

April 2015

Suicidal and Nonsuicidal Self-Injury: Examining the Potential Impact of Direct and Indirect Forms of Childhood Maltreatment

Jenna S. Armiento

The University of Western Ontario

Supervisor

Dr. Alan Leschied

The University of Western Ontario

Graduate Program in Education

A thesis submitted in partial fulfillment of the requirements for the degree in Master of Arts

© Jenna S. Armiento 2015

Follow this and additional works at: <https://ir.lib.uwo.ca/etd>

 Part of the [Child Psychology Commons](#), [Clinical Psychology Commons](#), [Counseling Psychology Commons](#), and the [Developmental Psychology Commons](#)

Recommended Citation

Armiento, Jenna S., "Suicidal and Nonsuicidal Self-Injury: Examining the Potential Impact of Direct and Indirect Forms of Childhood Maltreatment" (2015). *Electronic Thesis and Dissertation Repository*. 2730.
<https://ir.lib.uwo.ca/etd/2730>

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact tadam@uwo.ca, wlsadmin@uwo.ca.

SUICIDAL AND NONSUICIDAL SELF-INJURY: EXAMINING THE POTENTIAL
IMPACT OF DIRECT AND INDIRECT FORMS OF CHILDHOOD
MALTREATMENT

(Thesis Format: Monograph)

by

Jenna Armiento

Graduate Program in Education

A thesis submitted in partial fulfillment of
the requirements for the degree of
Masters of Arts Counselling Psychology

The School of Graduate and Postdoctoral Studies
Western University
London, Ontario, Canada

© Jenna Armiento 2015

Abstract

Despite extensive research suggesting childhood maltreatment is related to nonsuicidal self-injury (NSSI), little research has examined the extent to which the differential effects of direct maltreatment (i.e., sexual and physical abuse) and indirect maltreatment (i.e., exposure to domestic violence) has on NSSI in relation to suicidal self injury (SSI). Moreover, more research is needed to understand the differences between NSSI and SSI. Participants consisted of 519 children/youth from a provincial tertiary care facility specializing in treating children with severe mental health challenges and nine community mental health facilities across Ontario, Canada. Logistic regression analyses revealed that children/youth that experienced indirect maltreatment were more likely to engage in NSSI whereas children/youth who experienced direct maltreatment were more likely to engage in SSI. Moreover, children/youth that have experienced both direct and indirect forms of maltreatment were not significantly more likely to engage in NSSI or SSI. The findings provide evidence for the differential effects of different types of childhood maltreatment and for the different contributors to NSSI and SSI. Implications for practice are discussed.

Key Words: Childhood Maltreatment, Nonsuicidal Self-Injury, Suicidal Self-Injury, Sexual Abuse, Physical Abuse, Exposure to domestic violence, interRAI

Acknowledgements

It is a pleasure to thank those who made this thesis possible. I wish to acknowledge my gratitude to the Master of Arts Counselling Psychology program directors: Dr. Susan Rodger, Dr. Jason Brown and Dr. Alan Leschied, my thesis supervisor. Thank you Dr. Leschied for believing in me throughout this process and for fostering the confidence and courage in myself to complete this task. You have provided me with guidance at every step of this thesis process as well as provided me with encouragement and support. You have inspired me to continue with my education and I am grateful in every possible way.

I gratefully acknowledge Dr. Shannon Stewart for her assistance with the interRAI database and for her knowledge, wisdom and patience throughout this process.

My family deserves special mention for their constant support and guidance over the years. I could not have achieved this milestone if it were not for your commitment to my success. I am eternally grateful to have such an amazingly supportive family who has provided endless encouragement and faith in my abilities. Thank you to Eric and Sam who have both had to endure endless complaints over the years but have always provided me with encouragement and support and their faith in me has never wavered. I love you all.

Many thanks also goes to my friends and colleagues of the Masters of Arts Counselling Psychology class of 2015 for creating such great friendship and offering me support and advice throughout the past two years. Thank you for reminding me of the importance of working hard but also playing hard. I will cherish the memories we had created.

Finally, I would like to thank everybody who has been important to my success of this thesis, as well as expressing my apology that I could not mention personally one by one. I offer my regards and blessings to all those who supported me throughout the completion of my research.

Table of Contents

	Page
Abstract	ii
Acknowledgements	iii
Table of Contents	v
List of Tables	vi
List of Appendices	vii
Introduction	1
Literature Review	2
Suicidal Self-Injury vs. Nonsuicidal Self-Injury	2
Prevalence and Age of Onset	3
Frequency and Severity	5
Motivations and Risk Factors for NSSI Engagement	6
Childhood Maltreatment	9
Childhood Maltreatment and Nonsuicidal Self-Injury	11
Pathways and Mediators	12
Types of Maltreatment and NSSI	14
Exposure to domestic violence and NSSI	15
Direct vs. Indirect Exposure to Childhood Maltreatment	17
The Present Study	21
Hypotheses	21
Methods	22
Participants	22
Measures	23
Forms of Self-Injury	24
Direct Childhood Maltreatment	24
Indirect Childhood Maltreatment	25
Both Direct and Indirect Childhood Maltreatment	25

Ethical Considerations	25
Results	26
Relationship Between Past Experiences of Maltreatment, Gender and Age	27
Relationship Between the Type of Maltreatment and Engagement in NSSI	28
Relationship Between the Type of Maltreatment and Engagement in SSI	29
Differentiating The Impact of The Type of Maltreatment and Engagement in SSI	30
Discussion	30
Relevance to Previous Research	31
Implications for Practice	35
Directions for Future Research	37
Limitations	39
Summary	40
References	41
Curriculum Vitae	50

List of Tables

Table	Description	Page
1	Demographics of NSSI and SSI	27
2	Logistic Regression Results for NSSI and Types of Abuse	28
3	Logistic Regression Results for SSI and Types of Abuse	29
4	Logistic Regression Results for Types of Direct Abuse and SSI	30

