescent boys, severe violent victimization was predicted approval of aggression as a social response, a hostile attributional bias (i.e., interpreting social cues as being hostile), and more hostile social goals (Shahinfar, Kupersmidt, & Matza, 2001). In contrast, witnessing severe violence predicted perceived positive outcomes for using aggressive behaviour.

A few longitudinal studies have added to this growing body of research. Exposure to violence has been found to predict both concurrent (Attar, Guerra, & Tolan, 1994; Farrell & Bruce, 1997) and prospective (Attar, Guerra, & Tolan, 1994; Gorman-Smith, Henry, & Tolan, 2004; Gorman-Smith & Tolan, 1998; Ozer, 2005) aggressive behaviour. Concurrent aggression refers to the level of aggression present at the beginning of the study, whereas prospective aggression refers to the level present at a later point in time, toward the middle or end of the study (i.e., future aggression). Recent exposure to violence was found to uniquely predict an increase in aggression from seventh grade to eighth grade after controlling for seventh grade functioning (Ozer, 2005). Gorman-Smith and Tolan (1998) found that exposure to violence was associated with increases in aggression over a 1-year time period, even after controlling for previous levels of aggression. In another study, exposure to violence was associated with the frequency of violence for boys and girls at Time 1 of the study (Farrell & Bruce, 1997).



Interestingly, exposure to violence was only related to subsequent changes in frequency of violent behaviour in girls, but not in boys. The authors speculate that the boys may have reached a ceiling considering they reported more frequent exposure to violence than girls. All of the above results support Bandura's social learning theory (Bandura, 1986), which states that individuals learn how to behave from watching the behaviours of others. Therefore, witnessing violence increases the risk of engaging in violence because individuals learn from what they see (see Farrell & Bruce, 1997).

*Delinquency.* There is also much support for the relationship between violence exposure and delinquency and offending (Brown et al., 1999; Miller, Wasserman, Neugebauer, Gorman-Smith, & Kamboukos, 1990; Weaver, Borkowski, & Whitman, 2008). In fact, exposure to violence remains predictive of delinquency and offending even after controlling for the effects of important demographic variables (such as gender, age, race, family income, and residence change; Brown et al., 1999), protective factors (such as social competence, family functioning, and peer relations; Brown et al., 1999), and prenatal maternal and early childhood externalizing problems (Weaver, Borkowski, & Whitman, 2008). Brown and colleagues (1999) were the first to control for confounding variables, such as family income and changes in residence, which could have been responsible for this association. Considering the relationship persisted, these results suggest that exposure to violence has a particularly harmful effect on children and adolescents.

The relationship between delinquency and violence exposure is supported further by a longitudinal study of 6 to 10 year old boys that found reports of witnessing violence to be associated with changes in delinquency over a 15 month period (Miller et al., 1990). This relationship remained even after controlling for parent-child interactions. Similar results were found in a more recent longitudinal study (Pearce, Jones, Schab-Stone, & Ruchkin, 2003). Over a 1 year time period, exposure to violence was a significant risk factor for increases in conduct problems. Interestingly, in a study of children of adolescent mothers, depression was found to moderate the relationship between victimization and delinquency for girls, but not for boys (Weaver, Borkowski, & Whitman, 2008). Lower levels of depression were associated with delinquency in girls who had fallen victim to violence during childhood. These results suggest that exposure to violence may lead to delinquency in girls who are not depressed. More research is needed regarding whether or not depression is a moderating variable for delinquency.

Gang membership also appears to be associated with exposure to violence (Li, Stanton, Pack, Harris, Cottrell, & Burns, 2002). Youth who were either currently or previously involved with gangs reported higher levels of exposure to violence than those with no previous gang involvement (Li et al., 2002). This relationship was also apparent after controlling for demographic variables such as age, gender, and risk involvement. In addition, youth who were current or former gang members were more likely to have been victims of violence and witnesses of violence, the use of deadly force, or death.

*Drug Use.* Exposure to violence may also be related to alcohol and drug use. After accounting for the effects of demographic variables and parental and sibling substance use, witnessing serious violence was associated with tobacco use, drunkenness, number of illicit drugs used, and drug and alcohol problems (Kliwer, Murrelle, Prom, Ramirez, Obando, Sandi et al., 2006). Evidently, witnessing violence was associated with more drug use in every analysis. Exposure to serious violence was also found to increase the risk of lifetime drunkenness, and tobacco and drug use (other than alcohol).

*Academics.* Research also suggests that exposure to violence is associated with poor academic performance (Cooley-Quille, Turner, & Beidel, 1995; Nettles, Mucherah, & Jones, 2000; Scharzt & Gorman, 2003) and worse school outcomes (i.e., high suspension and expulsion rates; Kennedy & Bennett, 2006). Nettles, Mucherah, and Jones (2000) found that exposure to violence had significant negative effects on mathematics and reading performance. In a study of adolescent mothers, cumulative lifetime violence exposure was linked to attention and behaviour problems in school, school suspensions, and school expulsions (Kennedy & Bennett, 2006). In a longitudinal study, recent exposure to violence predicted a decrease in functioning with respect to teacher-reported competencies from grade 7 to grade 8 (Ozer, 2005).

Scharzt and Gorman (2003) set out to explain the association between violence exposure and poor academic performance. Their results suggest that children who are exposed to violence are at risk for poor academic performance because symptoms of depression negatively affect their academic performance. Considering depression was also found to moderate the relationship between violent victimization and delinquency in girls, depression may be an important moderating variable for other outcome behaviours such as drug use and aggression. Landua (2002) attempted to identify factors that linked the relationship between exposure to violence and

violent behaviour. She found that when exposure to violence was combined with emotional distress (which included symptoms of depression), predictions of violent behaviour increased.

### *Sex Differences*

There appear to be sex differences related to violence exposure. First, male youth seem to be exposed to higher levels of physical violence than female youth (Cooley-Quille, Boyd, Frantz, & Walsh, 2001; Farrell & Bruce, 1997; Fitzpatrick & Boldizar, 1993; Hanson et al., 2008; Mendelson, Turner, & Tandon, 2010). However, there have been studies that found no gender difference (Benhorin & McMohen, 2008; Cooley-Quille, Turner, & Beidel, 1995). It may be that the type of violence experienced leads to this discrepancy. For example, Hanson et al. (2008) found that boys were more likely to report witnessing violence, whereas boys and girls were equally likely to report being a victim of physical assault.

Second, there may be gender differences in the response to violence exposure. Edleson (1999) described how studies tend to report that boys are more likely to experience externalizing problems, such as aggression, whereas girls are more likely to experience internalizing problems, such as depression and somatic complaints. For example, when compared to girls who were exposed to low levels of violence, high-exposure girls reported more withdrawn behaviours, and symptoms of anxiety and depression, whereas high and low exposure boys responded similarly (Cooley-Quille et al., 2001). In another study, girls who reported experiencing any type of violence were more likely than boys to meet the criteria for PTSD and Major Depressive Episode (Hanson et al., 2008). Similarly, Foster, Kuperminc, and Price (2004) found a stronger positive correlation between violence exposure and symptoms of depression and anxiety for girls than for boys.

Yet, Farrell and Bruce (1997) found that exposure to violence was related to changes in the frequency of violent behaviours among girls, but not among boys. Higher initial levels of exposure to violence in the longitudinal study were associated with a greater increase in the frequency of violent behaviour. A recent study by Mendelson, Turner, and Tandon (2010) also found results contrary to previous belief. Both males and females who were exposed to violence were at comparable risk for experiencing depression.

Third, protective factors associated with negative effects of violence exposure may also differ between males and females. For example, Kliwer et al. (2001) found that the buffering

effect of family support on anxiety was stronger for girls than for boys. However, more research is needed in this area.

#### *Influence of Violence Exposure Mode and Locus*

The inconsistencies in the literature that have been identified might be due to the type of exposure to violence experienced by the children and adolescents in the studies. Previous research has differentiated between different types of violence exposure based on mode and locus of exposure. With respect to mode, direct exposure (i.e., victimization) has been compared to indirect exposure to violence (i.e., witnessing violence; Barbarin, Richter, & deWet, 2001; McGee, 2003; Van der Merwe & Dawes, 2000; Ward, Martin, Theron, & Distiller, 2007; Weaver, Borkowski, & Whitman, 2008). Individuals could experience direct victimization, witness violence to others, or experience both forms of violence exposure. With respect to locus, community violence has been compared to family violence and political violence (Barbarin, Richter, & deWet, 2001). Someone could experience one form, two forms, or all three forms of violence. It is possible that these different forms of exposure have differing effects on adolescents. Only a couple studies examined the different effects of family and community violence exposure. Barbarin, Richter, and deWet (2001) carried out a study on children in Africa. They found that community violence was the most consistent predictor of negative outcomes, such as oppositional behaviour, somatic complaints, and low academic motivation, when compared to political and family violence. However, the total variance accounted for by all forms of violence was small.

In comparing the effects of direct and indirect violence exposure, findings suggest that both types of exposure have similar negative effects, but direct victimization seems to have more damaging effects than indirect exposure (Ward et al., 2007; Weaver, Borkowski, & Whitman, 2008). In a study of children of adolescent mothers, victimization did not significantly affect delinquency more than witnessing violence, but had a unique impact on self-reported violent behaviours (Weaver, Borkowski, & Whitman, 2008). Adolescents who were victimized by violence more as children, also engaged in more violent behaviours (after controlling for the effects of witnessing violence). In a study of grade 6 South African children, Ward et al. (2007) found that witnessing violence and victimization were associated with anxiety and depression, whereas only victimization was associated with conduct problems. Similarly, victimization, but not witnessing violence increased vulnerability for aggression and oppositional/defiant behaviour

in another South African study (Van der Merwe & Dawes, 2000). Yet, there is also evidence that witnessing violence and violent victimization are moderately correlated with externalizing problems (i.e., delinquency), whereas only victimization is correlated with internalizing problems (i.e., anxiety/depression; McGee, 2003). Interestingly, in this same study, both indirect and direct victimization predicted internalizing and externalizing problems, but direct victimization was the best predictor of internalizing problems (McGee, 2003).

With respect to PTSD symptoms, the majority of research suggests that both direct and indirect violence exposure are positively related to PTSD symptoms (Fitzpatrick & Boldizar, 1993; Martinez & Richters, 1993; Osofsky et al., 1993). Yet, even this finding has contradicting evidence. Myers and Thompson (2000) found only direct exposure to be correlated with PTSD symptoms. These researchers state that the discrepant results could be due to differences in participant age (older sample) or the measures used.

To add to this body of research, O'Donnell and colleagues (2002) divided their sample of youth according to whether or not they were victims of violence, witnesses of violence, or had neither witnessed nor been victim to violence. They found that children who had witnessed violence were more similar to children that had not been exposed to any type of violence than they were to children who had been victim to violence. The violence witness and no-exposure groups were less likely to experience somatisation, anxious or depressive symptoms, use alcohol and drugs, and engage in delinquent behaviour and school misconduct than the violence victim group. They also had higher future expectations. However, the violence witness group did engage in more substance use, delinquency, and school misconduct than the no-exposure group. These results support McGee (2003) and other research suggesting that direct violence is associated with both internalizing and externalizing problems, whereas indirect violence is only associated with externalizing problems.

Other research suggests that indirect exposure to violence resulted in effects parallel to those of individuals exposed to direct victimization (Barbarin, Richter, & deWet, 2001; Kitzmann et al., 2003) and correlations between the two types of violence and distress are almost identical (direct = .28, indirect = .30; Richters & Martinez, 1993). For example, Kitzmann and colleagues (2003) found that the outcomes of children who witnessed domestic violence were not significantly different from those who were physically abused and those who were physically abused and witnessed domestic violence.

*Influence of Knowing a Victim and Relationship with Perpetrator*

Youngstrom, Weist, and Albus (2003) added another level of exposure to their study of urban adolescents referred for mental health treatment. In addition to being exposed to violence as a victim and a witness, they examined the effect of knowing a victim of violence. Results of the study showed that all three levels of exposure were associated with internalizing and externalizing behaviour problems, and knowing a victim of violence seemed to be particularly predictive of externalizing problems. The researchers suggest that this result could reflect the degree to which adolescents who know victims of violence are involved with delinquent peers; and therefore, also engage in externalizing problem behaviours. Another possible reason provided by the authors is that knowing victims of violence could be a sign of higher levels of violence in the community, which could then lead to higher levels of externalizing problems.

It is also possible that the effect of violence exposure depends on the relationship between the witness or victim of violence and the perpetrator of the violence. Ward and colleagues (2001) studied the relationship between different types of violence and PTSD, depression, and anxiety in high school students living in South Africa. They found that PTSD and depressive symptoms were significantly related to witnessing and being victim to violence committed by a known perpetrator and witnessing violence committed by a stranger, but not being a victim of stranger violence. Similarly, anxiety symptoms were significantly correlated with both types of violence committed by a known perpetrator; however, anxiety symptoms were not related to either type of stranger violence. However, a major limitation of this study (and similar studies) is that exposure to violence was measured as either being or not being exposed to one of the types of violence (see Ward et al., 2001) and the number of incidents of violence exposure was not taken into account. Therefore, the researchers could not determine the extent to which the amount of each type of violence exposure affected the students.

*Resilience in Youth Exposed to Violence*

Not all youth exposed to violence develop internalizing or externalizing problems (Fergusson & Horwood, 2003; Richters & Martinez, 1993; Werner & Smith, 1992). Research has consistently found that it is unusual for more than half of children exposed to risk factors to develop serious disabilities or persistent problems (Rutter, 1985; Werner & Smith, 1992). For example, in a sample of elementary children living in a violent neighbourhood, 54% seemed to be adjusting successfully in the home *and* at school, while another 26% were successful in one of

these areas (Richters & Martinez, 1993). Therefore, 80% of the children were adapting successfully in at least one domain. Such findings support the theory of resilience, which states that there is some form of dynamic process surrounding positive adjustment under challenging life conditions that protects against the negative effects of adversity (Rutter, 1985). Resilience is not a trait, but is a process and in order to be considered resilient, one must be exposed to a significant threat or severe adversity and must attain positive adjustment in spite of the threat or adversity (Luthar, Dante, Cicchetti, & Becker, 2000).

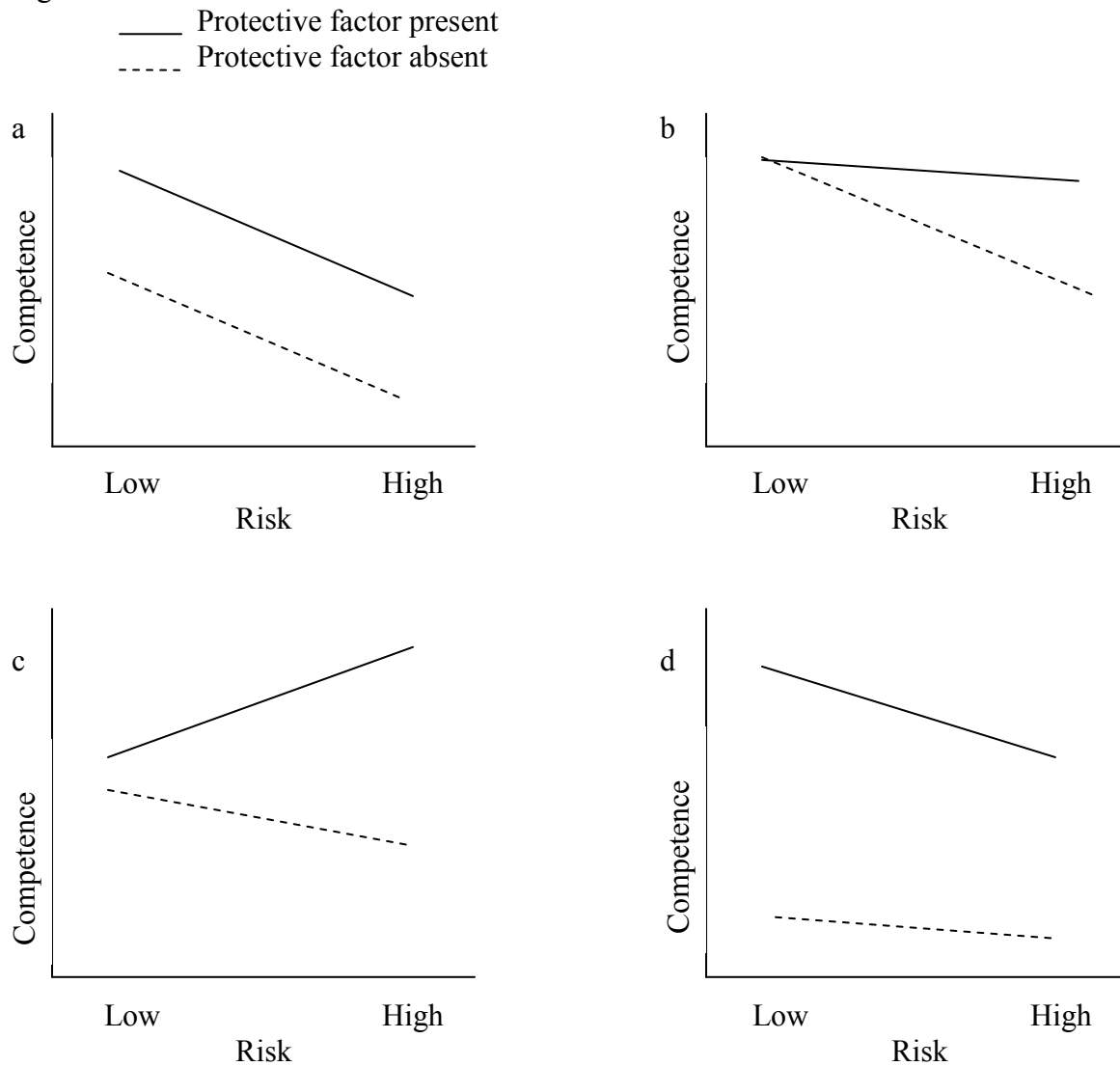
There are three types of protective factors associated with resilience. These include characteristics of the individual, family, and social environment (Luthar et al., 2000). When discussing protective factors, researchers will often refer to protective and compensatory effects. Protective effects refer to interactions between protective and risk factors so that when certain protective factors are present, variations in risk will not affect adaption as strongly as when these protective factors aren't present (Garmezy, Masten, & Tellegen, 1984; Luthar, 1993). On the other hand, compensatory effects refer to main effects of a protective factor so that this factor distinguishes those who are well adjusted from those who are not among high-risk individuals (Garmezy, Masten, & Tellegen, 1984; Luthar, 1993). Both types of effects should be explored (Luthar, 1993). However, the term "protective" has also been used to describe direct ameliorative effects and differentiates between at-risk individuals who are high-functioning and those who have developed serious problems (Werner & Smith, 1992).