Introduction

Nonsuicidal Self-Injury

Nonsuicidal self-injury (NSSI) is defined as direct and deliberate bodily harm in the absence of suicidal intent and the self-injury is intentional by the individual rather than accidental (Nock & Favazza, 2009). NSSI is considered direct since there are no intervening steps between the action and the negative outcome. This is different from other harmful behaviours such as smoking and drug overdosing which indirectly lead to negative outcomes. Common forms of NSSI include cutting, scratching of the skin, head-banging and biting (Gratz, Conrad & Roemer, 2002; Heath, Toste, Nedecheva & Charlesbois, 2008; Klonsky & Olino, 2008). The most common method of NSSI involves cutting or carving skin with a sharp object, typically occurring on the arm, leg or stomach (Klonsky & Muelenkamp, 2007; Nock & Prinstein, 2004). However, defining NSSI has proven difficult as inclusion criteria can differ, with some researchers including biting one's lip, picking at wounds and pulling one's hair. The boundaries of what defines NSSI continue to remain unclear as some researchers include minor acts and others include acts that could include intent to die.

Instances of NSSI have been reported for centuries and typically were considered as a symptom of borderline personality disorder (DSM IV; Favazza, 2011). Recently, NSSI has become its own distinct diagnostic entity in the DSM V which recognizes that NSSI can occur independently from borderline personality disorder and is a separate concept from suicidal self-injury (SSI). The criteria for NSSI in the DSM V includes five or more days of intentional self-inflicted damage to skin without the intent of suicide during the past year. The self-injurer's reason for engaging in these behaviours is also

examined. NSSI is also associated with multiple other psychological disorders that include depression, anxiety, personality disorders and suicidality (Nock & Favazza, 2009).

The most commonly examined risk factor for NSSI is childhood maltreatment. Researchers have examined the effects of different types of childhood maltreatment on future NSSI engagement and have found a significant association specifically between sexual and physical abuse and subsequent NSSI (Glassman, Weierich, Hooley, Deliberto and Nock, 2007; Gratz et al., 2002; Wachter, Murphy, Kennerley, & Wachter, 2009). However, researchers have not yet distinguished between the effects of direct and indirect forms of childhood maltreatment on NSSI despite the fact there is evidence suggesting that the two have differing effects on future child outcomes (Kulkarni, Graham-Bermann, Rauch and Seng, 2011).

The present study examined the extent to which direct and indirect forms of childhood maltreatment have differing effects on the presence of NSSI. The study examined the literature on the relationship between NSSI and childhood maltreatment, and the potential differing effects of direct and indirect childhood maltreatment. The study reviews the contents of the results in relation to suicidal self-injury to further examine differences between the concepts.

Literature Review

Suicidal Self-Injury vs. Nonsuicidal Self-Injury

Nonsuicidal self-injury is distinct from suicidal self-injury. While both are direct and deliberate, nonsuicidal self-injury occurs when there is an absence of the intent to end oneself. There are multiple terms for self-injury that includes deliberate self-harm (Gratz

et al., 2002), self-mutilation (Nock & Prinstein, 2004) and deliberate self-injury (Klonsky, 2007). It is not uncommon for researchers to use these terms to refer to both nonsuicidal and suicidal self-injury despite evidence that the two behaviours are distinct (Nock & Favazza, 2009).

Suicidal self-injury can be divided into subcategories including suicidal ideation, a suicide plan and suicide attempt (Nock & Favazza, 2009). Suicidal ideation refers to thoughts of engaging in behaviours with the ultimate goal of ending life. A suicidal plan refers to the formulation of a specific method through which an individual will commit suicide. Lastly, a suicidal attempt refers to the actual engagement in self-injurious behaviour with at least some intent to die. It is important for researchers and clinicians to assess the intention of death because many individuals who are believed to have engaged in a suicide attempt in reality have no intent of dying. Hence these behaviours are arguably more accurately classified as nonsuicidal self-injury.

Research reflects differing characteristics and outcomes between those who engage in SSI compared to those who engage in NSSI (Ougrin, Zundel, Kyriakopoulos, Banarsee, Stahl & Taylor, 2012). While both are intended to relieve negative emotions, NSSI is considered a temporary relief while SSI is permanent. Since these are distinct concepts, more research is needed to distinguish characteristics and contributors to NSSI from SSI. The increasing prevalence rates of NSSI in recent years, along with the wide range of psychiatric difficulties associated with the behaviour has made NSSI an increasingly important area of research.

Prevalence and Age of Onset

Prevalence rates for nonsuicidal self-injury have proven difficult due to the inconsistent definitions given to NSSI in previous literature, self-report data, and data based on hospital in-patient populations (Rodham & Hawton, 2009). The inclusion of behaviours such as biting one's lip, picking at wounds and pulling hair contribute to the surprisingly high prevalence estimates obtained in some studies (Nock & Favazza, 2009). As previously noted, some researchers do not distinguish between self-injury with and without suicidal intent, making prevalence rates difficult to determine. Moreover, the inclusion of prevalence rates among in-patient populations also contributes to difficulties in collecting accurate prevalence rates. Since NSSI is now recognized to occur among community based samples, it is highly unlikely that research based on clinical samples can be generalized to the community population. Hawton, Harriss, Simkin, Bale and Bond (2004) determined that only 6.3% of those engaging in self-cutting reported presenting to the hospital, suggesting that hospital-based studies exclude a significant proportion of those who engage in NSSI. Moreover, Armiento, Hamza & Willoughby (2014) determined that 57% of community-based self-injurers had never disclosed their self-injury to anyone suggesting that many incidents of NSSI remain unknown.