Benhorin and McMahon (2008) used two social support models in their study of youth resilience. These models, the main-effect model and the stress-buffering model, were first discussed by Cohen and Wills (1985). The main effect model proposes that social support has positive effects and protects against internalizing and externalizing problems regardless of the amount of stress experienced, whereas the stress-buffering model proposes that social support provides more of a protective effect when exposure to violence is high than when exposure to violence is low. Although these models have been used to describe the protective effects of social support, they can also be used to describe the effects of other types of protective factors, such as individual characteristics.

However, Luthar (1993) suggests differentiating between protective effects even further and refers to them as models of resilience. Figure 1 provides a visual representation of the four models of resilience. Protective factors that provide the same protective effect when risk is high

as when risk is low (i.e., main-effect) are referred to as “protective” (see Figure 1a). This is in keeping with Werner and Smith’s (1992) description of direct ameliorative effects. The other three models of resilience describe interaction-effects and include protective-stabilizing, protective-enhancing, and protective/reactive (Luthar, 1993).

Figure 1: Models of Resilience



A = Protective effect; B = Protective-stabilizing effect; C = Protective-enhancing effect; D = Protective/reactive effect



Protective-stabilizing (Figure 1b) refers to a protective factor that helps high risk youth maintain similar competence levels as low risk youth with or without the protective factor. However, those without the protective factor in high risk have much lower levels of competence than the other three groups. The protective-enhancing model (Figure 1c) describes a protective factor that promotes similar levels of competence to those without the protective factor when risk is low. However, when risk is high, competence falls without the protective factor and rises with the protective factor. The protective/reactive effect (Figure 1d) describes a protective factor that promotes high levels of competence for both high and low risk individuals, but adversity does take a slight toll as those in high risk do not do as well as those in low risk situations. This protective factor has such a great impact on competence, that without it, high and low risk individuals have similar, but much lower levels of competence.

#### *Protective Factors & Youth Adversity*

Numerous studies have explored the protective factors associated with positive adjustment (Printz, Shermis, & Webb, 1999; Wyman, Cowen, Work, & Parker, 1991) and positive mental health (Carr & Vandiver, 2001; Fisher, Storck, & Bacon, 1999; Gerrard & Buehler, 2004; Group for the Advancement of Psychiatry, Committee on Preventative Psychiatry, 1999; Hanlon, Bateman, Simon, O'Grady, & Carswell, 2004). Wyman and colleagues (1991) used discriminant function analysis to differentiate between stress-resilient and stress-affected children. They found that the following seven variables differentiated stress-resilient from stress-affected children and correctly classified 86% of the children: positive caregiver expectations for child's future, fewer separations from caregiver during infancy, parent perception of easy child temperament during infancy, age-appropriate discipline, father's involvement in caretaking during infancy, childcare support for the family during infancy, and consistent family discipline. In a similar study, stress-resilient children reported more positive relationships with primary caregivers, stable family environments, consistent and inductive discipline practices, and positive expectations for the future than stress-affected children (Wyman, Cowen, Work, Raoof, Gribble, Parker, et al., 1992). The results of these two studies suggest that the caregiver-child relationship moderates the impact of major life stress on children's developmental adjustment.

In addition to family factors, individual and social protective factors also seem to be powerful sources of resilience for disadvantaged youth. For example, social support and problem

solving have been associated with positive adjustment (Printz, Shermis, & Webb, 1999; Quamma & Greenberg, 1994; Wolkow & Ferguson, 2001), while peer acceptance has been found to protect against internalizing and externalizing disorders (Steinhausen & Metzke, 2001). Active coping also seems to protect against internalizing disorders (Steinhausen & Metzke, 2001), and social competence has been negatively associated with externalizing problems (Brown et al., 1999). In a qualitative study, resilient youth identified perseverance, determination, ability to learn from situations, and motivational support from family members and teachers as protective factors that helped them to adjust successfully (Smokowski, Reynolds, & Bezruczko, 1999). These results suggest there is not one single protective factor that is most effective in protecting youth, but rather there are numerous factors that help adolescents become more resilient.

In addition, certain individual, family, and social protective factors have been associated with more specific outcomes. Social competence has been associated with school success (Vance, Fernandez, & Biber, 1998) and negatively associated with delinquency (Brown et al., 1999). Problem solving has also been associated with school success (Vance, Fernandez, & Biber, 1998), and family cohesion has also been negatively associated with delinquency problems (Brown et al., 1999). Hollister-Wagner, Foshee, and Jackson (2001) examined the individual factors that protect against aggression. They found closeness with an adult, importance of religion, self-esteem, competence in relationships, constructive communication skills, and constructive anger all to be important in protecting females against aggression. With respect to social factors, extracurricular involvement has been negatively associated with anxiety, and school support has been negatively associated with depression and conduct problems (Ward et al., 2007). Considering these outcomes (i.e., anxiety, delinquency, etc.) are associated with exposure to violence, these protective factors may also protect against the negative effects of exposure to violence.

### *Protective Factors & Exposure to Violence*

There is much research specifically exploring the protective factors associated with positive outcomes in those exposed to violence (Benhorin & McMahon, 2008; Cicchetti & Lynch, 1993; Kennedy & Bennett, 2006; Li, Naussbaum, & Richards, 2007; Nettles, Mucherah, & Jones, 2000; O'Donnell, Schab-Stone, & Muyeed, 2002; Ozer, 2005; Richters & Martinez, 1993; Scarpa & Haden, 2006). Social, individual, and family factors have all been examined.

Family and individual protective factors have received more attention and seem to be more powerful sources of resilience. In fact, in a review of the literature, Duncan (1996) found that children were most likely to cope with violence successfully if they had parent support, an internal locus of control, strong sense of self-efficacy, and an optimistic, planning attitude toward the future.

*Social.* Some of the social factors that have been found to be protective include positive neighbourhood (Li, Naussbaum, & Richards, 2007), perceived classmate support (Benhorin & McMahon, 2008), and positive attitude towards school (Kennedy & Bennett, 2006). These social factors have been found to protect against externalizing behaviours such as aggression (in the case of perceived classmate support; Benhorin & McMahon, 2008) and school behaviour problems (in the case of positive attitude toward school; Kennedy & Bennett, 2006). However, teacher social support and perceived school connectedness do not appear to protect students from the negative effects of exposure to violence, but rather are beneficial regardless of the level of violent exposure (Nettles, Mucherah, & Jones, 2000; Ozer, 2005).

*Individual.* Individual child resilience, child coping, and religiousness have been found to mitigate the negative effect of exposure to violence (Barbarin, Richter, & deWet, 2001; McGee, 2003; Pearce, Jones, Schab-Stone, & Ruchkin, 2003). McGee found that positive coping reduced the combined effect of violence exposure and delinquent peers on delinquent behaviour. Religiousness might also protect against the negative effects of exposure to violence. Religiousness in general (i.e., engaging in prayer, reading religious literature, watching or listening to religious programs, perception of self as highly religious or spiritual) and engaging in private religious practices protected those exposed to high levels of violence from an increase in conduct problems (Pearce, Jones, Schab-Stone, & Ruchkin, 2003).

*Family.* Maternal coping, mother's presence in the home, parental monitoring, family functioning, family cohesion, and positive family relationships have all been found to mitigate the negative effect of violence exposure (Barbarin, Richter, & deWet, 2001; Gorman-Smith, Henry, & Tolan, 2004; Kliewer, Murrelle, Prom, Ramirez, Obando, Sandi, & Karenkeris, 2006; Overstreet et al., 1999; Ozer, 2005). For example, youth from well-functioning families (i.e., positive parenting practices and family relationships) who were exposed to high levels of violence, were less violent than youth from less well-functioning families who were exposed to similar levels of violence (Gorman-Smith, Henry, & Tolan, 2004). Furthermore, parental

monitoring and family cohesion were found to reduce the risk of drug use associated with exposure to violence (Kliewer, et al., 2006).

Cicchetti and Lynch (1993) described how exposure to violence does not indefinitely lead to poor adjustment, but rather families that prevent stressors such as violence from affecting the stability of the home will also prevent the violence from affecting the child. Similarly, Richters and Martinez (1993) found the best defence against the negative effects of violence exposure, and disadvantage in general, to be a stable and safe family. They found that the odds for children living in violent communities to be classified as adaptational failures rose by over 300% for children from unstable or unsafe homes as compared to children from stable and safe homes, and by more than 1500% for children from both unstable and unsafe homes. Richters and Martinez (1993) state that resilience in children will “most certainly be related to characteristics of their families” (p. 625).

Support from family seems to be extremely important in protecting against internalizing symptoms. Perceived support from family, but not perceived school connection, moderated the relationship between exposure to violence and psychological functioning (Ozer, 2005). In fact, exposure to violence interacted with family support to predict internalizing problems. After controlling for demographic variables, such as age and gender, and family life events other than violence, receiving support from one’s family, but not from one’s friends, buffered the effect of exposure to family violence on anxious and depressive symptoms (Kliewer, Murrelle, Mejia, Torres de G, & Angold, 2001). Family support may even protect against experiencing violence considering exposure to violence has been found to be negatively associated with family support (Li, Naussbaum, & Richards, 2007). Yet, all forms of family support may not protect against all types of internalizing problems. Rather, certain types of family support might only protect against certain internalizing problems, leaving youth vulnerable to others. For example, after controlling for age, sex, and concurrent life stress, Overstreet and colleagues (1999) found that mother’s presence in the home and larger family size both moderated the effect of violence exposure on depressive symptoms, but not PTSD symptoms.

*Parent versus social support.* A large study of 2,600 students in grades 6, 8, and 10 examined the extent to which parent, school, and peer support protected against exposure to violence (O’Donnell, Schab-Stone, & Muyeed, 2002). They found parent and school support to be positively associated with resilience in youth exposed to violence, with parent support being a

particularly important predictor of resilience in a number of domains (i.e., self-reliance, substance abuse, school misconduct, and depression). However, parent support became significantly less important over time and school support became significantly more important over time in protecting against substance abuse and school misconduct, but only for those who were victims of violence. Peer support predicted positive future expectations, self-reliance, and interpersonal relationships for victims of violence, but was negatively associated with resilience against substance abuse and school misconduct/delinquency for both violence exposure groups. However, in a study of 18 to 22 year olds, friend support was found to be a protective factor (Scarpa & Haden, 2006). As violent victimization increased, aggression scores were highest for individuals with low friend support and an avoidant coping style. Therefore, it may be that friend support becomes more beneficial as adolescents move into adulthood.

*Evidence suggesting particularly damaging effects.* However, there is evidence that certain individual and family factors are not protective (Landua, 2002; Li, Naussbaum, & Richards, 2007; Miller et al., 1990; Pearce, Jones, Schab-Stone, & Ruchkin, 2003). In a longitudinal study, parent involvement did not mitigate the development of conduct problems for those exposed to high levels of violence (Pearce et al., 2003). Miller and colleagues (1990) examined whether parent-child conflict moderated the effect of exposure to violence on changes in antisocial behaviour. They found that low conflict had the opposite effect than expected. High levels of exposure to violence predicted increases in antisocial behaviour in families with low conflict, but did not predict increases in antisocial behaviour in families with high conflict. Additionally, Li, Naussbaum, and Richards (2007) found that family support, family helpfulness, and confidence did not provide a protective effect against violence exposure. Interestingly, those with high levels of family support and high levels of violence exposure showed more internalizing symptoms. In addition to confidence, some other individual protective factors that have not been supported are self-concept and ethnic identity (Landua, 2002). These factors did not improve the prediction of violent behaviour.

More surprising, family support and positive self-concept did not moderate the negative effects of exposure to violence on internalizing or externalizing problems in a study by Youngstrom, Weist, and Albus (2003). Violence exposure was just as likely to increase internalizing and externalizing problems in individuals with positive self-concepts and family support as those with poor self-concepts and family support even though these protective factors

protected against the negative effects of other risk factors examined, such as life stress and cumulative risk. However, it should be noted that the participants in this study were already identified as experiencing mental health concerns. Hollister-Wagner, Foshee, and Jackson (2001) also found that an array of protective factors (i.e., closeness with an adult, importance of religion, self-esteem, relationship competence, constructive communication, and constructive anger) did not moderate the effect that exposure to violence had on aggression level in boys. These results suggest that exposure to violence may be a “particularly potent precursor of both internalizing and externalizing behaviour problems” in youth (Youngstrom, Weist, & Albus, p. 127).

### *Summary*

Children and youth are exposed to high levels of physical violence in their communities and in their homes. This violence exposure is often quite severe and frequent. This is especially true for those who live in inner-cities and small urban centers, although little is known about the exposure that occurs in rural areas. Children and youth who are exposed to violence are at risk of developing a number of mental health concerns such as depression, anxiety (including PTSD), aggression, delinquency, drug use, and academic difficulties. The type of physical violence exposure might affect the child’s response to the violence. For example, witnessing violence may have a different effect than being victim to violence, experiencing violence in the home may have a different effect than experiencing it in the community, and knowing the perpetrator or victim may have a different effect than when strangers are involved. Sex might also affect an individual’s response to exposure. Despite the potentially damaging effects of physical violence exposure, certain individual, family, and social factors seem to help protect individuals from developing these emotional and social problems. However, there are many inconsistencies in the research and not all research provided such promising results.

## CHAPTER THREE

### Method

#### *Overview*

Chapter three explains the method that was used to complete this study. It begins with an overview of the present study, highlighting the purpose, protective factors examined, and hypotheses. Next, the chapter describes the risks of the study and ethical considerations required, followed by a description of the participants included and the sampling procedures. A detailed account of the measures and procedure used to collect data from participants follows. Finally, the chapter closes with a discussion of the analyses used to test the research hypotheses.

#### *The Present Study*

The purpose of this study is to determine whether sex, certain personal protective factors, and exposure to physical violence are predictive of internalizing/externalizing problems in rural Canadian youth. Physical violence is defined as deliberate acts intended to cause physical harm against a person (Cooley, Turner, & Beidel, 1995). These acts include beating someone up (i.e., punching, kicking or biting someone so badly that they were hurt), chasing or threatening someone, robbing or mugging someone, and shooting or stabbing someone. Exposure to physical violence in the home, school, and neighbourhood was included in the definition. However, this study did not discriminate between these environments and sexual violence was not examined.

The rural Canadian population was chosen because of the lack of research in both Canada and rural areas. Research exploring exposure to physical violence in Canada is needed. The majority of studies have been conducted in the United States, and a few were conducted in third world countries exposed to war or extremely high violence rates (Barbarin, Richter, & deWet, 2001; Kliwer et al., 2001; Ward et al., 2007). Few studies have been conducted in Canada even though physical violence is a very real problem in today's society (Statistics Canada, 2001), with high rates of violent crimes and homicides being committed in Canadian rural and reserve areas (Statistics Canada, 2000; Statistics Canada, 2005). In an unpublished Canadian study, researchers found multiple links between exposure to physical violence in the community and dating violence (Schwartz & Runtz, 2008). This study was an important first step in exploring the problem of physical violence in Canada, but much more research is needed, including replications of American studies. Considering the differences in populations and culture, research on American samples may not generalize to Canadian populations.