Due to the difficulties in collecting prevalence rates, studies tend to differ on the frequency of individuals who engage in nonsuicidal self-injury. Prevalence rates of community based samples suggest that the range can be from 13-54% of adolescents who have engaged in self-injury at some point in their lifetime (Lloyd-Richardson, Perrine, Dierker & Kelley., 2007; Ross & Heath, 2002). Klonsky & Meuhlenkamp (2007) suggest that prevalence rates for an adult community based sample engaging in self-injury are estimated to be 4%. However, rates are much higher for college and university based

samples, with prevalence rates approximating 12-38% of lifetime engagement in NSSI (Armiento et al., 2014; Gratz et al., 2002; Whitlock, Eckenrode & Silverman, 2006).

Prevalence rates are even higher among clinical samples of adolescents, with studies suggesting rates between 40-80% (Nock & Prinstein, 2004). Despite the discrepancies between studies on the prevalence rates of NSSI, all studies suggest that engagement in NSSI is alarmingly high and continues to increase (Nock & Favazza, 2009).

Previous research suggests that a significant portion of individuals who engage in NSSI do so in early adolescence. This is the age when suicidal thoughts and behaviours can begin. NSSI is most prevalent among adolescents with the typical age of onset being between 12 and 15 years of age (Glenn & Klonsky, 2009; Heath et al., 2008; Nock & Prinstein, 2004). Ross and Heath (2002) found that approximately 59% of high school students who engage in NSSI reported beginning these behaviours around the age of 12 years. According to Whitlock et al. (2006), the majority of those who engage in nonsuicidal self-injury discontinue their engagement after 5 years. However, certain individuals continue to engage in the behaviour through their adult years.

Frequency and Severity

The frequency and severity of NSSI is also a function of whether studies are drawing on inpatient or community samples. Moreover, studies on the frequency of NSSI among community samples can vary dramatically from a single to many episodes. Most self-injurers were involved in these behaviours fewer than 10 times over their lifetime (Whitlock et al., 2006). However, with in-patient samples, over 80% engaged in these behaviours at least once per week (Nixon, Cloutier & Aggarwal, 2002). Favazza (1996) proposed distinguishing self-injurers between episodic NSSI and repetitive NSSI.

Episodic NSSI is typically defined as NSSI performed on an infrequent basis without identification with being a self-injurer. Repetitive NSSI is defined as NSSI being performed on a regular basis (i.e., at least once a week) and a strong self-identification as a self-injurer. The clinical samples are typically the ones who identify as repetitive self-injurers.

The severity of NSSI is also defined according to the frequency of the self-injury in the context of the severity of the tissue damage. Self-injurers can vary from mild (i.e., low frequency, low severity of injury) to moderate (i.e., moderate frequency, and injuries requiring medical treatment) to severe (i.e., high frequency and severe injuries that cause scarring or permanent disfigurement) (Nock & Favazza, 2009; Whitlock, Muehlenkamp & Eckenrode, 2008). Whitlock et al., (2008) also found that those with a higher severity of NSSI were at an increased risk for other disorders, such as suicidality and eating disorders. Typically, clinical samples report a greater severity of NSSI compared to community samples (Nock & Favazza, 2009).

Motivations and Risk Factors for NSSI Engagement

There are multiple reasons for engaging in NSSI. These motivations fall into two primary categories; interpersonal and intrapersonal motivations. An interpersonal motivation refers to the changes to an individual's external environment, whereas intrapersonal motivation refers to the changes to one's internal state. The functions for NSSI have been identified in Nock and Prinstein's (2004) Four Function Model. This model suggests that the reasons for NSSI engagement can be characterized along two dimensions. The first dimension examines if the reasons are automatic or social; whereas the second dimension examines the degree to which NSSI is maintained through positive

or negative reinforcement. According to Nock and Prinstein (2004) individuals tend to engage in NSSI for reasons related to its automatic compared to social reinforcement properties. Automatic reinforcement refers to the regulation (both increase and decrease) of emotional or physical experiences. Klonsky (2007) highlighted several automatic functions related to NSSI engagement including engaging as a way to reduce negative emotions and sensation seeking so that they are able to experience a reaction of either a physical or emotional state as opposed to, what is perceived as an absence of experience. Social reinforcement is still present among many self-injurers although not reported as frequently as automatic reinforcement, referred to social changes and the impact on behaviour. Examples of this include engaging in NSSI to be accepted and gain attention from others (Klonsky, 2007).

Despite the numerous motivations for NSSI engagement, it is also important to examine the risk factors that can lead to engagement in these behaviours. Gratz (2006) determined there are two types of risk factors for nonsuicidal self-injury. These include either environmental or individual risk factors. Individual risk factors include characteristics of emotional responding such as emotional inexpressivity and vulnerability. Environmental risk factors include childhood experiences that can lead to future NSSI. Environmental factors have gained the most attention in the literature; however both have been found to be present among self-injurers. Gratz (2006) also determined that it is typically an interaction between both individual and environmental factors that leads to self-injurious behaviours.

Individual risk factors related to NSSI have not gained the same level of attention in the literature. However, there is evidence suggesting that those who engage in NSSI

typically report low emotional expressivity (Gratz, 2006). It is suggested that individuals who have difficulty or unwillingness to verbalize their feelings and emotions are more likely to engage in self-harming behaviours (Zlotnick et al., 1996). This could reflect that self-injuring is a way for the individual to release, express and communicate their emotions when they are not able to do so verbally (Favazza, 1998). The expression and communication of emotion is also found to be one of the main functions of NSSI, suggesting that not being able to express emotions accurately may be a risk factor for future NSSI engagement (Nock & Prinstein, 2004).

There is also evidence that NSSI is related to emotion dysregulation. Emotion dysregulation [ED] refers to maladaptive ways of controlling and responding to emotions, regardless of its intensity (Gratz & Roemer, 2008). ED involves the inability to control behaviours when experiencing negative emotions. It has been found that emotion dysregulation distinguished women who were frequent self-injurers from women with no self-injuring behaviours (Gratz & Roemer, 2008). Moreover, the same study found that emotion dysregulation accounted for a significant amount of variance in the frequency of nonsuicidal self-injury, suggesting that those with emotion regulation difficulties may be more at risk to engage in NSSI in the future as they are unable to respond to their emotions in a more effective manner leading to uncontrollable negative behaviours.