Personal characteristics associated with resilience to internalizing and externalizing problems were examined (Prince-Embury, 2008a). These personal characteristics are sense of mastery, sense of relatedness, and positive emotional reactivity. Sense of mastery is defined as the ability to interact with and enjoy cause-and-effect relationships in the environment (Prince-Embury, 2008a). It includes a sense of optimism, self-efficacy, and adaptability. Sense of relatedness is defined as the experience of trust, comfort with others, perceived access to support, and tolerance of differences. Positive emotional reactivity is the ability to modulate, manage, and tolerate emotional arousal. Although similar protective factors, such as perceived classmate support, have been considered in previous research (see Behhorin & McMahon, 2008), these personal characteristics have been found to be associated with resilience (Prince-Embury, 2008a) and have not yet been studied in conjunction with physical violence exposure. Therefore, this study is unique in that it examines whether these personal characteristics, in conjunction with violence exposure and sex, predict internalizing and externalizing problems.

### *Research Questions*

#### *Research Question 1*

What is the relationship between exposure to physical violence, as measured by the CREV (Cooley, Turner, & Beidel, 1995), and symptoms of three types of internalizing/externalizing problems: depression and disruptive behaviour, as measured by the Beck Youth Inventories Second Edition for Children and Adolescents (BYI-II; Beck, Beck, & Jolly, 2001), and posttraumatic stress, as measured by the Child PTSD Symptom Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001)?

Based on previous research (Benhorin & McMahon, 2008; Gorman-Smith & Tolan, 1998; Myers & Thompson, 2000; Weaver, Borkowski, & Whitman, 2008), it was hypothesized that as the level of exposure to physical violence increases, so will the level of internalizing and externalizing problems exhibited by youth. Although there are studies that question some of these relationships (i.e., Cooley-Quille et al., 2001), the majority of the literature does support these relationships (Benhorin & McMahon, 2008; Gorman-Smith & Tolan, 1998; Myers & Thompson, 2000; Weaver, Borkowski, & Whitman, 2008). This research aims to explore these relationships with a rural Canadian sample and determine which of the internalizing and externalizing problems were most highly correlated with exposure to physical violence.



*Research Question 2*

What is the relationship between symptoms of internalizing/externalizing problems [i.e., depression and disruptive behaviours, as measured by the BYI-II (Beck, Beck, & Jolly, 2001) and posttraumatic stress, as measured by the CPSS (Foa, Johnson, Feeny, & Treadwell, 2001)] and the protective factors sense of mastery, sense of relatedness, and positive emotional reactivity, as measured by the RSCA (Prince-Embury, 2006)?

Considering previous research has found strong negative correlations between these resilience factors and these internalizing and externalizing problems (Prince-Embury, 2008a), it was hypothesized that these protective factors would all be negatively correlated with depression, posttraumatic stress, and disruptive behaviour. A negative relationship between these variables was required before testing the next hypothesis.

*Research Question Three*

How important are the demographic variables (sex and school), protective factors (sense of relatedness, sense of mastery, and positive emotional activity), as measured by the RSCA (Prince-Embury, 2006), and the different modes of exposure to physical violence (hearing about, witnessing, or victim), as measured by the CREV (Cooley, Turner, & Beidel, 1995), when used together in predicting disruptive behaviour, as measured by the BYI-II (Beck, Beck, & Jolly, 2001)?

Previous research has identified numerous protective factors associated with positive outcomes in those exposed to violence (O'Donnell, Schab-Stone, & Muyeed, 2002; Ozer, 2005). Although these three potentially important protective factors have not yet been examined, it was hypothesized that all three protective factors would predict lower levels of internalizing and externalizing problems in general, including disruptive behaviour.

Previous research exploring the differing effect of direct (i.e., victim) and indirect (i.e., witness) violence exposure suggests that both types of exposure have similar negative effects, but direct victimization may have more damaging effects than indirect exposure (Ward et al., 2007; Weaver, Borkowski, & Whitman, 2008). However, the results are quite mixed and the impact of hearing about violence events has been largely ignored. It was predicted that differentiating between the types of physical violence exposure would increase the predictability of disruptive behaviours. It was also predicted that the effect of physical violence exposure and protective factors on disruptive behaviour will differ for males and females.

*Research Question Four*

How important are the demographic variables (sex and school), protective factors (sense of relatedness, sense of mastery, and positive emotional reactivity), as measured by the RSCA (Prince-Embury, 2006), and the different modes of exposure to physical violence (hearing reports, witnessing, or being victim), as measured by the CREV (Cooley, Turner, & Beidel, 1995), when used together in predicting depression, as measured by the BYI-II (Beck, Beck, & Jolly, 2001)?

Similar to research question three, it was expected that all three protective factors would predict lower levels of depression and differentiating between the types of physical violence exposure would increase the predictability of depression. It was also predicted that the effect of physical violence exposure and protective factors on depression will differ for males and females.

*Research Question Five*

How important are the demographic variables (sex and school), protective factors (sense of relatedness, sense of mastery, and positive emotional reactivity), as measured by the RSCA (Prince-Embury, 2006), and the different modes of exposure to physical violence (hearing reports, witnessing, or being victim), as measured by the CREV (Cooley, Turner, & Beidel, 1995), when used together in predicting symptoms of PTSD, as measured by the CPSS (Foa et al., 2001)?

It was hypothesized that the protective factors would predict lower levels of PTSD symptoms and differentiating between the different modes of physical violence exposure would increase the predictability of PTSD symptoms. Again, it was predicted that the effect of physical violence exposure and protective factors on PTSD symptoms will differ for males and females.

*Subject Sample*

A total of 162 participants were included in the analyses, of which 55% were male and 45% were female. See Table 1 for a summary of the participant demographic information. Since a maximum of 9 predictor variables could potentially be examined (i.e., age, sex, school, hearing about violence, witnessing violence, victim of violence, sense of mastery, sense of relatedness, and positive emotional reactivity), a minimum of 135 students were required to meet the recommendation of 15 cases per factor for prediction studies (Tabachnik & Fidell, 2007).

Participants ranged from 16 to 19 years old, with the majority (90.2%) between the ages of 16 and 17 years old.

Table 1

<i>Participant Demographics</i>		
Demographic	<i>N</i>	%
Total	162	100
Sex		
Males	89	55
Females	73	45
Age		
16 years old	73	45
17 years old	73	45
18 years old	12	7
19 years old	4	3
Division		
Northern Division	63	39
Southern Division	99	61
School		
Northern School 1	43	27
Northern School 2	20	12
Southern School 1	59	36
Southern School 2	26	16
Southern School 3	14	9

Purposeful sampling was used to select rural school divisions in order to extend research in this area. Of the three school divisions approached, participants were sampled from schools within two divisions. Time constraints prevented access to the third division. Once permission was obtained from the school division, convenience sample was used. Principals from the largest communities were approached first to maximize the sampling pool, followed by neighbouring communities to optimize on travel and decrease the number of days required for data collection. Data was collected from the five schools that volunteered to participate, two from one division and three from the other. Principals were approached until it was clear that at least 150 participants would be included in the study.

The school divisions were located on opposite ends of the same province (i.e., one east side, one west side). Both were located in the central area of the province; however, one

bordered the southern area, whereas the other bordered the northern area. Schools from the southern division were located in smaller communities with populations between 900 and 2000 people. A total of 99 students from this division were included in the analyses. Schools from the northern division were located in larger communities with populations between 3500 and 5500 people. A total of 63 students from this division were included in the analyses. Although the sample is made up of students from 5 different communities on opposite ends of the central portion of the province, the majority of students ( $n = 102$ ) were from only two communities. Therefore, the sample may not be representative of the province's rural youth.

### *Instrumentation*

#### *Exposure to Physical Violence*

The Children's Report of Exposure to Violence (CREV) was used to measure the level of physical violence exposure (Cooley, Turner, & Beidel, 1995). The CREV is a self-report survey that assesses frequency of lifetime exposure to physical violence through the media, other people's reports (Hearing Reports), violence that is directly witnessed (Witness), and violence that is directly experienced (Victim). For the purposes of this study, responses from the media subscale were not included in the analyses. The CREV total score includes only the Hearing Reports, Witness, and Victim subscales.

The survey also discriminates between three categories of victims, including strangers, familiar persons, and self, and is divided into separate sections according to these categories. The questions do not differentiate between physical violence that is experience at home, in school, or in the neighbourhood. The type of violent situations include being chased or threatened with bodily harm, beaten up, robbed or mugged, shot, stabbed, or killed. Examples of items include, "Have you ever seen a stranger get stabbed?" or, "Have you ever been beaten up?" The survey consists of 32 items, 29 of which are rated on a 5-point Likert-type scale, ranging from 0 (never) to 4 (everyday). The final three items are open-ended questions that were not included in the survey package. With the 5 media items excluded, possible total scores range from 0 to 96 (116 with media items), with higher scores indicating more exposure to physical violence. Although the survey was developed for children and youth ages 9 to 15 years old, it has been used with participants up to the age of 18 year old (Cooley-Quille, Boyd, Frantz, & Walsh, 2001). The CREV has good test-retest reliability ( $r = .75$ ), internal consistency ( $\alpha = .78$ ), and evidence of construct validity (Cooley, Turner, & Beidel, 1995).

### *Protective Factors*

The Resiliency Scales for Children and Adolescents (RSCA; Prince-Embury, 2006) was used to measure protective factors. The RSCA is a self-report survey composed of three scales that measure the protective personal characteristics: sense of mastery, sense of relatedness, and positive emotional reactivity. Both the Sense of Mastery scale and the Emotional Reactivity scale consist of 20 items, whereas the Sense of Relatedness scale consists of 24 items. All three scales are rated on a 5-point Likert-type scale, ranging from 0 (never) to 4 (almost always), which results in total scores ranging from 0 to 80 for the Sense of Mastery and Emotional Reactivity scales and 0 to 96 for the Sense of Relatedness scale. High scores on the Sense of Mastery and Sense of Relatedness scales are associated with higher levels of resilience and low scores on the Emotional Reactivity scale are associated with higher levels of resilience. The Emotional Reactivity scale will be reverse-scored and referred to as positive emotional reactivity for ease of interpretation.

The Sense of Mastery scale consists of three subscales: Optimism, Self-Efficacy, and Adaptability. Examples of items include: “If I have a problem, I can solve it” and “Good things will happen to me”. There are four subtests in the Sense of Relatedness scale: Trust, Perceived Social Support, Comfort, and Tolerance. Examples of items include “I can make friends easily” and “There are people who will help me if something bad happens”. Finally, the Emotional Reactivity scale consists of three subscales: Sensitivity, Recovery, and Impairment. Examples of items for this scale include “I get very upset when things don’t go my way” and “When I get upset, I stay upset for the whole day”. All three scales of the RSCA have good to high test-retest reliabilities (ranged from  $r = .79$  for Sense of Mastery to  $r = .88$  for Emotional Reactivity), high to excellent internal consistency (ranged from  $\alpha = .85$  for Sense of Mastery to  $\alpha = .95$  for Emotional Reactivity) and evidence of construct validity (Prince-Embury, 2006; Prince-Embury & Courville, 2008).

### *Internalizing/Externalizing Problems*

Internalizing and externalizing problems was measured with the Beck Youth Inventories Second Edition for Children and Adolescents (BYI-II; Beck, Beck, Jolly, & Steer, 2005) and the Child PTSD Symptom Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001). The BYI-II is composed of five self-report scales (two of which will be used in this study) that measure thoughts, feelings, and behaviours associated with emotional and social impairment. The two

scales included were the Beck Depression Inventory for Youth (BDI-Y) and the Beck Disruptive Behaviour Inventory for Youth (BDBI-Y).

The BDI-Y includes items related to negative thoughts about self, life, and the future, feelings of sadness and guilt, and sleep disturbance. “I feel empty inside” is an example of one of these items. The BDBI-Y includes items related to thoughts and behaviours associated with oppositional-defiant disorder and conduct disorder. For example, “I like to bully others” is included in this scale. The scales consist of 20 items rated on a Likert-type scale, ranging from 0 (never) to 3 (always). Total scores for each scale range from 0 to 60. Higher scores are associated with higher levels of depression and disruptive behaviours. Both scales have high to excellent internal consistency ( $\alpha$  ranging from .86 to .96) and good to excellent test-retest reliabilities ( $r$  ranging from .74 to .93) for all age groups and genders, as well as evidence of validity (Beck, Beck, Jolly, & Steer, 2005).

The CPSS was designed to assess PTSD diagnosis and symptom severity in children and youth between the ages of 8 and 18 (Foa, Johnson, Feeny, & Treadwell, 2001). It was modelled after the well-validated adult version of the scale, the Posttraumatic Diagnostic Scale (PTDS; Foa, Cashman, Jaycox, & Perry, 1997), and includes one question for each of the 17 DSM-IV PTSD symptoms. The instructions ask participants to identify their most distressing event and rate the extent that they have been bothered by the event over the last two weeks on a 4-point likert scale, ranging from 0 (not at all) to 3 (5 or more times per week/almost always). The total symptom severity score ranges from 0 to 51. It is also possible to determine symptom severity scores for three symptom clusters: Reexperiencing, Avoidance, and Arousal. The measure includes an additional seven items relating to daily functioning (e.g., relationships with friends, schoolwork) which are used to determine the severity of impairment. These items are scored as either *absent* (0) or *present* (1), with total scores ranging from 0 to 7. For both the symptom severity and daily functioning subscales, higher scores are associated with higher levels of impairment. However, due to the large amount of missing data and the highly skewed distribution, daily functioning scores were not included in the analyses.

Evidence supports the CPSS as a reliable and valid instrument (Foa et al., 2001). It has very good to excellent internal consistency ( $\alpha$  ranging from .70 for the Arousal subscale to .89 for the total score), moderate to excellent test-retest reliability ( $kappa = .55$  for symptom diagnosis and between .63 and .84 for symptom severity scores) for the overall scale and three

subscales, very good convergent validity with another measure of PTSD ( $r = .80$ ), and satisfactory divergent validity (Foa et al., 2001).

#### *Data Collection*

A survey package consisting of a demographic questionnaire and self-report measures of exposure to physical violence, internalizing and externalizing problems, and protective factors was distributed to the youth. The order of the RSCA, BDI-Y, and BDBI-Y were counterbalanced to ensure that the order of the measures did not affect the results. The CPSS and CREV were always included as the final two measures in the package. This placement ensured that the sensitive questions in these measures did not affect the results of the other measures.

Data was collected in small and large classroom settings. Due to the large number of youth available in schools, this was the ideal environment to collect data. Once permission to commence with the data collection was obtained from the school divisions and then each school, the principals were informed that all students between the ages of 16 and 19 were invited to participate in the study. However, principals were invited to choose which classrooms would be invited to participate. Some principals chose to invite all students, whereas others invited all or particular teachers to volunteer their class time for students to complete the surveys.

In the former case, either all students who volunteered filled out the survey in a large room separate from those who did not volunteer or each classroom was visited by the researcher and students were invited to participate in a classroom setting. When classrooms were visited in this way, almost all students agreed to participate. In the latter case, few teachers volunteered, resulting in only one or two classrooms included in the study. Again, most students agreed to participate. When data was collected in the classroom setting students were given the option to participate or to do other school work at their desk. Therefore, all students included in this study volunteered to participate.

Participants were ensured confidentiality and anonymity and were told that they were free to withdraw from the study at any time without penalty. By completing the survey package after having this information explained to them, they communicated their consent to participate. However, no written assent was obtained in order to ensure anonymity. Due to the older age of the participants and concerns regarding consent forms making it to students' homes and back to school, passive parental consent was obtained. A letter was sent home to parents to inform them of the study and they were encouraged to contact the school if they did *not* want their child to

participate in the study. There were only a few parents who informed the school that they did not want their child participating. The survey package took approximately 20 to 40 minutes to complete.

### *Ethical Considerations*

Ethical approval was obtained from the University of Saskatchewan's Behavioural Research Ethics Board. Refer to Appendix A for a copy of the Certificate of Approval. There were a few risks associated with this study that required ethical consideration. First, the sample was taken from a vulnerable population, as most of the participants were younger than 18 years old. Second, data was collected in schools and teachers were present during data collection. Therefore, participants were part of a captive group and the power differential between them and their teachers may have threatened voluntary participation. Third, participants may have felt discomfort when answering some of the questions in the survey package. Many of the questions were sensitive and depending on the participant's previous experiences, some of the questions might have brought about memories that were upsetting. Fourth, there was potential for a conflict of interest due to the researcher's previous employment as a school counsellor for one of the school divisions accessed in the study.

### *Vulnerable Population*

The following sections describe decisions that were made to address the various risks associated with collecting data from a vulnerable population.

*Parental consent.* Because the majority of participants were not yet adults (i.e., 18 year old), parental consent is usually required. However, in order to fulfil the purpose of this study, data from adolescents who have been exposed to physical violence was needed. By requiring parental consent, the likelihood of obtaining information from this population was diminished. There were concerns that parents living in violent homes would not give consent for their child to participate in such a study, with fear of what their child might disclose. There was also the concern that high risk families might be less likely to return parent consent forms than low risk families because of struggles related to poverty and other social issues. In response to this ethical dilemma, the decision was made to obtain passive parental consent by sending a letter home to parents informing them of the potential of their child's participation in the study (see Appendix B). Parents were advised that they could contact that school if they did *not* want their child to participate. Therefore, with the school division's permission, parental consent was assumed, but



not obtained. There were a few parents who asked that their child not participate. These students completed school work during data collection.

*Participant maturity.* With passive parental consent, it is important that participants are cognitively and emotionally mature individuals. Participants were older adolescents (i.e., 16 yrs and older); and therefore, were likely cognitively mature enough to understand the consent procedure and emotionally mature enough to understand the implications of giving consent. To ensure participants were cognitively and emotionally mature enough, principals were consulted about the maturity of the students before inviting students to participate in the study. Principals were advised that if the maturity of any student was in question, the classroom to which that student belonged should not be invited to participate.

*Informed assent and confidentiality.* The age of participants before the surveys were completed was unknown. Therefore, all participants were treated as if they were minors and given the same information around informed assent and confidentiality. Participants were informed verbally and in writing of their rights to confidentiality. To maximize anonymity, participant signatures were not obtained in the informed assent process. Instead, participants were provided assent letters (Appendix C) which described the nature of this study, the right to refuse answering any questions, and the right to withdraw from the study at any time without penalty. Informed assent was assumed with the completion of the survey package.

All data was coded (including the school) and participants were identified with a participant number in order to protect the identity of each individual. Participant names were not collected. Instead, survey booklets that were already assigned participant numbers were distributed. Data was reported in aggregate form and schools and communities are not identified in this manuscript.

#### *Captive Group*

In an attempt to minimize this risk of students feeling obligated or coerced to participate, teachers and principals were advised about the importance of voluntary participation. They were asked to inform students that there is no obligation to participate. The researcher also stressed to all potential participants that the choice to participate was completely their own and that there would be no consequences for those who didn't participate or rewards for those who did.

### *Sensitive Survey Questions*

Because the sensitive nature of some of the questions could cause participants to become distressed or recall upsetting memories, participants were provided with names and contact information for individuals and agencies in the mental health field. They were also advised that the researcher, who was trained in counselling adolescents, was available immediately after all surveys were completed to listen to their concerns and assist them in connecting with someone who can help. This information was provided verbally before participation and on the debriefing form (see Appendix D) following participation. This section of the briefing form was bolded to highlight this information. The researcher was also conscientious of the possibility of participants becoming upset, and therefore, watched for individuals who appeared upset while completing the survey. Support was provided by reminding the entire class of their right to withdraw, encouraging them to read over the debriefing form, and highlighting that the researcher would be available immediately after the study to discuss any concerns.

A brochure (see Appendix E) with information about physical violence was also provided to students with the debriefing form. The purpose of the brochure was to increase awareness and understanding of physical violence and the effect it can have on thoughts, feelings, and behaviours. This information could also help individuals who have experienced violence to feel like they are not alone and understand that other young people have had similar experiences and share similar thoughts, feelings, and behaviours.

### *Conflict of Interest.*

The researcher was previously employed as a school counsellor for one of the school divisions accessed. Therefore, some of the adolescents included could have been previous clients. In order to prevent a conflict of interest, efforts were made to ensure participants did not feel coerced by reassuring students that participation was completely voluntary. However, to the research's knowledge, a conflict of interest did not occur.

### *Data Analysis*

The data was analyzed through correlation and regression analyses. The first and second research questions were tested through correlational analyses in order to determine whether the protective factors and exposure to physical violence were significantly correlated with the internalizing and externalizing problems. The third, fourth, and fifth research questions were tested through stepwise and standard multiple regression in order to determine whether sex,

protective factors (sense of mastery, sense of relatedness, and emotional reactivity), and modes of exposure to physical violence (hearing reports, witnessing, or being victimized) predicted disruptive behaviour, depression, or PTSD symptoms. The aim was also to identify differences in the predictive power of the different sexes, protective factors, and modes of physical violence exposure. Subscales of the CREV were used instead of total violence exposure to determine whether one of the subscales more strongly predicts the internalizing/externalizing problems.

Much of the previous research has ordered the variables using hierarchical multiple regression (see Brown et al., 1999; Ozer, 2005; Youngstrom, Weist, & Albus, 2003), with any significant demographic variables correlated with the criterion variable entered in the first step of the regression model, protective factors entered in the second step, violence exposure in the third step, and an interaction term between protective factors and violence exposure in the last step. However, stepwise multiple regression analyses were performed for two reasons. First, the RSCA and the Hearing Reports subscale of the CREV have not been used in this area of research. Through stepwise multiple regression, the amount of variance accounted for by each variable can be explored at the same time as the other variables rather than using theory to order the variables into the regression, as is done in hierarchical regression (Tabachnick & Fidell, 2007). Second, complicated analyses that are associated with the interactions in hierarchical regressions are avoided. With the number of variables included and the number of regression analyses performed, interactions would complicate the results more than necessary.

Two sets of multiple regressions were run for each criterion variable. The first set was run using stepwise regression with the total sample in order to determine the amount of variance accounted for by each predictor variable. The second set was separated by sex and run using standard regression instead of a statistical procedure such as stepwise regression due to the relatively small number of cases with respect to the number of predictor variables of interest, as suggested by Brace, Kemp, and Snelgar (2010). The analyses should be less affected by possible variations in the data due to sampling errors. This second set was run in response to the expectation that the predictive power of the predictor variables may differ for males and females.

Demographic variables, protective factors, and modes of physical violence exposure were the predictor variables examined. The only demographic characteristic included in the first set of regression analyses was school. Age was not included considering the small range in age (i.e., 16 to 19 years old) and the majority of participants falling between the ages of 16 and 17. Sex was

not included because it was explored in the second set of analyses. Excluding sex from the first set resulted in fewer predictor variables, which allows for higher power. The protective factors included sense of mastery, sense of relatedness, and positive emotional reactivity. Modes of physical violence exposure included hearing reports of violence, witnessing violence, and being a victim of violence. The criterion variables that were examined included symptoms of internalizing and externalizing problems. More specifically, depression, posttraumatic stress, and disruptive behaviours (i.e., aggressive and delinquent behaviours; Bose-Deakins & Floyd, 2004) were examined.

### *Summary*

The purpose of the present study is to determine whether sex, certain personal protective factors, and three modes of exposure to physical violence are predictive of internalizing/externalizing problems in rural Canadian youth. A total of 162 participants between the ages of 16 and 19 years old were included in the analyses. Fifty-five percent were male and 45% were female. Participants were recruited from five schools within two rural school divisions. A survey package consisting of a demographic questionnaire and self-report measures of exposure to physical violence, internalizing and externalizing problems, and protective factors was distributed to the youth in small and large classroom settings.

A few risks required ethical consideration. The sample was taken from a vulnerable population, with most participants younger than 18 years old. Participants were part of a captive group and there was a power differential between them and their teachers, which may have threatened voluntary participation. Participants may have felt discomfort when answering questions in the survey package. Many of the questions were sensitive and depending on the participant's previous experiences, some of the questions might have brought about memories that were upsetting. Steps were taken to inform parents and ensure maturity, voluntary participation, anonymity and confidentiality. Students were encouraged to withdraw from the study if they felt any discomfort and all students were given a debriefing form with contact information for counselling services.

The Children's Report of Exposure to Violence (CREV) was used to measure the level of physical violence exposure (Cooley, Turner, & Beidel, 1995). The three subscales of this measure made up the three modes of violence explored: hearing reports of violence, witnessing violence, and being victim to violence. The Resiliency Scales for Children and Adolescents

(RSCA; Prince-Embury, 2006) was used to measure protective factors. The three protective factors include: sense of mastery, sense of relatedness, and positive emotional reactivity. Disruptive behaviour, depression, and PTSD symptoms are the internalizing/externalizing problems explored. Disruptive behaviour and depression were measured with the Beck Youth Inventories Second Edition for Children and Adolescents (BYI-II; Beck, Beck, Jolly, & Steer, 2005), and PTSD symptoms were measured with the Child PTSD Symptom Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001).

Five research questions are of interest. The first two ask about relationships between the protective factors, physical violence exposure, and internalizing/externalizing problems. Correlations were analysed to test these questions. The last three research questions ask how well demographic variables (i.e., sex and school), protective factors, and physical violence exposure predict disruptive behaviour, depression, and PTSD symptoms. Two sets of standard multiple regressions were used for each criterion variable, one with the total sample and one divided by sex considering the predictive power of the predictor variables is expected to differ for males and females.

## CHAPTER FOUR

### Results

#### *Overview*

The methods used for data cleaning, descriptive statistics, and the results of the correlation and regression analyses are described. The section on data cleaning explains the steps taken with respect to missing values and outliers. It also describes how assumptions of the analyses were tested. Next, a summary of the descriptive statistics is provided, such as means, standard deviations, range of scores, and percentages of youth exposed to different types of physical violence. Finally, the results of the main analyses are summarized.

#### *Data Cleaning*

Variables with less than 5% of values missing were replaced with the means of that variable (i.e., disruptive behaviour, depression, sense of mastery, and sense of relatedness). However, for variables in which over 5% of the values were missing, missing values were included and no changes were made. The difference between those who missed data and those who didn't approached significance for age, but not for any other variable.

Boxplots and distributions were inspected for univariate outliers. Outliers according to the boxplots were deleted for variables that were normally distributed. One participant was deleted from the analyses because he was an outlier for five of the variables and had missing data for one of the variables. One other outlier was deleted from both sense of relatedness and emotional reactivity. However, only one of the five additional outliers was deleted from the disruptive behaviour variable. Four of the outliers were left in the analyses because the distribution had a slight positive skew and they were within three standard deviations away from the mean. Once the outliers over four standard deviations away from the mean were deleted, the distribution appeared to be normally distributed.

The distribution of scores for depression and PTSD symptoms were moderately positively skewed. Therefore, square root transformations were performed on these variables as recommended by Tabachnick and Fidell (2007). All other variables were normally distributed after outliers were deleted. Bivariate scatterplots were inspected to determine whether the assumptions of linearity and homoscedasticity were violated. The scatterplots revealed that these assumptions appeared to be met.

Before the three CREV subscales were included in regression analyses, they were inspected for multicollinearity. (Singularity was not violated considering none of the variables were a combination of two or more other variables. If the total score and subscores were included in a regression, singularity would be violated.) The CREV subscales were not highly correlated (i.e.,  $r = .90$  or higher; Tabachnick & Fidell, 2007); therefore, multicollinearity was not violated. Correlations ranged from  $r = .32, p < .001$  for Hearing Reports and Victims to  $r = .62, p < .001$  for Hearing Reports and Witness.

#### *Rates of Physical Violence Exposure*

Almost all participants (99%) had heard about at least one act of physical violence in their life, 73% of participants reported witnessing at least one act of violence, and 58% reporting being victim to at least one act of violence. A large percentage of youth (78%) were exposed to physical violence as a witness or victim one or more times. Interestingly, half (51%) of the sample were both witnesses *and* victims of physical violence, with another 21% reporting to be only witnesses and 6% only victims.

Table 2 provides a summary of the violent events that participants heard about, witnessed, or experienced themselves (i.e., victim). Of all the violent events that were witnessed, seeing someone you know being beat up was the most common, with over 60% of participants reporting witnessing this occur. The second most common was seeing a stranger being beaten up. A surprising number of participants witnessed someone being shot or stabbed (14% witnessed a stranger and 12% witnessed someone they knew). A few participants even reported being a victim of a shooting or stabbing (6%). The most common event that participants were victimized by was being chased or seriously threatened (42%), followed by being beaten up (38%).

Table 2

#### *Percent of Participants Reporting Types of Physical Violence Exposure*

Event	Been told that a stranger was...	Witnessed a stranger...	Witnessed someone you know...	Victim of...
Being beaten up	85.8 (162)	46.9 (162)	61.8 (157)	38.0 (158)
Chased/seriously threatened	72.0 (161)	34.4 (160)	31.8 (157)	42.2 (158)
Robbed or mugged	74.4 (160)	18.1 (160)	13.3 (158)	15.3 (157)
Shot or stabbed	80.1 (161)	13.8 (160)	11.6 (154)	5.7 (157)
Killed	77.5 (160)	6.3 (160)	7.1 (154)	-

*Note:*  $N$  found in brackets.

*Descriptive Statistics and Sex Differences*

Table 3 reports the means, standard deviations, and range of scores for the demographic, resilience, physical violence exposure, and internalizing/externalizing variables for the total sample and separated by sex. Mean scores for the resilience variables were similar for males and females, with sense of relatedness being the largest discrepancy. An independent samples t-test revealed that females reported higher levels than males,  $t(159) = -2.17, p = .031$ . There was no significant differences between the sexes for sense of mastery,  $t(160) = 0.62, p = .534$ , or positive emotional reactivity  $t(151) = 0.21, p = .838$ . Scores were also similar for hearing about violence,  $t(153) = 0.02, p = .987$ . However, the difference between males and females for witnessing violence was marginally significant,  $t(138.64) = 1.83, p = .069$ , and the difference for being victim to violence was significant,  $t(152.13) = 2.48, p = .014$ , with males scoring higher than females. Males also had significantly higher disruptive behaviour scores than females,  $t(159) = 3.40, p = .001$ . Mean scores for depression,  $t(160) = -1.60, p = .112$ , and PTSD symptoms,  $t(143) = -1.57, p = .118$  were not significantly different.

Table 3

*Descriptive Statistics for Predictor and Criterion Variables*

Variable	<i>M (N)</i>			<i>SD</i>			<i>Range</i>
	Total	Males	Females	Total	Males	Females	Total
Demographic							
Age	16.67 (162)	16.75 (89)	16.58 (73)	.72	.71	.73	16-19
Predictor							
Resilience							
Sense of Relatedness	71.44 (161)	69.46 (89)	73.89 (72)	13.04	12.59	13.26	37-96
Pos. Emot. Reactivity	55.37 (153)	55.55 (86)	55.15 (67)	11.88	12.01	11.79	23-80
Sense of Mastery	56.52 (162)	57.03 (89)	55.89 (73)	11.58	11.07	12.23	24-80
Physical Violence Exp.							
Hearing of Violence	23.24 (155)	12.68 (84)	12.67 (71)	11.13	6.35	5.64	0-27
Witnessing Violence	7.07 (148)	4.54 (80)	3.21 (68)	8.46	5.24	3.50	0-21
Victim of Violence	2.38 (156)	1.96 (85)	1.22 (71)	3.03	2.13	1.59	0-8
Criterion							
Disruptive Behaviour	11.52 (161)	13.11 (88)	9.62 (73)	6.69	6.38	6.59	0-33
Depression*	3.17 (162)	3.02 (89)	3.36 (73)	1.37	1.31	1.43	0-7
PTSD Symptoms*	2.92 (145)	2.73 (78)	3.14 (67)	1.57	1.50	1.63	0-6.63

*Note:* Pos. Emot. Reactivity = Positive Emotional Reactivity; Physical Violence Exp. = Physical Violence Exposure. \*Represents variables that have been transformed.



*Correlations*

Correlations between all predictor and criterion variables can be found in Table 4. Of the three demographic variables, only school was significantly correlated with exposure to physical violence. School was negatively correlated with all of the exposure to physical violence subscales. All were small correlations. All of three protective factors were significantly correlated with all three types of exposure to physical violence. These correlations were small to moderate negative correlations.

Table 4

<i>Correlations between Variables</i>												
Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Sex	-											
2. Age	-.12 (162)	-										
3. School	.03 (162)	-.20*	-									
4. Sense of Relatedness	.17* (161)	-.16* (162)	.19* (161)	-								
5. Pos. Emot. Reactivity	-.02 (153)	.02 (152)	.131 (153)	.48** (152)	-							
6. Sense of Mastery	-.05 (162)	-.10 (162)	.21** (162)	.72** (161)	.52** (153)	-						
7. Hearing About Violence	-.00 (155)	.02 (155)	-.21* (155)	-.19* (154)	-.41** (147)	-.17* (155)	-					
8. Witness of Violence	-.15 (148)	.07 (148)	-.22** (148)	-.20* (147)	-.39** (142)	-.27** (148)	.62** (146)	-				
9. Victim of Violence	-.14 (155)	.06 (155)	-.17* (155)	-.43** (155)	-.44** (148)	-.37** (156)	.32** (153)	.62** (146)	-			
10. Total Physical Violence Exposure	-.08 (144)	.05 (144)	-.24** (144)	-.28** (143)	-.50** (138)	-.31** (144)	.89** (144)	.89** (144)	.63** (144)	-		
11. Disruptive Behaviour	-.26** (161)	.06 (161)	-.06 (161)	-.46** (160)	-.49** (152)	-.39** (161)	.34** (154)	.43** (147)	.49** (155)	.48** (143)	-	
12. Depression <sup>a</sup>	.13 (162)	.07 (162)	-.23** (162)	-.43** (161)	-.63** (153)	-.54** (162)	.39** (155)	.35** (148)	.40** (156)	.45** (144)	.41** (161)	-
13. PTSD Symptoms <sup>a</sup>	.13 (145)	.08 (145)	-.23** (145)	-.43** (144)	-.55** (137)	-.56** (145)	.31** (138)	.35** (132)	.31** (140)	.41** (129)	.26** (145)	.63** (145)

Note: \* $p < .05$ ; \*\* $p < .01$ . N found in brackets. Pos. Emot. Reactivity = Positive Emotional Reactivity.