As previously mentioned, environmental factors are the most frequently examined risk factors for engagement in NSSI. According to Gratz (2006), environmental risk factors that have been examined typically include problems within the family and family interactions. The family relationship is an important predictor of future NSSI engagement; children who have experienced parental separation or felt neglected by their

parents are at an increased risk for future NSSI. Specifically, this has been examined through the role of the parental attachment, which has been found to be a significant risk factor (Gratz et al., 2002). Children who were characterized as having an insecure attachment with their parents were more likely to engage in future nonsuicidal self-injury and have been found to be related to emotional dysregulation and poor/low affect.

Although an insecure attachment is an important risk factor for future NSSI, the role of childhood maltreatment is the most widely studied and most significant predictor of future NSSI. While mixed evidence has emerged, childhood maltreatment has emerged as among the most significant risk factors for future NSSI engagement (Nock & Favazza, 2009). Studies have examined that involvement in NSSI can be dependent on the type and severity of maltreatment the child has experienced. Since it is such an important risk factor for NSSI, it is important to explore the topic further in contributing to the effective support to those experiencing NSSI.

Childhood Maltreatment

Childhood maltreatment is a prevalent issue that is experienced by many children across North America every year (Sedlak et al., 2010). In the most recent Canadian Incidence Study of Reported Child Abuse and Neglect, there were approximately 235,842 childhood maltreatment-related incidents investigated in 2008 (Trocmé et al., 2010). Although this report examines past reports as well as potential future reports of childhood maltreatment, this number is considered the best current estimate of the number of children who are considered to be maltreated in Canada. This number is reflective of those who have reported childhood maltreatment incidents to different family services,

child welfare or legal services. The actual number of incidents in Canada is estimated to be higher due to problems in reporting.

Childhood maltreatment is generally categorized into four types: sexual abuse, physical abuse, neglect and emotional/psychological abuse. Sexual abuse refers to any sexual act with a child performed by an adult or older adolescent. Physical abuse refers to any physical harm injury to the child. Emotional and psychological abuse refers to constant belittling, shaming and humiliation to the child. Lastly, neglect can be either physical or emotional. Physical neglect refers to the parent or caregiver not providing basic necessities whereas emotional neglect is withholding affection and subjecting the child to situations that could cause psychological damage (Briere & Runtz, 1990).

Typically, children will experience more than one type of maltreatment, sometimes even all four types as they do tend to co-occur (Wachter et al., 2009)

According to the CIS-2008, children who were reportedly maltreated experienced neglect more than any other form of maltreatment, with 34% reporting it as the primary form of maltreatment. This was followed by 20% reporting physical abuse, 9% reporting emotional abuse and 3% reporting sexual abuse. The CIS-2008 also includes exposure to intimate partner violence as a form of childhood maltreatment with 34% of children reporting this as the most common form. Gender differences have also been found for the different types of maltreatment with males reporting a history of physical abuse more than females and females reporting a history of sexual abuse more than males (MacMillan et al., 1997).

Childhood maltreatment has been associated with numerous short-term and long-term negative outcomes. These outcomes can range from mental health and mood

disorders to aggressive behaviour and substance use (Scott, McLaughlin, Smith, & Ellis, 2012). Children who were maltreated were more likely to develop mental health problems such as depression and anxiety disorders as well as severe drug abuse in young adulthood (Scott et al., 2012). Moreover, it has been determined that previous childhood maltreatment can lead to intrapersonal problems such as decreased self-esteem as well as being a risk factor for re-victimization of abuse as an adult (Campbell, Greeson, Bybee & Raya, 2008). Due to the multiple negative consequences of childhood maltreatment, researchers are working to fully understand the effects that the maltreatment has on the child's future. The current study focused on the negative consequence of future engagement in NSSI due to previous childhood maltreatment.

Childhood Maltreatment and Nonsuicidal Self-Injury

Numerous studies have examined the relationship between childhood maltreatment and nonsuicidal self-injury. In fact, childhood maltreatment is the most commonly studied risk factor for future NSSI engagement. An overwhelming number of self-injurers have experienced past maltreatment. Studies have found that as many as 79% of those who engage in NSSI have reported a history of childhood maltreatment (Low, Jones, Macleod, Power & Duggan, 2000; Yates, 2009). Moreover, individuals who have experienced childhood abuse are found to be up to four times more likely to engage in different types of self-harming behaviours (McHolm, MacMillan & Jamieson, 2004; Whitlock et al., 2006).

Despite the literature suggesting that there is a connection between childhood maltreatment and nonsuicidal self-injury, there are some limitations of the research in this area. Glassman et al., (2007) suggest that many studies only examine one type of

maltreatment and its association to NSSI, whereas fewer studies differentiate between the different types of maltreatment and how each connect to NSSI individually. Studies that distinguish between the type of maltreatment allows researchers to more fully understand the magnitude of the associations and gain a better understanding of the process of how they are related (Gibb, Alloy, Abramson, Rose, Whitehouse, & Hogan, 2001). Secondly, the vast majority of studies examining childhood maltreatment and NSSI solely focus on sexual and physical abuse, whereas very few studies examine neglect and emotional abuse. This is true even though it is suggested that emotional abuse may also be an important risk factor to future NSSI (Glassman et al., 2007).

Pathways and Mediators

Numerous studies suggest that the relationship between childhood maltreatment and nonsuicidal self-injury is not a direct association. This relationship is often mediated by different factors. These factors can include different types of emotional disorders such as depression and PTSD symptoms (Asgeirsdottir, Sigfusdottir, Gudjonsson & Sigurdsson, 2011; Bolen, Winter & Hodges, 2013; Weierich & Nock, 2008). Weierich and Nock (2008) found that PTSD re-experiencing and avoidance/numbing symptoms mediated the relationship between childhood sexual abuse and NSSI. Another mediator found is self-criticism. Glassman et al. (2007) determined that self-criticism mediated the relationship between emotional abuse and engagement in NSSI. This could reflect that the abuse allowed the child to internalize critical thinking leading to their engagement in NSSI as self-punishment. Overall, these studies suggest that although there is an association between childhood maltreatment and NSSI, the relationship is not direct and there are multiple possible mediators to this relationship.