Examination of the correlations between the demographic variables and the internalizing/externalizing problems revealed that sex was only significantly correlated with disruptive behaviour and school was significantly correlated with depression and PTSD symptoms. Age was not significantly correlated with any of the mental health problems. These three significant correlations were all small negative correlations.

#### *Research Question 1*

The first research question asked about the relationship between exposure to physical violence and symptoms of the internalizing/externalizing problems disruptive behaviour, depression, and PTSD. Refer to Table 4 for a summary of these correlations. The total and subscale (Hearing Reports, Witnessing, and Victim) scores of the CREV were all moderately and positively correlated with disruptive behaviour, depression, and PTSD symptoms. Of these internalizing/externalizing problems, disruptive behaviour had the largest correlations with total exposure to physical violence and each subscale except Hearing Reports, which was most highly correlated with depression. PTSD symptoms had the smallest correlations with the total and subscale scores.

The sample was separated by sex for further correlational analyses. A summary of these results can be found in Table 5. The most interesting discrepancies between males and females were found in the correlations between the exposure to physical violence subscales and disruptive behaviour. Although the sexes had almost equal correlations between total violence exposure and disruptive behaviour ( $r = .49$  for boys;  $r = .48$  for girls), the correlation for Hearing Reports and disruptive behaviour was much larger for boys ( $r = .48$ ) than for girls ( $r = .20$ ). The correlation for girls did not even reach significance. In contrast, the correlation between violent victimization and disruptive behaviour was larger for girls ( $r = .60$ ) than for boys ( $r = .39$ ), as was the correlation between witnessing violence and disruptive behaviour ( $r = .55$  for girls;  $r = .34$  for boys).

Table 5

*Correlations between Predictor and Criterion Variables By Sex*

Predictor Variables	Criterion Variables					
	Disruptive Behaviour		Depression		PTSD Symptoms	
	Male	Female	Male	Female	Male	Female
Resilience Variables						
Sense of Relatedness	-.34**(88)	-.54**(72)	-.45**(89)	-.46**(72)	-.43**(78)	-.52**(66)
Positive Emotional Reactivity	-.44**(85)	-.62**(67)	-.61**(86)	-.67**(67)	-.50**(76)	-.61**(61)
Sense of Mastery	-.26**(88)	-.59**(73)	-.50**(89)	-.57**(73)	-.54**(78)	-.58**(67)
Physical Violence Exp.						
Total Score	.49**(77)	.48**(66)	.46** (78)	.49** (66)	.36** (69)	.51** (60)
Hearing Reports	.48**(83)	.20 (71)	.41** (84)	.36** (71)	.25* (73)	.39** (65)
Witness	.34**(79)	.55**(68)	.35** (80)	.44** (68)	.33** (70)	.43** (62)
Victim	.39**(84)	.60**(71)	.43** (85)	.45** (71)	.36** (75)	.33** (65)

*Note:* Physical Violence Exp. = Physical Violence Exposure. \* $p \leq .05$ ; \*\*  $p \leq .01$ .

The correlations between exposure to physical violence and depression were fairly similar for boys and girls. The largest difference was with the witnessing violence subscale, with  $r = .44$  for girls and  $r = .34$  for boys. All of the correlations between PTSD symptoms and exposure to physical violence were also larger for girls than boys, except being a victim, which was similar for boys and girls.

*Research Question 2*

The second research question asked about the relationship between the protective factors (sense of relatedness, sense of mastery, and positive emotional reactivity) and the internalizing/externalizing problems. All were significant, moderate to large negative correlations (see Table 4). Sense of relatedness was moderately correlated with disruptive behaviour, depression, and PTSD symptoms. Positive emotional reactivity and sense of mastery were both moderately correlated with disruptive behaviour and largely correlated with depression and PTSD symptoms.

Once the sample was separated by sex (see Table 5), some interesting differences were revealed. All the combinations were still significantly correlated for both sexes. Yet, for males, disruptive behaviour was moderately correlated with all three protective factors, whereas, for females, it was more strongly correlated with the protective factors. In fact, each of the correlations explored were larger for girls than for boys. The greatest difference in correlations

was between sense of mastery and disruptive behaviour, with  $r = -.26$  for boys, and  $r = -.59$  for girls.

### *Regressions*

Two sets of multiple regressions were run for each criterion variable (i.e., disruptive behaviour, depression, PTSD symptoms). The first set was run with stepwise regression that included the total sample and the second was run with separate standard regressions for each sex. Due to the relatively small number of cases with respect to the number of predictor variables of interest, standard regression analyses were run instead of stepwise regression, as suggested by Brace, Kemp, and Snelgar (2010). The analyses should be less affected by possible variations in the data due to sampling errors. Dividing the sample resulted in a small sample size for each sex and a decrease in power. Therefore, a p-value of .10 was used to decrease the chance of Type-II errors. A p-value of .05 was used for regressions that included the total sample.

### *Research Question 3*

The third research question asked how important the demographic variables (sex and school), protective factors (sense of relatedness, sense of mastery, and positive emotional reactivity), and the different modes of exposure to physical violence (hearing about, witnessing, or victim) are when used together to predict disruptive behaviour. School was not included in the analyses considering it was not significantly correlated with disruptive behaviour. Sex was not included in the first regression considering separate regression would be run for males and females.

When analyzing the total sample with stepwise regression, 39% of the variance was accounted for in the final model,  $F(3, 132) = 27.60, p < .001$ . Sense of relatedness, witnessing physical violence, and positive emotional reactivity were identified as significant predictors of disruptive behaviour (refer to Table 6). Sense of relatedness was identified as the strongest predictor in the first model and accounted for 24% of the variance in disruptive behaviour,  $F(1, 134) = 42.66, p < .001$ . Through adding witnessing violence, the second model accounted for an additional 12% of the variance,  $F(2, 133) = 37.27, p < .001$ . Finally, positive emotional reactivity accounted for another 3% of the variance in the third and final model. High scores in disruptive behaviour were associated with high scores in witnessing physical violence and low scores in sense of relatedness and positive emotional reactivity.

Table 6

*Stepwise Multiple Regression Analysis for Variables Predicting Disruptive Behaviour (N = 136)*

Model	Predictor	<i>B</i>	<i>SE B</i>	$\beta$
1	Sense of Relatedness	-0.25	0.04	-.49**
2	Sense of Relatedness	-0.22	0.04	-.43**
	Witnessing Violence	0.52	0.11	.35**
3	Sense of Relatedness	-0.18	0.04	-.35**
	Witnessing Violence	0.44	0.11	.29**
	Positive Emotional Reactivity	-0.12	0.05	-.20*

*Note:*  $R^2 = .24$  ( $p < .001$ ) for Model 1.  $R^2 = .36$  ( $p < .001$ ) for Model 2.  $R^2 = .39$  ( $p < .001$ ) for Model 3. \* $p < .05$ . \*\* $p < .01$ .

After splitting the sample by sex, the regression revealed some interesting sex differences. Refer to Table 7. Only 37% of the variance in disruptive behaviour in males was accounted for by the predictor variables,  $F(6, 69) = 6.57, p < .001$ , whereas 52% of the variance was accounted for in females,  $F(6, 53) = 9.56, p < .001$ . For the males, the only significant predictor of disruptive behaviour was hearing reports of physical violence, with higher levels of disruptive behaviour associated with hearing more reports. Conversely, for the girls, sense of relatedness and being a witness of violence were significant predictors of disruptive behaviour. High levels of sense of relatedness and low levels of witnessing violence were associated with lower levels of disruptive behaviour. The strongest predictor according to  $\beta$ -value was witness of violence, followed by sense of relatedness.

Table 7

*Standard Multiple Regression Analysis for Variables Predicting Disruptive Behaviour By Sex*

Predictor	<i>B</i>	<i>SE B</i>	$\beta$
Males ( <i>N</i> = 76)			
Sense of Relatedness	-0.13	0.08	-.25
Sense of Mastery	0.09	0.10	.14
Positive Emotional Reactivity	-0.10	0.07	-.19
Hearing About Violence	0.35	0.15	.33**
Witnessing Violence	-0.07	0.21	-.06
Victim of Violence	0.63	0.45	.21
Females ( <i>N</i> = 60)			
Sense of Relatedness	-0.12	0.07	-.27*
Sense of Mastery	-0.04	0.08	-.08
Positive Emotional Reactivity	-0.12	0.07	-.22
Hearing About Violence	-0.11	0.14	-.10
Witness of Violence	0.52	0.27	.29*
Victim of Violence	0.58	0.52	.14

*Note:* Male  $R^2 = .36$  ( $p < .001$ ). Female  $R^2 = .52$  ( $p < .001$ ). \* $p < .10$ . \*\* $p < .05$ . \*\*\* $p < .01$ .

*Research Question 4*

The fourth research question asked how important the demographic variables (sex and school), protective factors (sense of relatedness, sense of mastery, and positive emotional reactivity), and the different modes of exposure to physical violence (hearing reports, witnessing, or being victim) are when used together to predict depression. As before, sex was only included in the second set of regressions. Table 8 summarizes the results of the total sample and Table 9 summarizes the results separated by sex.

Table 8

*Stepwise Multiple Regression Analysis for Variables Predicting Depression (N = 137)*

Model	Predictor	<i>B</i>	<i>SE B</i>	$\beta$
1	Positive Emotional Reactivity	-0.07	0.01	-.62**
2	Positive Emotional Reactivity	-0.05	0.01	-.46**
	Sense of Mastery	-0.04	0.01	-.30**
3	Positive Emotional Reactivity	-0.05	0.01	-.38**
	Sense of Mastery	-0.04	0.01	-.31**
	Hearing About Violence	0.04	0.02	.18*

Note:  $R^2 = .39$  ( $p < .001$ ) for Model 1.  $R^2 = .45$  ( $p < .001$ ) for Model 2.  $R^2 = .47$  ( $p < .001$ ) for Model 3. \* $p < .05$ . \*\* $p < .01$ . Square root transformation was performed on Depression.

Table 9

*Standard Multiple Regression Analysis for Variables Predicting Depression By Sex*

Predictor	<i>B</i>	<i>SE B</i>	$\beta$
Males ( $N = 77$ )			
School	-0.04	0.09	-.04
Sense of Relatedness	-0.01	0.02	-.05
Sense of Mastery	-0.03	0.02	-.20
Positive Emotional Reactivity	-0.04	0.01	-.37***
Hearing About Violence	0.03	0.03	.16
Witnessing Violence	-0.01	0.04	-.03
Victim of Violence	0.08	0.08	.13
Females ( $N = 60$ )			
School	-0.10	0.11	-.10
Sense of Relatedness	-0.01	0.02	-.06
Sense of Mastery	-0.03	0.02	-.27
Positive Emotional Reactivity	-0.05	0.02	-.35**
Hearing About Violence	0.05	0.03	-.19
Witness of Violence	-0.02	0.06	-.05
Victim of Violence	0.03	0.12	.03

Note: Male  $R^2 = .46$  ( $p < .001$ ). Female  $R^2 = .54$  ( $p < .001$ ). \* $p < .10$ . \*\* $p < .05$ . \*\*\* $p < .01$ . Square root transformation was performed on Depression.

For the total sample, positive emotional reactivity, sense of mastery, and hearing reports of violence were significant predictor variables. Thirty-nine percent of the variability in depression was accounted for by positive emotional reactivity in model 1,  $F(1, 135) = 85.95$ ,  $p <$



.001. An additional 6% of the variance was accounted for by sense of mastery in model 2,  $F(2, 134) = 56.12, p < .001$ , and another 2% was accounted for by hearing about violence in model 3,  $F(3, 133) = 41.57, p < .001$ , resulting in a final model that accounted for 47% of the variance in depression. High levels of sense of mastery and positive emotional reactivity, and low levels of hearing reports of violence were associated with low levels of depression.

Once the sample was divided by sex, positive emotional reactivity was the only significant predictor for both boys and girls. Again, more variance was accounted for in the female regression (54%),  $F(7, 52) = 8.73, p < .001$  than the male regression (46%),  $F(7, 69) = 8.38, p < .001$ .

#### *Research Question 5*

The fifth research question asked how important the demographic variables (sex and school), protective factors (sense of relatedness, sense of mastery, and positive emotional reactivity), and the different modes of exposure to physical violence (hearing reports, witnessing, or victim of violence) are when used together to predict symptoms of PTSD. Again, sex was not included in the stepwise regression. Table 10 summarizes the results of the stepwise regression with the total sample and Table 11 summarizes the results of the standard regression separated by sex.

Table 10

#### *Stepwise Multiple Regression Analysis for Variables Predicting PTSD Symptoms (N = 122)*

Model	Predictor	<i>B</i>	<i>SE B</i>	$\beta$
1	Sense of Mastery	-0.08	0.01	-.61**
2	Sense of Mastery	-0.06	0.01	-.42**
	Positive Emotional Reactivity	-0.05	0.01	-.36**
3	Sense of Mastery	-0.06	0.01	-.41**
	Positive Emotional Reactivity	-0.04	0.01	-.30**
	Witnessing Violence	0.06	0.03	.16*

*Note:*  $R^2 = .38$  ( $p < .001$ ) for Model 1.  $R^2 = .47$  ( $p < .001$ ) for Model 2.  $R^2 = .49$  ( $p < .001$ ) for Model 3. \* $p < .05$ . \*\* $p < .01$ . Square root transformation was performed on PTSD Symptoms.

Table 11

*Standard Multiple Regression Analysis for Variables Predicting PTSD Symptoms By Sex*

Predictor	<i>B</i>	<i>SE B</i>	$\beta$
Males ( <i>N</i> = 68)			
School	-0.10	0.11	-.09
Sense of Relatedness	0.00	0.02	.04
Sense of Mastery	-0.06	0.02	-.40**
Positive Emotional Reactivity	-0.03	0.02	-.27**
Hearing About Violence	-0.02	0.03	-.07
Witnessing Violence	0.05	0.05	.15
Victim of Violence	0.04	0.11	.05
Females ( <i>N</i> = 54)			
School	-0.14	0.10	-.12
Sense of Relatedness	0.02	0.02	.17
Sense of Mastery	-0.05	0.02	-.38***
Positive Emotional Reactivity	-0.05	0.02	-.38***
Hearing About Violence	-0.02	0.03	-.07
Witness of Violence	0.13	0.06	.26**
Victim of Violence	0.21	0.12	.19*

*Note:* Male  $R^2 = .40$  ( $p < .001$ ). Female  $R^2 = .65$  ( $p < .001$ ). \* $p < .10$ . \*\* $p < .05$ . \*\*\* $p < .01$ . Square root transformation was performed on PTSD Symptoms.

Sense of mastery, positive emotional reactivity, and witnessing violence were found to be significant predictors of PTSD symptoms in the stepwise regression. Model 1 revealed that sense of mastery accounted for 38% of the variance in PTSD symptoms,  $F(1, 120) = 72.43, p < .001$ . Positive emotional reactivity accounted for another 9% of the variance in model 2,  $F(2, 119) = 52.40, p < .001$ . Witnessing violence accounted for an additional 2% of variance,  $F(3, 118) = 37.90, p < .001$ , resulting in a final model that accounted for 49% of the variance in PTSD symptoms. PTSD symptoms decreased as sense of mastery and positive emotional reactivity increased and witnessing violence decreased.

Once standard regressions were run for each sex, results revealed that in the male regression, 40% of the variability in PTSD symptoms was accounted for by the predictor variables,  $F(7, 60) = 5.69, p < .001$ , compared to 65% of the variance in the female regression,  $F(7, 46) = 14.97, p < .001$ . Sense of mastery and positive emotional reactivity were found to be significant predictors of PTSD symptoms for the boys as well as for the girls. According to the  $\beta$  -value, sense of mastery was the strongest predictor for boys and sense of mastery and positive emotional reactivity being equally predictive of PTSD symptoms for girls. However, for the

girls, witnessing violence and being a victim of violence were also significant. As exposure to these types of physical violence increased, so did PTSD symptoms.

### *Summary*

Before the major analyses were performed, the data was cleaned and regression assumptions were tested. Data cleaning procedures were used to address missing values and outliers. Bivariate scatterplots were inspected for normality, linearity, and homoscedasticity. Square root transformations were performed on two variables (i.e., depression and PTSD symptoms) to normalize positively skewed distributions. The assumptions of singularity and multicollinearity were also explored and found to be met.

Descriptive statistics revealed that the participants were exposed to high rates of physical violence. Almost 80% reported being exposed to physical violence as a witness or a victim one or more times. Nearly all (99%) had heard about at least one act of physical violence in their life, 73% reported witnessing at least one act of violence, and 58% reporting being victim to at least one act of violence. The most common form of violence witnessed was seeing someone you know being beat up and the most common form of violence that participants were victimized by was being chased or seriously threatened. T-tests revealed that males were more likely than females to be victimized by physical violence.

The first and second research questions were answered through correlational analyses. The answer to the first research question is that all three modes of exposure to physical violence were positively associated with disruptive behaviour, depression, and PTSD symptoms. Dividing the sample by sex revealed that the relationship between hearing reports of violence and disruptive behaviour existed only for males. Female disruptive behaviour was highly associated with witnessing and being victim to violence. The answer to the second research question is that all of the protective factors were negatively associated with disruptive behaviour, depression, and PTSD symptoms. Correlations were stronger for females than males.

The last three research questions were answered through stepwise and standard multiple regressions. The results indicate that the answer to the third research question is that sense of relatedness, witnessing violence, and positive emotional reactivity are important predictors of disruptive behaviours. Yet, after dividing the sample by sex, hearing about violent events had the strongest effect on disruptive behaviour in males, and witnessing violence had the strongest effect on disruptive behaviour in females. The answer to the fourth research question is that

positive emotional reactivity, sense of mastery, and hearing reports of violence all had a significant effect on participants' level of depression. Dividing the sample by sex did not reveal any sex differences. The answer to the fifth research question is that sense of mastery, positive emotional reactivity, and witnessing violence had a significant effect of participant's level of PTSD symptoms. Yet, once separated by sex, it was revealed that witnessing violence was not an important predictor for boys, whereas both witnessing and being a victim of violence were identified as significant predictors for girls. In summary, participant sex, mode of physical violence exposure, and protective factors were found to be important variables to consider when predicting internalizing/externalizing problems.

## CHAPTER 5

### Discussion

#### *Overview*

This final chapter provides a discussion of the results. First, the rates of physical violence exposure found in this sample is described and compared to previous research. Next, the results of the correlation and regression analyses are summarized and compared to previous research. Considering there were a number of differences found between male and female youth, possible explanations for the results are provided. The research literature is used to help explain these differences, as well as differences found in the predictive power of the three protective factors and the three modes of physical violence exposure on disruptive behaviour, depression, and symptoms of PTSD. Through these discussions, several implications for future research were identified. These research implications are discussed, followed by possible educational and counselling implications. Finally, limitations of the study are described.

#### *Findings*

##### *Rates of Physical Violence Exposure*

The rates of physical violence exposure in this rural Canadian sample were higher than that found by Sullivan and colleagues (2007) in their rural American sample. Sullivan et al. (2007) found that 50% of youth were exposed to violence as a witness or victim one or more times, compared to 78% of this sample. However, the American study was drawn from grade six students, with the younger age likely accounting for the difference.

When compared to research on urban American youth, the rates of indirect physical violence exposure (i.e., witnessing violence) were slightly lower. For example, 73% of participants reported witnessing at least one act of violence in their life, whereas studies of urban American youth often find that over 90% of youth have witnessed violence (Margolin & Gordis, 2000; Myers & Thompson, 2000; Ritchers & Martinez, 1993). However, the results of the present study are comparable to that of Weist, Acosta, and Youngstrom's (2001) who found that 77% of their participants reported having witnessed a violent act. The types of physical violence witnessed by youth in this study also appear to be less severe than that of urban American samples. About 14% of participants reported witnessing a shooting or stabbing, whereas American studies report rates between 39% and 70% (Bell & Jenkins, 1993; Fitzpatrick &

Boldizar, 1993; Overstreet et al., 1999). Differences in culture, size of community, and gun laws may accord for the difference in severity and rates of indirect physical violence exposure.

Although the rates of witnessing violence may be lower than most studies, the rates of violent victimization appear to be similar to or higher than urban American studies. In the present study, 58% of participants reported being victim to at least one act of physical violence. Richters and Martinez (1993) found similar rates, with 59% reporting being victimized by violence. Yet, only 47% of youth in Weist, Acosta, and Youngstrom's (2001) study reported being victimized by violence, and in a review of the literature, Margolin and Gordis (2000) reported that one-third or more youth have been victims.

#### *Major Analyses*

The correlational analyses revealed that higher levels of exposure to physical violence were associated with higher levels of disruptive behaviour, depression, and PTSD symptoms. This was true for all three modes of violence exposure, suggesting that exposure to physical violence is associated with internalizing symptoms and externalizing behaviours. Dividing the sample by sex revealed that the relationship between hearing reports of violence and disruptive behaviour only existed for males. Instead, female disruptive behaviour was highly associated with witnessing and being victim to violence.

All the protective factors (i.e., sense of mastery, sense of relatedness and emotional reactivity) were negatively associated with disruptive behaviour, depression, and PTSD symptoms. These relationships were stronger for females than for males. The results could suggest that the protective factors do in fact protect youth against internalizing/externalizing problems. However, they could also indicate that these problems affect the youth's ability to: trust and feel supported and comforted by others (i.e., sense of relatedness); feel optimistic, in control, and able to adapt (i.e., sense of mastery); as well as manage and tolerate emotional arousal (i.e., positive emotional reactivity). A third, confounding variable could also account for this relationship.

The stepwise regression on disruptive behaviour indicated that sense of relatedness, positive emotional reactivity, and witnessing physical violence have a significant effect on participant's level of disruptive behaviours. However, after dividing the sample by sex, hearing about violent events had the strongest effect on disruptive behaviour in males, and witnessing violence had the strongest effect on disruptive behaviour in females. This suggests that hearing

about physical violence for males and witnessing physical violence for females may lead to an increased risk for engaging in disruptive behaviours. Sense of relatedness and positive emotional reactivity are likely important predictors for both sexes, but due to the low power they both became marginally significant for boys, and positive emotional reactivity became marginally significant for girls. Therefore, the ability to trust, feel supported and comforted by others, and manage and tolerate emotions might decrease the risk for engaging in disruptive behaviours.

The stepwise regression on depression indicated that positive emotional reactivity, sense of mastery, and hearing reports of physical violence all had a significant effect on participants' level of depression, suggesting that hearing numerous reports of violence, feeling pessimistic, not in control, and unable to adapt, manage, or tolerate emotional arousal puts youth at risk for higher levels of depression. Dividing the sample by sex left positive emotional reactivity as the only significant predictor and sense of mastery as marginally significant. Considering the low power that resulted from the small sample size increases the chances of a Type II error, it is possible that sense of mastery and hearing reports of violence were erroneously dismissed as non-significant. There do not appear to be sex differences in the prediction of depression.

Finally, the stepwise regression on PTSD symptoms indicated that sense of mastery, positive emotional reactivity, and witnessing physical violence were identified as having a significant effect of participant's level of PTSD symptoms. When males and females were explored separately, being a victim of physical violence was also identified as a significant predictor for girls, and witnessing violence was no longer identified as significant for males. Therefore, witnessing violent events and being a victim of violence increases the risk for developing PTSD symptoms for girls, but not necessarily for boys. In addition, feeling optimistic, in control, and able to adapt, as well as manage and tolerate emotional arousal appear to be important in predicting low levels of PTSD symptoms both boys and girls, whereas hearing about violent events and having the ability to trust and feel supported and comforted by others do not seem to be important predictors.

### *Research Implications*

#### *Protective Factors*

The protective factors associated with low levels of internalizing/externalizing problems do not appear to differ between males and females. Positive emotional reactivity was an important predictor of disruptive behaviour, depression, and PTSD symptoms, whereas sense of

mastery was an important predictor of depression and PTSD symptoms. Sense of relatedness was only important in the prediction of disruptive behaviour. These results support past research by Prince-Embury (2008a) that found positive emotional reactivity to be more strongly related to psychological symptoms than sense of mastery and sense of relatedness. The ability to regulate one's emotional reaction and recover when upset seems to be important in protecting individuals exposed to adversity from developing internalizing and externalizing problems.

Future research should explore whether the protective factors studied provide a buffer against the negative effects of physical violence exposure. If the protective effect exists, it would be interesting to learn if it follows a similar pattern to the results found here, with positive emotional reactivity protecting against disruptive behaviour, depression, and PTSD symptoms, sense of mastery protecting against depression and PTSD symptoms, and sense of relatedness protecting against disruptive behaviour. It would also be interesting to explore whether these protective factors buffer against other problems associated with physical violence exposure, such as anxiety, drug use, or academic difficulties.

#### *Exposure to Physical Violence*

If the correlational results were taken alone, the results suggest that exposure to physical violence is associated with internalizing symptoms and externalizing behaviours, supporting much of the previous research on violence exposure (Benhorin & McMahon, 2008; Gorman-Smith & Tolan, 1998; Myers & Thompson, 2000; Weaver, Borkowski, & Whitman, 2008; Youngstrom, Weist, & Albus, 2003). More specifically, the consistent relationship that violence exposure has been found to have with PTSD (Cooley-Quille et al., 2001; Ozer, 2005) and disruptive behaviour (Benhorin & McMahon, 2008; DuRant et al., 2000; Weaver, Borkowski, & Whitman, 2008) would be supported further, and the inconsistent relationship between depression and violence exposure would be clarified (Gorman-Smith & Tolan, 1998). However, results of the regressions suggest that the relationship between these variables is more complicated and need to take sex into account.

Hearing reports, but not witnessing or being victim to physical violence, was identified as an important predictor of depression. This finding adds to the mixed results found in the literature. Previous research focused on exposure to violence in general (Cooley-Quille et al., 2001) or the difference between witnesses and victims of violence (Fitzpatrick, 1993), but did not include hearing reports of violence. It is possible that previous studies which did not find a



link between violence exposure and depression (Cooley-Quille et al., 2001; Hanson et al., 2008) may have found different results if hearing about violence was explored.

It is unclear why this relationship exists when more direct experiences with physical violence do not predict depression. One potential explanation is that individuals with higher depressive symptoms see the world through a negative filter, and therefore, negative events such as violent incidents might be exaggerated or more salient in their memory than those with less depressive symptoms. A recent study by Cammack, Lambert, and Ialongo (2011) provides further insight. The researchers broke their sample into four groups based on participants' level of community violence exposure and level of perceived neighbourhood violence. Their results revealed that among those with low community violence exposure, those with high perceived neighbourhood violence were more anxious, depressive, and aggressive than those with low perceived neighbourhood violence. It is possible that the participants in the present study, who reported hearing about many physical violent incidents, also perceived their neighbourhood as being more violent than those who reported hearing about fewer violent incidents, which supports the explanation described above. Holding the perception that there is a high risk of physical violence may be more related to depression than actual experience with violence. However, more research comparing modes of physical violence is needed.

Surprisingly, for males, witnessing and being a direct victim of physical violence did not improve the prediction of any of the internalizing/externalizing problems explored in this study, suggesting that exposure to violence does not predict disruptive behaviour, depression, or PTSD symptoms in males. This raises the question of whether exposure to physical violence has a different impact on males than females or whether an unknown factor led to non-significant results. Considering the correlations between physical violence exposure and the internalizing and externalizing problems were larger for females, the results of the regressions for males could have potentially been more impacted by the low power and important relationships may have been missed. More research is needed to clarify this sex difference.

For males, hearing reports of physical violence seemed to be associated with symptoms of psychopathology, more specifically, depression and disruptive behaviour. An explanation for the relationship with depression was provided. Yet, the relationship with disruptive behaviour remains unclear. Research suggests that girls view physical aggression as less acceptable than boys (Pepler & Craig, 2005) and have different moral reasons for understanding why aggression

is wrong (Murray-Close, Crick, & Galotti, 2006). Murray-Close, Crick, and Galotti (2006) found that girls were more likely than boys to view physical aggression as morally wrong because it could harm someone, whereas boys were more likely than girls to view physical aggression as a matter of social convention (i.e., ok if there is no rule against it) or personal choice. Therefore, it is possible that as males hear more stories about violent incidents, they begin to view these types of behaviours as socially acceptable and consequently, are more likely to engage in them themselves. In addition, Murray-Close, Crick, and Galotti (2006) found that the girls who did believe physical aggression was a matter of social convention were also more likely to engage in aggressive behaviour than the girls with other moral reasoning for understanding why aggression is wrong. Females may not be as influenced by stories of physical violence because they are less likely to view physical aggression as a matter of social convention. However, those that do, may be just as likely as males to view aggression as socially acceptable with repeated exposure to stories of physical violence.

Further evidence is provided by Shahinfar, Kupersmidt, and Matza (2001). They found that in males, violent victimization predicted approval of aggression as a social response, and witnessing violence predicted perceived positive outcomes for using aggression. Perhaps these types of beliefs can be developed through only hearing about physical violence. Therefore, these results partially support the social learning theory (Bandura, 1986) and previous research which suggests that disruptive behaviour may be a result of vicarious learning (Cooley-Quille, Turner, & Beidel, 2005; Jenkins & Bell, 1994). Yet, it may be that hearing stories of violence could be enough for males to consider these behaviours socially acceptable.

Due to the correlational nature of this study, the opposite could also be true. It may be that males who engage in disruptive behaviours also take part in story-telling about violent incidents, seek out such information, or have increased awareness of these types of stories, whereas females, because of differences in socialization, are not as pre-occupied with violence. Regardless of whether the disruptive behaviour leads to hearing more reports of violence or hearing more reports of violence leads to more disruptive behaviour, research consistently suggests that males are more likely to engage in aggressive or violent behaviours (Crooks, Scott, Ellis, & Wolfe, 2011; Jager, Sydnor, Mouttapa, & Flay, 2007), be exposed to physical violence (Cooley-Quille, Boyd, Frantz, & Walsh, 2001; Hanson et al., 2008; Mendelson, Turner, & Tandon, 2010), and hold accepting beliefs about aggression and violence (Murray-Close, Crick,

& Galotti, 2006). In fact, in a study of 9 to 11 year olds, Serbin and colleagues (1993) found that boys rated as aggressive by peers were highly involved in peer groups whereas girls rated as aggressive were disliked by peers and more isolated. The researchers concluded that social groups of boys appear to believe that physical aggression is relatively normal and appropriate.

Although witnessing physical violence does not appear to be important in the prediction of internalizing or externalizing problems in males, it was found to be important in the prediction of disruptive behaviour and PTSD symptoms in female participants. Such results highlight the importance of researching differential effects for males and females. For example, McGee (2003) found that indirect violence (i.e., witnessing violence) predicted internalizing and externalizing problems, but differences between sexes were not explored.

Females that witness a high level of physical violence might follow a similar path toward disruptive behaviour as described for males who hear about a high level of violence. Their level of disruptive behaviour could be influenced by the amount of times they witnessed violent incidents, or individuals who are more disruptive are also more likely to witness violence because of the culture in which they expose themselves. However, it is unclear why hearing reports of violence but not witnessing violence would predict disruptive behaviour in boys.

Finally, being victim to physical violence was only found to be important in the prediction of PTSD symptoms in girls. These results further complicate discrepancies found in past research. Much of the older research has found a relationship between direct and indirect violence exposure and PTSD symptoms (Fitzpatrick & Boldizar, 1993; Martinez & Richters, 1993; Osofsky et al., 1993). Although the examination of girls provides further support, with both witnessing and being victim to physical violence predicting PTSD symptoms, the examination of boys found contrary results. Neither direct nor indirect violence exposure predicted PTSD symptoms.

This study supports research by Hanson et al. (2008) who found that girls who experienced violence were more likely than boys to meet PTSD criteria. Previous research has found women with a history of childhood sexual abuse to be at-risk for further abuse (Pope, 1999; Sachs-Ericsson, Blazer, Plant, & Arnow, 2005). Other types of violence (i.e., sexual) were not explored in this study, therefore, it is unknown if previous sexual abuse influenced the relationship between violence exposure and PTSD symptoms for girls. More research exploring

the effect of violence exposure on PTSD symptoms is needed. Future studies should differentiate between different types of violence and compare male and female youth.

Interestingly, disruptive behaviour and depression were more highly correlated with violent victimization than PTSD symptoms. Yet, being victim to physical violence was only important in the prediction of PTSD symptoms. These results suggest that there may be a third confounding variable responsible for the relationship between disruptive behaviour, depression, and violent victimization. Previous research that found being a victim of violence important in the prediction of other internalizing and externalizing problems did not account for sense of mastery, sense of relatedness, and emotional reactivity in their analyses (McGee, 2003). Perhaps these protective factors or one of the other modes of violence exposure are responsible for the relationship often found between victimization and internalizing/externalizing problems other than symptoms of PTSD. Future research should explore interactions between protective factors and exposure to physical violence in order to better understand these relationships.