There have also been three pathways as suggested by Yates (2009) to explain why NSSI occurs in the aftermath of childhood maltreatment. Three pathways include representational, regulatory and reactive paths.

The *representational path* suggests that maltreatment ‘causes’ the individual to take on a negative representation of themselves and others. They tend to internalize the blame for the abuse and view themselves as ‘bad’ or unworthy of care. The individual may turn to self-injury as a form of self-punishment or even self-soothing.

The second pathway that Yates (2009) suggests is the *regulatory path*. This path suggests that childhood maltreatment interrupts the development between a child’s cognitions and affect. This disruption of the developmental integration between a child’s thoughts and feelings interrupts a child’s understanding, recognition or tolerance of their own negative feelings and how to cope with them. This leads to the individual using NSSI as a way to cope with their negative emotions rather than finding more positive ways to cope with them.

Lastly, Yates (2009) proposes the *reactive path* to NSSI behaviours which is a path suggesting childhood maltreatment affects the individual biologically. According to the reactive pathway, childhood maltreatment interrupts the development of the child’s biological stress response system. There is evidence to suggest that a negative childhood environment leads to inadequate neurodevelopment of the emotional and arousal regulatory systems which is eventually associated with emotion dysregulation (Lanius, Frewen, Vermetten, Yehuda, 2010). Specifically, the harm produced alters the limbic-hypothalamic-pituitary-adrenal (L-HPA) axis as well as the norepinephrine-sympathetic-adrenal-medullary which

modulate behavioural, emotional and cognitive responses to stress (Yates, 2009). When these systems are altered, it can lead to individuals engaging in NSSI as a way to gain control over their dysregulated systems (Yates, 2009).

Types of Maltreatment and NSSI

The vast majority of studies examining the types of maltreatment and future NSSI have hypothesized, and largely observed, sexual abuse as being significantly associated with the presence of NSSI, identifying that childhood sexual abuse is an important risk factor for subsequent NSSI (Bornovalova, Tull, Gratz, Levy, & Lejuez, 2011; Glassman et al., 2007; Madge et al., 2011; Yates, Carlson, & Egeland, 2008). Moreover, Noll, Horowitz, Bonanno, Trickett and Putnam (2003) found that participants who were sexually abused during childhood were four times more likely to inflict subsequent self-harm. Despite the evidence suggesting childhood sexual abuse is a significant risk factor, a meta-analysis examining the magnitude of this association suggests that the relationship between the two is actually quite small (Klonsky & Moyer, 2008). According to this meta-analysis, the relationship between childhood sexual abuse and NSSI is diminished when controlling for different psychiatric risk factors such as depression, suicidality and other mental disorders. However, the majority of studies still suggest that childhood sexual abuse is the most commonly related variable to future NSSI.

Although to a lesser extent, other types of maltreatment have also been researched linked to NSSI. Childhood physical abuse has been associated with NSSI in some studies (Gratz et al., 2002; Madge et al., 2011; Wachter et al., 2009) but not in others (Glassman et al., 2007; Nock & Kessler, 2006). Even fewer studies have examined the effects of emotional abuse and neglect. However, there has been evidence to suggest there is a

significant association between emotional abuse and neglect in NSSI development (Busser & Hackney, 2012; Glassman et al., 2007). Despite this evidence, it is suggested that sexual abuse and physical abuse are the most common forms of childhood maltreatment that is associated with NSSI development.

It is also important to note that various forms of maltreatment, especially sexual and physical abuse, can contribute uniquely to NSSI. For example, studies have found that physical and sexual abuse can differentiate how frequently a self-injurer engages in these behaviours. Yates (2008) found that childhood physical abuse was associated with intermittent NSSI (occurs only once or twice) whereas childhood sexual abuse was associated with recurrent NSSI. Moreover, Di Pierro, Sarno, Perego, Gallucci & Madeddu (2012) found that childhood sexual abuse is associated with the presence as well as the frequency of NSSI (i.e., the more sexual abuse one experienced, the more often they engaged in NSSI) whereas childhood physical abuse was only associated with the presence of NSSI. It is important to continue investigating the unique effects that different types of maltreatment have on NSSI.

Exposure to domestic violence and NSSI

Another type of childhood maltreatment that has not been examined within the literature is the impact on a child that has witnessed their parents/caregivers engaging in domestic violence or intimate partner violence. This type of childhood maltreatment has been found to occur more commonly than other types as 1 in 3 children reported witnessing their parents physically hit each other during their childhood (Litrownik, Newton, Hunter, English & Everson, 2003). Among the reasons exposure to witnessing intimate partner violence has not been examined further is that the vicarious trauma

associated with exposure to domestic violence is not considered a form of child abuse in certain jurisdictions such as Ontario. The Risk Assessment Model for Child Protection in Ontario (Ontario Association of Children's Aid Societies, 2000) was a provincial strategy to protect children who have been abused. It considers cases of childhood maltreatment a significant risk factor for future problems only when the child is presently suffering the consequences of the abuse. Therefore, despite evidence that children exposed to domestic violence can experience severe trauma and negative future outcomes (Osofsky, 2003), it is not considered to be a form of abuse in Ontario. Despite this, six other Canadian provinces have included exposure to woman abuse as a form of maltreatment that requires child protection investigations and is being further examined as a crucial form of maltreatment that can produce many negative consequences on a child.