#### *Educational and Counselling Implications*

Future preventative programming should focus on building skills related to the protective factors explored in this study. Positive emotional reactivity was important in the prediction of disruptive behaviour, depression, and PTSD symptoms. Therefore, as Prince-Embury (2008a) suggests, interventions should focus on improving children and youth's emotional reactivity to help individuals become less sensitive and more able to deal with and recover from negative emotions. In addition to improving one's emotional reactivity, interventions directed at decreasing PTSD symptoms could also include strategies that increase one's optimism, self-efficacy, and adaptability, as it was found that sense of mastery was important in the prediction of PTSD symptoms. Similarly, interventions directed at decreasing disruptive behaviours could also include strategies that increase one's experience of trust, comfort with others, perceived access to support, and tolerance of differences, considering sense of relatedness was important in the prediction of disruptive behaviours. Prince-Embury (2008b) provides examples of such interventions that can be applied in the school environment.

Education around physical violence is needed in order to help youth better understand the potential negative effects. Educating youth on the realities associated with violence might decrease the number of youth who approve of aggression as a social response and perceive positive outcomes for using aggression, which in turn could decrease disruptive behaviours in

youth. Youth might also benefit from learning more about how the amount of media violence exposure affects perceptions. In addition to high levels of physical violence exposure being associated with approval of aggression as a social response, high levels could also create a dissonance between the actual level of physical violence in one's community and the perceived level of violence in one's community. As discussed earlier, holding the perception that there is a high risk of violence may be more related to depression than actual experience with violence (Cammack, Lambert, & Ialongo, 2011). Educating youth about the dissonance between the actual level of community violence and the level of community violence that is perceived with exposure to high levels of media violence might help youth to develop a more accurate perception of community violence, and therefore, influence levels of depression.

More education on the effects of physical violence is also needed so that those who witness and become victim to violence better understand the cycle that they are at risk of falling into. Disruptive behaviours and further perpetuation of physical violence could be prevented by exposing youth to psycho-education programs offered to entire classrooms or groups of students identified as at-risk for disruptive behaviours. A meta-analysis on school-based intervention programs targeting aggressive behaviour found that these types of programs can in fact reduce aggression (Wilson, Lipsey, & Derzon, 2003). Larger effects were found for programs that were implemented and evaluated by researchers and programs that included samples at higher risk for aggression. In addition, behavioural and counselling approaches showed the largest effects, followed by social competence training.

Rather than developing new psychoeducational programs geared at preventing the perpetuation of physical violence, future research should explore the extent to which existing groups build skills related to the protective factors explored here, such as regulating one's emotions, problem-solving, and tolerance. Glodich, Allen, and Arnold (2001) developed a trauma-based psychoeducational group intervention that could be used for these purposes. The group aimed to decrease risk-taking behaviours, re-enactment of trauma, and further violence exposure in high school students who had been exposed to violence as a witness or victim. The group was also designed to build skills in the areas of empathy, self-regulation, and problem-solving, which interestingly, are related to the protective factor's constructs explored in this study.

A main component of positive emotional reactivity is the ability to regulate oneself. According to White (1959), who first introduced the construct of sense of mastery, problem-solving skills are related to a sense of competence, mastery, or efficacy. Although Prince-Embury (2008a) did not connect empathy with sense of relatedness, the two constructs appear to be somewhat related. For example, one would expect that individuals with higher levels of empathy would build more stable relationships because of more tolerance and understanding, and therefore, experience high levels of support, trust, and comfort with others. Conversely, one would expect that individuals with lower levels of empathy to struggle more in relationships because of less tolerance and understanding, and possibly feel lower levels of support, trust, and comfort with others.

Another promising program is the Fourth R (Crooks, Wolfe, Hughes, Jaffe, & Chiodo, 2008; Wolfe, Crooks, Hughes, & Jaffe, 2008), which works with schools to target multiple forms of violence, improve youth relationship skills, and reduce risk-taking behaviour. The focus on building healthy relationships in the prevention of violence is in line with the finding that higher levels of sense of relatedness predicted lower levels of disruptive behaviour. Although the program was developed for grade 9 and 10 students in a universal setting, extensions of the core program were developed. These extensions include an Aboriginal Perspective Fourth R version, a version for use in Alternative Education settings, and a version that fits with Catholic curriculum expectations. A cluster randomized controlled design was used to evaluate this comprehensive school-based program (Crooks et al., 2008). Results suggest that the Fourth R leads to important gains in knowledge and attitudes towards violence (Crooks et al., 2008). More research is needed to determine if this program decreases physical violence in youth.

#### *Limitations*

The methodology used in this study led to a few limitations. First, a disadvantage of this quantitative work is the lack of an in-depth understanding of the phenomenon. The standardized self-report surveys prevent youth from describing and expanding on answers with any amount of detail. Youth are forced to “fit” their experience into a predetermined category (i.e., yes versus no or likert-type scale categories). A qualitative study exploring youths’ perceptions on how physical violence exposure and personal protective factors, such as sense of mastery, sense of relatedness, and positive emotional reactivity, impact their feelings and behaviours would add to

our understanding of these relationships, especially if themes for males and females were compared.

The correlational nature of this study is another limitation. Although regression analyses reveal relationships among variables, one of the major limitations of choosing to use regression in this study is that the results do not allow for conclusions regarding causation. There is no way of knowing if any of the predictor variables caused the criterion variable, if the criterion variable caused the predictor variables, or if there are other extraneous variables responsible for the relationship. Even though extraneous variables can be controlled for to some extent (i.e., included as additional predictor variables), it is difficult to control for and foresee all possible extraneous variables.

Studies of the effects of exposure to physical violence are often confounded by other risk factors that contribute to adversity (Cicchetti & Lynch, 1993; Lynch, 2003; Margolin & Gordis, 2000). The effects of physical violence exposure cannot easily be separated from the effects of exposure to different types of violence (Appel & Holden, 1998; Briere & Elliot, 2003; Jouriles & LeCompte, 1991) or the effects of other factors associated with a low socio-economic status, such as high crime rates, inadequate housing, unemployment or underemployment, and limited medical, educational, and mental health resources (Kuther, 1999). Due to the small scale of this study, controlling for these variables would have been very difficult and would have required a larger sample size. Therefore, it is possible that low family income or other variables associated with high violence rates were responsible for the relationship between exposure to physical violence and internalizing/externalizing problems found in this study. Yet, it should be noted that not all studies have found a relationship between poverty and exposure to violence (Barbarin, Richter, & deWet, 2001; Li et al., 2007).

Despite this limitation, multiple regression fits well with the research question because the nature of the research context does not allow for experimental methodology. The purpose of the research is to obtain a better understanding of relationships between protective factors, physical violence exposure, and internalizing/externalizing problems. Therefore, correlation and regression analyses are an appropriate choice of analyses.

Unlike most research in this field, this study did not explore interactions within the regressions. Therefore, this study could have potentially missed important interactions between sex, exposure to physical violence, and the protective factors. Because of the nature of this study

and small sample size, the decision was made to exclude interactions in order to prevent complicated analyses and reduce the number of predictor variables. There was a relatively small sample size for the number of predictor variables included in this study. Therefore, the power of the regression analyses was decreased. Power was decreased even further once the sample was divided by sex which increased the risk of making a Type II error. The low power may have caused the regressions to find non-significant results, when they were, in fact, significant. Therefore, important information relating to the predictor variables may have been missed because of the small sample size. Future research should include larger sample sizes in anticipation of including interactions and separating by sex, with over 15 males and 15 females for every predictor variable.

The small sample size also leads to questions about the generalizability of the results. Not only was the sample small, but participants were only sampled from a few communities. Differences in the culture any one of the communities may have greatly affected the results of this study. In order to obtain a more representative sample, more participants would need to be sampled from more communities. In doing so, the study would be less affected by cultural differences between communities and conclusions about the results could be generalized to a larger population.

Another limitation of this study is related to voluntary participation. Although voluntary participation is critical to conducting research in an ethical manner, it potentially leads to uncontrollable and unknown differences between the subject sample and the population. It is possible that there were important differences between the individuals who decided to participate in this study and those that decided not to participate. Those individuals who decided against participating may have been exposed to higher levels of physical violence than those who participated. This may also be true of the youth whose parents requested that their child not participate. Knowing their child's experiences with violence, they may have felt that the topic of the study was too sensitive or too threatening. It is also possible that those who didn't participate experienced higher levels of disruptive behaviour, depression, or PTSD symptoms which contributed to their decision not to participate.

There were also limitations related to the measures chosen for this study. Because this study utilized self-report measures, the rates of physical violence exposure found may not be accurate. Participant biases and social desirability may have affected the results. This is also true



of the other variables measured. The scores may have been inflated or deflated due to the participants' desire to portray themselves favourably or answer in ways that they believed were in line with this research.

The survey used to measure exposure to physical violence did not discriminate between violence occurring in the school, home, or community. Not knowing the environment in which the violence was experienced is another limitation. If the majority of youth experienced violence in only one of these environments, the results may have been affected. However, discriminating between the different types could have potentially led to ethical dilemmas. For example, if a participant disclosed physical abuse in the home, there would be a legal obligation to report this information to the proper authorities (i.e., Ministry of Social Services). This duty to report would be in direct opposition with the participant's rights to confidentiality. The anonymity of the surveys would make identifying the participant difficult, but not impossible considering there was a classroom of approximately 25 participants recruited from one school. Discriminating between environments in which the physical violence occurred would also add to the number of variables included in the analyses and complicate the interpretation of results. This study also did not discriminate between knowing the victim or perpetrator of the violent incident. As discussed earlier, these variables could affect the results. However, inclusion of these variables would complicate results.

The survey used to measure PTSD symptoms seemed to be confusing to participants and participant responses led to questions regarding the validity of the CPSS when surveying large non-clinical samples. A number of participants asked for clarification on how to complete the survey even after extra time was spent explaining the instructions. Numerous students did not complete the qualitative question that asked them to identify their most distressing event, but still completed the multiple choice portion of the survey which was supposed to be based on their answers to this question. Therefore, it was impossible to determine whether these participants had a stressful event in mind when answering the questions regarding their experience of PTSD symptoms. There were also participants who did not complete the measure at all or only completed the first half of the measure. Whether participants skipped portions of the CPSS because of confusion, discomfort, or fatigue, the validity of the results were likely affected.

Finally, only one domain of resilience was measured. Through predicting disruptive behaviour, depression, and PTSD symptoms, only emotional resilience was explored. It is

important to keep in mind that resilience can be measured in many different ways. Luthar (1993) discussed how youth can be academically, socially, or emotionally resilient. Therefore, the protective factors explored might foster resilience in one of these areas but not in another. It is unrealistic to expect adolescents to show resilience in all these areas (Luthar et al., 2000). Exposure to physical violence may also impact academic or social resilience differently than emotional resilience. Future research should explore the predictive power of the different modes of physical violence, sense of mastery, sense of relatedness, and positive emotional reactivity on other domains of resilience.

### *Conclusion*

The correlational analyses revealed that the protective factors and exposure to physical violence are associated with disruptive behaviour (except hearing about violence for girls), depression, PTSD symptoms, with differences in magnitude between girls and boys. However, the regression analyses provide more insight into these relationships. The predictive power of the protective factors mainly depended on the internalizing/externalizing problem being predicted, whereas the predictive power of exposure to physical violence depended on the sex of the participant, the mode of violence exposure, and internalizing/externalizing problem being predicted.

Positive emotional reactivity seems to be more strongly related to psychological symptoms than sense of mastery and sense of relatedness. Positive emotional reactivity was an important predictor of disruptive behaviour, depression, and PTSD symptoms, whereas sense of mastery was an important predictor of depression and PTSD symptoms, and sense of relatedness was only important in the prediction of disruptive behaviour. The ability to regulate one's emotional reaction and recover when upset seems to be important in protecting individuals exposed to adversity from developing internalizing and externalizing problems. Future research should investigate whether the protective factors provide a buffer against the negative effects of physical violence exposure. It would be interesting to determine if positive emotional reactivity protects against disruptive behaviour, depression, and PTSD symptoms, if sense of mastery protects against depression and PTSD symptoms, and if sense of relatedness protects against disruptive behaviour. Future research could also explore whether these protective factors buffer against other problems associated with physical violence exposure, such as drug use and academic difficulties.

Hearing reports of violence was identified as an important predictor of depression, but not once separate regressions were run for each sex. It was also an important predictor of disruptive behaviour in boys, but not girls. In contrast, witnessing violence was an important predictor of disruptive behaviour and PTSD symptoms in girls but not boys. Finally, being victim to violence was found to be important in the prediction of PTSD symptoms in girls. The results for girls seem more in line with the expectation that higher physical violence exposure would predict higher levels of internalizing and externalizing problems. More research is needed in order to determine whether exposure to violence really does impact males and females differently or whether the lack of significant results for males is a result of a small sample size and low power.

Future studies should account for sex and mode of violence exposure when examining the effects of exposure to physical violence on youth. Researchers could also explore how attitudes about violence, moral reasoning around violence, and physical violence exposure interact to influence levels of externalizing/internalizing problems. Such research may lead to a better understanding of why hearing about violence predicted disruptive behaviour in boys, whereas witnessing violence predicted disruptive behaviours in girls. Since witnessing and being victim to violence predicted PTSD symptoms in girls, but not in boys, more research exploring the effect of exposure to physical violence on PTSD in youth is also needed. Exploring the impact of sexual violence in addition to physical violence may lead to interesting findings. Researchers may want to consider using a different measure of PTSD to avoid the confusion that seemed to be created by the CPSS.

Educating youth on the realities associated with physical violence might help youth better understand the potential negative effects and decrease the number of youth who approve of aggression as a social response and perceive positive outcomes for using aggression. This in turn could decrease disruptive behaviours in youth. Education on the effects of violence is also needed so that witnesses and victims of violence become aware of their risk for getting caught in the cycle of violence. Such psycho-educational programs could prevent the perpetuation of violence. Preventative programming should also focus on building skills related to the protective factors explored in this study. Since positive emotional reactivity was important in the prediction of disruptive behaviour, depression, and PTSD symptoms, preventative programming and tertiary interventions could promote resilience by improving children and youth's emotional

reactivity to help individuals become less sensitive and more able to deal with and recover from negative emotions. Interventions could also focus on building skills related to the sense of mastery and sense of relatedness, such as strategies that increase one's optimism, self-efficacy, experience of trust and comfort with others, and tolerance of differences.

Despite the limitations described, results of this study add to the body of research examining relationships between physical violence exposure, protective factors, and internalizing/externalizing problems. Few studies have explored these relationships in rural or in Canadian samples. This study does both. Inclusion of personal protective factors that can be targeted in preventative programming and tertiary individual interventions is another strength of this study. The results also provide more insight into the impact of hearing reports of violent incidents as well as differences between male and female youth.

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# APPENDIX A

## Behavioural Research Ethics Board Certificate of Approval

 <b>UNIVERSITY OF SASKATCHEWAN</b>		Behavioural Research Ethics Board (BEB) (B)	
<b>Certificate of Approval</b>			

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<b>PRINCIPAL INVESTIGATOR</b> Laura Mysko	<b>DEPARTMENT</b> Education, Psychology and Special Education	<b>BRN#</b> 00-39
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**INSTITUTIONS WHERE RESEARCH WILL BE CONDUCTED**  
 University of Saskatchewan

**STUDENT RESEARCHERS**  
 Adele Lape

**SPONSOR**  
 SOCIAL SCIENCES AND HUMANITIES RESEARCH COUNCIL OF CANADA (SSHRC)

**TITLE**  
 Predictors of Residence in Youth Exposed to Physical Violence

<b>ORIGINAL REVIEW DATE</b> 06-Feb-2010	<b>APPROVAL ON</b> 13-Apr-2010	<b>APPROVAL OF</b> Ethics Application Consent Protocol	<b>EXPIRY DATE</b> 12-Apr-2011
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<b>Full Board Meeting</b> <input checked="" type="checkbox"/>	<b>Date of Full Board Meeting:</b> 01-Feb-2010
<b>Delegated Review</b> <input type="checkbox"/>	

**CERTIFICATION**  
 The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documentation.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

**ONGOING REVIEW REQUIREMENTS**  
 In order to receive annual renewal, a status report must be submitted to the REB Chair and Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: <http://www.usask.ca/ethics/renewal/>

Approved on behalf of the  
 University of Saskatchewan  
 Behavioural Research Ethics Board

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Please send all correspondence to:	Research Ethics Office University of Saskatchewan Box 5020 RMC University Saskatoon S4N 5A6
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## APPENDIX B

### Parent Information Letter



Dear Parent/Guardian(s):

Your child will be invited to participate in a research project entitled “Predictors of Resilience in Youth Exposed to Physical Violence”. Please read this form carefully, and feel free to contact the researchers to ask questions you might have. Contact information is provided below. All of the information in this form will be explained to your child prior to his or her participation and your child will be provided with a form similar to this to ensure that participation is voluntary. Therefore, your child may choose not to participate.