Family conflict and violence has been found to have a direct impact on self-injury for both males and females, even when controlling for age, parental education, family structure, anger and depression (Asgeirsdottir et al., 2011). In a study by Lamers-Winkelmann, De Schipper and Oosterman (2012) children exposed to intimate partner violence had greater risk for physical health complaints, with these children more often reporting self-harm than those who were not exposed. Similarly, Cerutti, Manca, Presaghi and Gratz (2011) examined the association between different life-stressors and self-harm among secondary school students and determined that witnessing family violence was a strong predictor of future self-harm. This relationship also influenced the frequency of self-harm. The individuals experienced more repetitive self-harm when they had witnessed family violence rather than occasional self-harm when they had not witnessed family violence. Although there is evidence that childhood exposure of domestic and

family violence is an important predictor of NSSI, more research needs to be done in this area.

Direct vs. Indirect Exposure to Childhood Maltreatment

Although the different types of childhood maltreatment have been shown to be a significant risk factor for future NSSI, there are some limitations. As previously mentioned, Glassman et al., (2007) suggested that one limitation in this area of research was that the majority of studies did not differentiate between the types of maltreatment to determine the unique effect each has on NSSI. Some studies have examined the unique effects that sexual, physical and emotional abuse has on NSSI (Glassman et al., 2007; Wachter et al., 2009). However, there have been no known studies to examine the difference between children who have experienced direct forms of childhood maltreatment (i.e., sexual abuse and physical abuse) and those who have experienced indirect forms (i.e., exposure to domestic violence). Some studies have examined these forms of maltreatment together; however they have not examined the unique effects that direct and indirect maltreatment may have on NSSI.

A direct form of maltreatment refers to the maltreatment and abuse that the child experiences directly. It not only affects the child emotionally but also physically. It is also focused directly at the child instead of being directed at someone else, making the child the victim of the actual abuse rather than a bystander (Jaffe, Sudermann & Reitzel, 1992). This explains why sexual, physical and emotional forms of abuse are considered direct forms of maltreatment. All of these behaviours are directed at the child for the purpose of harming them directly in some way. Studies have found that direct forms of childhood maltreatment can lead to a variety of negative consequences. Direct childhood

maltreatment is correlated with feelings of despondency about having a happy or long life. These children often feel unloved, uncared for and afraid (Howard, Feigelman, Xiaoming, Cross & Rachuba, 2002). They also exhibit much more externalizing behaviours and delinquency (Johnson et al., 2002)

An indirect form of maltreatment refers to the maltreatment and abuse that the child experiences indirectly. The majority of this maltreatment is considered psychological, as these children are not typically harmed physically. Typical forms of indirect maltreatment include exposure to domestic violence or intimate partner violence as well as witnessing the physical abuse of a sibling. As previously mentioned, Ontario does not consider exposure to domestic violence or any type of indirect maltreatment to be an actual form of child abuse as the child is not considered to be directly victimized (Ontario Association of Children's Aid Societies, 2000). However, studies have determined that there are multiple negative consequences to being exposed to indirect maltreatment. A meta-analysis by Wolfe, Crooks, Lee, McIntyre-smith, & Jaffe (2003) found that 40 of the 41 studies examined indicated that exposure to domestic violence has negative effects on children. Apart from indirect maltreatment being related to future NSSI engagement (Lamers-Winkelman et al., 2012) witnessing violence is related to intrusive thoughts and feelings, hypervigilance, difficulties with concentration and externalizing behaviours (Howard et al., 2002; Johnson et al., 2002).

Researchers have examined the unique effects that both direct and indirect maltreatment have on different outcomes. There is evidence to suggest that both witnessing family violence and experiencing direct forms of violence can have the same effects on the child's future behaviours and outcomes. Early findings reported by Jaffe,

Wolfe, Wilson & Zak (1986) found that boys who had witnessed family violence developed adjustment problems that resembled the problems shown by the boys who had been the direct victims of the violence. Similarly, a meta-analysis revealed that children exposed to indirect violence had similar short-term and long-term consequences to the children who experienced indirect violence (Rudo, Powell & Dunlap, 1998). Some limitations of these studies are that they did not account for the co-occurrence of both direct and indirect maltreatment. The studies used in the meta-analysis also did not compare the effects of direct and indirect maltreatment. Therefore, it is important to examine the unique effects that occur when co-occurrence is accounted for.

More recent studies have examined the unique effects of different types of childhood maltreatment and the future outcomes. Howard et al., (2002) suggest that those who experience witnessing violence tend to experience a distinct set of symptoms from those who experience the violence directly indicating that the distinction is critical in identifying the unique needs of these children.

The majority of studies have found that the impact of direct childhood maltreatment produces more negative consequences than indirect forms. Children who were sexually or physically maltreated had more externalizing behaviours (i.e., disobedience at home and school, lying, cruelty to others, etc.) than the children who had witnessed family violence in their home (Sternberg et al., 1993). Similarly, a meta-analysis revealed that the relationship between childhood violence exposure and future delinquency is stronger when victimization is assessed rather than exposure, suggesting that direct maltreatment is more likely to lead to delinquency (Wilson, Stover & Berkowitz, 2009). Kulkarni et al., (2011) examined women who were exposed to both

direct and indirect maltreatment during childhood and their rates of adult post-traumatic stress disorder. It was determined that women who had experienced direct forms of abuse suffered more PTSD than those who had experienced indirect abuse.

In contrast, few studies have examined the opposite effect for direct and indirect abuse. Renner (2012) examined children's exposure to intimate partner violence and abuse of a sibling and found that children had higher rates of externalizing behaviours when they were witnesses of abuse compared to when they experienced the abuse directly. According to this study, the majority of these children experienced higher rates of negative outcomes when they witnessed a sibling being abused, which may have differential implications relative to witnessing a parent or guardian. However, the majority of the research in this area suggests that direct abuse has more negative consequences for the child's future than indirect abuse.

It is also important to note the frequency at which both direct and indirect childhood maltreatment co-occurs. According to Howard et al., (2002), less than 1% of children reported solely a victim of direct abuse; whereas 23% indicated they had witnessed abuse and 69% indicated they had experienced both forms of abuse. Studies have found that children who experience both forms of abuse experienced more negative effects than children who experienced only one type. Although, Kulkarni et al., (2011) determined that women exposed to direct maltreatment suffered more PTSD than those who had witnessed abuse, it was also determined that children who had experienced both forms of abuse experienced the highest rates of PTSD. The additive effects of experiencing direct and indirect maltreatment can lead to more severe consequences in the future.

The Present Study

Currently, NSSI research has examined both direct and indirect forms of abuse and its relationship to future NSSI engagement. However, researchers have yet to compare both forms of abuse to examine the unique effects they have on NSSI. Since there are unique effects on future outcomes as a function of the nature of a child's experience of either direct forms of abuse (i.e., sexual abuse, physical abuse) compared to indirect forms of abuse (i.e., exposure to domestic violence) it is important to determine if these two types of maltreatment have differing effects on future NSSI. This study examined the potential differences in the impact of the exposure to direct abuse with the exposure to indirect abuse on NSSI compared to those experiencing suicidal self-injury. There is already an extensive amount of evidence suggesting that childhood maltreatment is related to future NSSI behaviour but this study will address the extent of possible unique differential effects to NSSI compared to SSI.

Two hypotheses were examined, based on previous evidence that children who experience both direct and indirect abuse experience more negative future consequences (Kulkarni et al., 2011).

Hypothesis One:

1. In relation to SSI, children who have experienced both direct and indirect forms of abuse will experience NSSI to a greater extent.

Hypothesis Two

2. Children exposed to direct abuse will experience more NSSI than children exposed to indirect abuse. Despite some limited evidence that those who witness violence have more externalizing behaviours than those experiencing violence

directly (Renner, 2012), the majority of the evidence suggests that this is not the case (Johnson et al., 2002; Kulkarni et al., 2011, Sternberg et al., 1993; Wilson et al., 2009).

Methods

Participants

This study was conducted at both a provincial tertiary care facility specializing in the treatment of children with severe mental health and developmental disabilities as well as at nine community mental health facilities across Ontario, Canada. There were 1745 children between the ages of 4-18 who took part in the assessment thus generating data that formed the basis of this study. Out of the 1745 children, 662 had developmental disabilities while the remainder were considered to have contact with a facility due mental health issues. Children with developmental disabilities were excluded from the analysis, as any self-injury among children with developmental disabilities is considered separate from NSSI. Once children with developmental disabilities were excluded, 1083 participants remained. Of the 1083 children with mental health problems, 519 were between the ages of 8-18. The original data included children between ages 4-18. However, as children as young as 4 years of age are unlikely to engage in self injury with specific intent that would fit the definition of NSSI, the present study was restricted to examining children between the ages of 8-18 since this age range fits with the most common age of onset for NSSI (Glenn & Klonsky, 2009). The average age of the 519 children included in the analysis was 12.18 years ($SD= 2.74$). The majority of the children included in the analysis were male (66.7%). 27.6% of children were from an inpatient tertiary care facility whereas 72.4% of children were considered outpatients.

Measures

The measure used for the present study was the interRAI Child and Youth Mental Health Instrument (ChYMH). The ChYMH is among a suite of instruments developed through an international collaborative working to improve the quality of life for vulnerable persons (i.e., mental health patients; developmentally disabled, etc.). It is a comprehensive, multi-sourced clinical assessment tool. The ChYMH reflects key clinical areas including harm to self and others, psychiatric symptoms, substance use as well as strengths. The ChYMH addresses many of the weaknesses found in other child and youth assessment tools, the most important being less reliance on self report and more on evidence from file information and direct observation. There are over 50 members from over 30 different countries which utilize the interRAI in an effort to improve care for vulnerable populations across the lifespan.

The interRAI ChYMH consists of 99 items that examine the different types of mental health and behavioural risks. It can be used with children and youth between the ages of 4 and 18 in both community-based and inpatient/residential treatment patients. Use of the ChYMH standardizes the collection of information about the children and youth, their parents/guardians and any other available sources of information about the child's health, social life, education and safety. It is used to help identify immediate needs, imminent risks and strengths of the client.

Preliminary results suggest the ChYMH represents a reliable and valid measure (Stewart, Currie, Arbeau, Leschied, & Kerry, in press). Preliminary studies on the reliability and validity of the Aggression Behaviour subscale and the Anhedonia subscale have been conducted and the results are promising. The ChYMH is also considered to

have extremely high convergent validity and reliability due to the fact that multiple sources of information are used to assess the individual (i.e., parent, child, caseworker, file, etc.). If there is any discrepancy between the child and the parent/guardians responses, assessors will gather information from outside sources as well. This is to ensure they have the most accurate information and there is no participant bias.

Forms of Self-Injury. To assess for NSSI and SSI, children and youth were asked if the intent of any self-injurious behaviour was to kill themselves. Youth were given the options of “yes”, “no” or “no attempt.” Children that indicated no intention of killing oneself were included as engaging in nonsuicidal self-injury to ensure suicidal attempts were not included in this measurement. Children that indicated there was intention to kill themselves were included as engaging in suicidal self-injury.

Direct Childhood Maltreatment. To assess for direct forms of childhood maltreatment, youth were asked about previous stress and trauma in their lives. Youth who indicated they were a victim of sexual assault or abuse and/or a victim of physical assault or abuse were included as experiencing direct childhood maltreatment. The question also examines how long ago the child experienced the traumatic event (0= never, 1= more than a year ago, 2= 31 days to a year ago, 3= 8 to 30 days ago, 4= 4-7 days ago, 5= in last 3 days). The time periods were recoded to determine if direct maltreatment was present or not. Children who indicated a 1 to 5 were determined to have experienced direct childhood maltreatment. Children who indicated a 0 were determined to not have experienced direct childhood maltreatment. Only sexual and physical abuse were examined as direct childhood maltreatment because research has

indicated that these are the most common forms of maltreatment associated with NSSI (Glassman et al., 2007; Gratz et al., 2002).