**Purpose and Procedure:** The purpose of this research is to develop a better understanding of what helps youth overcome their experiences of physical violence so that they don’t experience negative feelings (such as stress and depression) and engage in negative behaviours (such as aggression and delinquent behaviors). Your child will be asked to answer some multiple choice questions in a survey booklet, which will take approximately 40 to 60 minutes to complete. The questions will ask about your child’s personality, emotions, and experience with physical violence.

**Potential Benefits:** While answering the questions in the survey booklet, your child may learn things about him or herself that s/he may not have been aware of before. This research might also help build a better understanding of what characteristics help youth rise above the physical violence that they have witnessed and experienced so that they are not negatively affected by physical violence. Through this and other related research, programs that target these important individual traits can be developed and put into action. Although these benefits cannot be guaranteed, such improvements to programming would help youth so that they are less likely to suffer from the harmful effect of physical violence.

**Potential Risks:** The survey booklet consists of some sensitive topics and your child may feel uncomfortable or upset while answering some of the questions. Examples of some sensitive questions include: “Have you ever seen someone you know being beaten up?”, rating the degree to which they agree with statements such as “I hurt people”, “When I get upset, I hurt myself”, and “I wish I were dead”, and asking them to identify one of the most distressing events that they have experienced. If s/he feels discomfort while completing this survey and wishes to speak with someone, your child will be given the opportunity to speak with the researcher or school counselor in private. A debriefing form will be provided once your child hands in the survey booklet, whether it was completed or not. This will provide names and phone numbers of people and/or agencies that can also help your child in case s/he found any of the questions upsetting.

**Confidentiality:** All answers to the questions in the survey booklet will be completely confidential and anonymous. Your child will be handed a survey booklet that already has been given a participant number. Therefore, your child’s name and any other identifiable information will not be collected. Other identifiable information, such as your child’s school and community, will not be identified in the final report.

## Rural Canadian Youth Exposed to Physical Violence

If your child volunteers any information in addition to the questions asked that identify illegal or potentially incriminating activities, and it is possible at any point to trace the identities of those involved in the illegal activity, the information provided may be subpoenaed by the court of law. I have a duty to report any plans to commit future criminal acts.

**Right to Withdraw:** Your child's participation is voluntary, and s/he can answer only those questions that s/he is comfortable with. There is no guarantee that your child will personally benefit from his or her involvement. The information that is shared will be held in strict confidence and discussed only with the research team. Your child may withdraw from the research project for any reason, without penalty of any sort. However, your child cannot withdraw once the questionnaire has been handed in. Your child's decision to withdraw will not affect his or her grades, or services provided by the school. If your child chooses to withdraw from the research project, any data that s/he has contributed will be destroyed at your request.

**Questions:** If you have any questions concerning the research project, please feel free to contact the researchers using the information provided below. This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board on April 13, 2010.

**Follow-Up:** The results of this study will be provided to your school upon completion of this study. The data will be reported in summarized form so no identifiable information about your child will be included. If you are interested in the results, you can contact your school administrator or the researchers.

**Consent to Participate:** If you do not want your child to participate in this study, please advise the school principal. Your child will then be asked to complete other schoolwork while the other students complete the survey. If the principal does not hear from you, your child will be invited to participate. Yet again, your child's decision to participate will be completely voluntary.

Thank you!

Adele Laye, Researcher & M.Ed. Candidate  
Educational Psychology and Special Education, University of Saskatchewan  
Email: [resilience.study@usask.ca](mailto:resilience.study@usask.ca)

Dr. David Mykota, Researcher & Thesis Supervisor  
Educational Psychology and Special Education, University of Saskatchewan  
Ph: (306) 966-5258

## APPENDIX C

### Participant Assent Letter



Dear student:

You are invited to participate in a research project entitled "Predictors of Resilience in Youth Exposed to Physical Violence". Please read this form carefully, and feel free to ask questions you might have.

**Purpose and Procedure:** The purpose of this research is to develop a better understanding of what helps youth overcome their experiences of physical violence so that they don't experience negative feelings (such as stress and depression) and engage in negative behaviours (such as aggression and delinquent behaviors). You will be asked to answer some multiple choice questions in a survey booklet, which takes approximately 40 to 60 minutes to complete. The questions will ask about your personality, emotions, and experience with physical violence. The findings will be distributed to your school upon completion of the study. If you are interested in obtaining a copy of the results, please contact your school administrator or the researchers using the contact information provided below. The results of the study will be completely anonymous. The data will be reported in summarized form so no identifiable information about you will be included.

**Potential Benefits:** While answering the questions in the survey booklet, you may learn things about yourself that you may not have been aware of before. This research might also help build a better understanding of what characteristics help youth rise above the physical violence that they have witnessed and experienced so that they are not negatively affected by physical violence. Through this and other related research, programs that target these important individual traits can be developed and put into action. Although these benefits cannot be guaranteed, such improvements to programming would help youth so that they are less likely to suffer from the harmful effect of physical violence.

**Potential Risks:** The survey booklet consists of some sensitive topics and you may feel uncomfortable or upset while answering some of the questions. Examples of some sensitive questions include: "Have you ever seen someone you being beaten up?", rating the degree to which you agree with statements such as "I hurt people", "When I get upset, I hurt myself", and "I wish I were dead", and asking you to identify one of the most distressing events that you experienced. If you feel discomfort while completing this survey and wish to speak with someone, please see the researcher or school counselor. A debriefing form and brochures will be provided once you hand-in the survey booklet, whether it was completed or not. These will provide you with names and phone numbers of people and/or agencies that can also help you in case you found any of the questions upsetting. If you are feeling upset and would like immediate assistance but are concerned about other students seeing you seeking assistance, please identify yourself on the debriefing form and return it to the researcher.

**Confidentiality:** All answers to the questions in the survey booklet will be completely confidential and anonymous. You will be handed a survey booklet that already has been given a participant number. Therefore, your name and any other identifiable information will not be

collected from you. Other identifiable information, such as your school and community, will not be identified in the final report.

If you volunteer any information in addition to the questions asked that identify illegal or potentially incriminating activities by you or someone you know, and it is possible at any point to trace the identities of those involved in the illegal activity, the information you provided may be subpoenaed by the court of law. I also have a duty to report if you disclose any plans to commit future criminal acts.

**Right to Withdraw:** Your participation is voluntary, and you can answer only those questions that you are comfortable with. There is no guarantee that you will personally benefit from your involvement. The information that is shared will be held in strict confidence and discussed only with the research team. You may withdraw from the research project for any reason, without penalty of any sort. However, you cannot withdraw once you have handed in your questionnaire. Your decision to withdraw will not affect your grades in this course, any other grades, or services provided by your school. If you choose to withdraw from the research project, any data that you have contributed will be destroyed at your request.

**Questions:** If you have any questions concerning the research project, please feel free to ask at any point; you are also free to contact the researchers using the contact information provided if you have other questions. This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board on April 13, 2010. Any questions regarding your rights as a participant may be addressed to that committee through the Ethics Office (966-2084). Out of town participants may call collect.

**Follow-Up:** The results of this study will be provided to your school upon completion of this study. If you are interested in the results, you can contact your school administrator or the researchers using the contact information provided.

**Consent to Participate:** Please be sure that you have read and understood the description of the research project provided. By completing the questionnaire, you are agreeing to participate in the research project. Remember that you may withdraw from this study until you hand in your questionnaire. Feel free to ask any questions that you might have.

Thank you!

Adele Laye, Researcher & M.Ed. Candidate  
Educational Psychology and Special Education, University of Saskatchewan  
Email: [resilience.study@usask.ca](mailto:resilience.study@usask.ca)

Dr. David Mykota, Researcher & Thesis Supervisor  
Educational Psychology and Special Education, University of Saskatchewan  
Ph: (306) 966-5258

APPENDIX D

Debriefing Form

DEBRIEFING FORM

Thank you for participating in this study! Your generosity and willingness to participate is greatly appreciated.

Physical violence is a serious problem in Canada. Many young people are repeatedly exposed to violent acts, whether they see someone else being harmed or are victims themselves. Violence means different things to different people. In this study, physical violence includes acts such as beating someone up (through slapping, kicking, biting, hitting, or punching), chasing or threatening to hurt someone, robbing or mugging someone, and shooting or stabbing someone. Identifying traits that help prevent these experiences from harming young people is an important step in helping all young people rise above the violence so that they don't become depressed, stressed, aggressive, or engage in delinquent behaviours. The survey you completed included questions about your emotions, behaviours, attitudes, and experience with violence. This study aims to answer four questions:

1. Is exposure to physical violence related to an increase in negative feelings (such as symptoms of depression) and behaviours (such as aggression)?
2. Is a positive experience in relationships, an ability to manage emotions, and a sense of optimism (i.e., hopefulness and positive attitude), self-confidence, and adaptability (i.e., flexibility and openness to change) related to fewer negative feelings and behaviours?
3. Are certain experiences of physical violence (i.e., witness of violence vs. victim of violence) more related to negative feelings and behaviours?
4. Does a positive experience in relationships, an ability to manage emotions, and a sense of optimism, self-confidence, and adaptability protect young people who are exposed to physical violence from experiencing negative feelings and engaging in negative behaviours?

If you are interested in learning about the results of the study, please advise your teacher, principal, or one of the researchers. Contact information is provided below.

**It can be difficult to answer these types of personal questions. Sometimes people feel uncomfortable, upset, or remember situations from their past that are disturbing. If you became upset or experienced any distress while participating in this research and would like to speak to someone about your thoughts, please contact your school counsellor or one of the following services:**

**Mental Health and Addictions Services**

**X-XXX-XXX-XXXX**

**Kids Help Phone**

**1-800-668-6868**

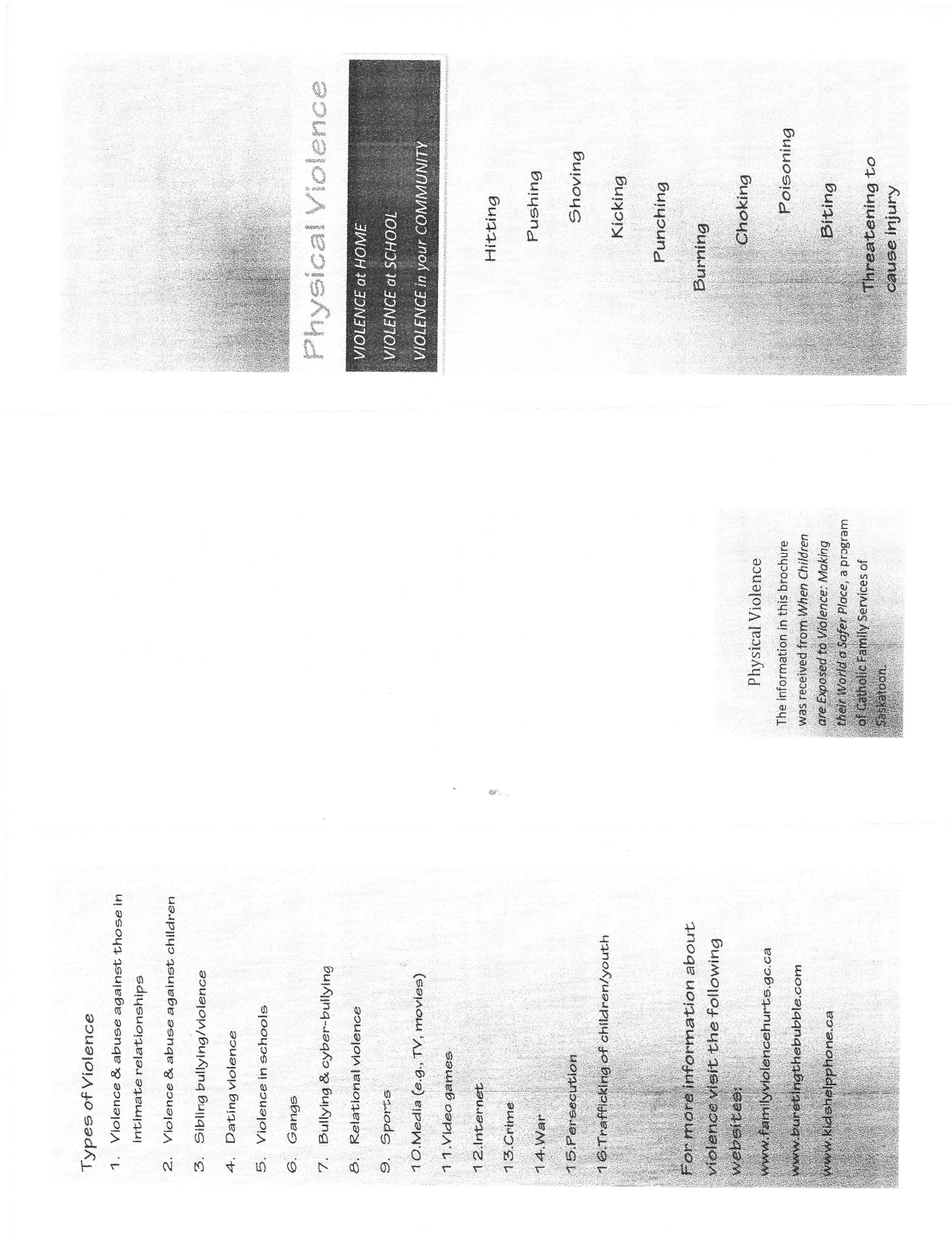
**If you would like immediate assistance, I will be available immediately after all students have completed the questionnaire to listen to your concerns and/or assist in connecting you with someone who can help.**

If you have any complaints, concerns, or questions about this research, please contact Adele Laye at [resilience.study@usask.ca](mailto:resilience.study@usask.ca) or Dr. David Mykota at (306) 966-5258 or [david.mykota@usask.ca](mailto:david.mykota@usask.ca).

Thank you again for helping with this research!

## APPENDIX E

### Exposure to Violence Brochure



As a result of exposure to violence, youth may experience the following feelings, thoughts, and behaviours.			Behaviours:		Potential Impact of Violence on Youth		
Feelings:			<ul style="list-style-type: none"> <li>Try to protect other siblings or parents (e.g., domestic violence)</li> <li>Try to hide or avoid (e.g., bullying)</li> <li>Isolate self or withdraw</li> <li>Cope by turning to drugs or alcohol</li> <li>Bedwetting, nightmares, or other sleep problems</li> <li>Sexual acting out</li> <li>Passive, clingy, or timid</li> <li>Getting into trouble with others</li> <li>Poor decision making &amp; problem solving</li> <li>Less trusting of others</li> <li>Diminished academic performance</li> <li>Suicidal behaviours &amp; self-harm</li> <li>Eating disorders</li> <li>Anti-social &amp; aggressive behavior</li> <li>Running away</li> </ul>			<ul style="list-style-type: none"> <li>Long-term - brain damage, scarring</li> <li>Short-term - bruises, welts, broken bones, burns, &amp; lacerations</li> <li>May also include: headaches, backaches, stomachaches, &amp; dizziness</li> </ul>	
Abandonment	Guilt	Sadness				Physical Injury, Impairment or disability	
Alienation	Helplessness	Doubt					
Self-disgust	Hopelessness	Anger				Brain Development	
Anxiety	Incompetence	Shame				<ul style="list-style-type: none"> <li>Can alter a child's brain development</li> </ul>	
Confusion	Insecurity	Stressed				Mental Health Issues	
Depression	Loneliness	Suicidal				<ul style="list-style-type: none"> <li>Can be emotional/psychological (e.g., anxiety, depression, aggression, panic attacks, paranoia)</li> </ul>	
Distress	Low self-esteem	Terror				Cognitive Impairment	
Distrust	Nervousness	Fear				<ul style="list-style-type: none"> <li>Children can experience cognitive impairment as a result of head injuries as a baby</li> <li>Impaired memory</li> </ul>	
Self-blame	Out-of-control	Upset				Impaired attachment	
Rejection	Worthlessness	Grief				<ul style="list-style-type: none"> <li>Can create difficulties in future relationships</li> </ul>	
Panic	Embarrassment	Worry				PTSD (Post Traumatic Stress Disorder)	
Thoughts:						<ul style="list-style-type: none"> <li>Symptoms may include flashbacks, intrusive thoughts, panic, phobias, hyper-arousal, emotional detachment, dissociative reliving of the trauma, night terrors, and nightmares</li> </ul>	
"Violence is the way to solve problems"						<ul style="list-style-type: none"> <li>Likelihood of PTSD increases with the severity &amp; duration of trauma</li> </ul>	
"The world is a scary, mean, threatening, and unpredictable place"						<ul style="list-style-type: none"> <li>Children/youth who have been abused or are living in violent homes are particularly at risk</li> </ul>	
"I can't trust anyone"						<ul style="list-style-type: none"> <li>Receiving little or no support also increases the risk of developing PTSD</li> </ul>	
"It's all my fault"							
"There's something wrong with me"							