Indirect Childhood Maltreatment. To assess for indirect childhood maltreatment, youth were asked about previous stress and trauma in their lives. Youth who indicated they had witnessed domestic violence were included as experiencing indirect childhood maltreatment. The question examines how long ago the child experienced the traumatic event (0= never, 1= more than a year ago, 2= 31 days to a year ago, 3= 8 to 30 days ago, 4= 4-7 days ago, 5= in last 3 days). The time periods were recoded to determine if indirect maltreatment was present or not. Children who indicated a 1 to 5 were determined to have experienced indirect childhood maltreatment. Children who indicated a 0 were determined to not have experienced indirect childhood maltreatment.

Both Types of Childhood Maltreatment. Children who indicated they had been a victim of either sexual or physical abuse and had also been exposed to domestic violence were determined to have experience both direct and indirect childhood maltreatment. Youth who had only experienced one type were not included in this variable.

Ethical Considerations

Developers of the interRAI instrument have taken extreme caution in ensuring adherence to ethical standards in their assessments. The assessment is voluntary for all children and their parent/guardian and there is the option to withdraw from the assessment at any time. Services are never denied to the children upon refusal to complete the interRAI assessment.

The integrity of the research at the primary research facility is of the utmost importance. Confidentiality and the storage of the data are addressed and the child's

safety is of primary concern. Although the data is stored for many years, no one outside of the facility or the interRAI organization manages the data unless approval is obtained. Individuals who gain approval to use the data do so under the supervision of a trained and approved statisticians. Lastly, a member of interRAI is required to supervise and approve all research done using this assessment tool to ensure the research is kept within interRAI's guidelines to assist vulnerable populations.

Another ethical consideration of this research involves the emotional toll that some of these questions can take on the children. The questions on the assessment are of a very personal nature and could cause the children to experience emotional distress, feelings of fright and nervousness. Moreover, information may be revealed during the assessment that may be a cause of concern for the child and must be reported such as if the child is at risk of harm. However, the assessment is done in a clinical setting with a team of professionals trained specifically on the interRAI protocol who are charged with assisting the child and family.

Results

Multiple analyses were conducted to determine if children who experienced both direct forms of maltreatment including sexual and physical abuse and indirect forms of maltreatment including exposure to domestic violence were more likely to engage in NSSI in relation to SSI. Moreover, it was examined if children who experience direct forms of maltreatment were more likely to engage in NSSI than children who experienced indirect forms of maltreatment, in relation to SSI.

Children were assessed on their previous self-harming behaviours. Of the 519 children and youth, 325 participants (62.6%) indicated that they had previously engaged

in nonsuicidal self-injury; 46 participants (8.8%) indicated they had previously engaged in suicidal self-injury and 148 (28.5%) indicated they had never engaged in any self-harming behaviours. Table 1 provides a summary of the frequencies by gender for each of the NSSI, SSI and absence of any self-harming behaviours.

Table 1. *Demographics of NSSI and SSI*

	<u>N</u>	<u>%</u>	<u>Male N</u>	<u>%</u>	<u>Female N</u>	<u>%</u>	<u>Age</u>
Overall	519	29.7%	346	66.7%	173	33.3%	12.18 (SD=2.741)
NSSI	325	62.6%	218	67.1%	107	32.9%	12.12
SSI	46	8.8%	23	50%	23	50%	14.15
Control	148	28.5%	105	70.9%	43	29.1%	11.71

Relationship between Past Experiences of Maltreatment, Gender and Age

Children were also assessed based on their past experiences of maltreatment and abuse. Analyses revealed that 184 (35.4%) children experienced some form of maltreatment. Further analyses revealed that 20.4% of children had experienced direct forms of maltreatment (i.e., physical or sexual abuse) and 27.2% of children had experienced indirect forms of maltreatment (i.e., exposed to domestic violence). Lastly, 12.1% of children have experienced both direct and indirect forms of maltreatment in the past. Chi-squared test revealed no relationship was found between gender and the different types of abuse, $X^2(2, N = 184) = 1.017, p = .60$ or between whether the child was an inpatient or outpatients and the types of abuse, $X^2(2, N = 184) = .730, p = .69$.

Relationship between the Type of Maltreatment and Engagement in NSSI

A binary logistic regression analysis was used to determine if indirect abuse (e.g., exposure to domestic violence), direct abuse (e.g., sexual abuse and physical abuse) and experiencing both types of abuse would predict NSSI engagement. A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set of variables, reliably distinguished between those that engaged in NSSI and those that did not ($\chi^2=13.277$, $p = .004$, $df = 3$). A Goodness model fit was evidenced by nonstatistically significant results on the Hosmer-Lemeshow test, $\chi^2 (n=473) = .000$, $df = 2$, $p= 1.000$. The full model correctly classified 68.7% of the cases. Results suggested that of the three predictors in the model, the experience of being exposed to indirect victimization which included exposure to domestic violence, significantly predicted NSSI engagement (Wald = 10.700, $df = 1$, $p = .001$). Experiencing direct victimization through childhood maltreatment and experiencing both indirect and direct forms of childhood victimization were not significant predictors. The odds ratio for indirect abuse suggests that, as experiences of indirect abuse increases, children are three times more likely to engage in NSSI. Table 2 presents the results for the model including the regression coefficients, Wald statistics, odds ratio and 95% confidence intervals for the odds ratios.

Table 2. *Logistic Regression Results for NSSI and Types of Abuse*

Predictor	<i>B</i>	Wald Chi-Square	Odds Ratio (ExpB)	<i>P</i> value	95% Confidence Interval
Direct abuse	.206	.270	1.229	.604	[.564, 2.675]
Indirect abuse	1.182	10.700	3.259	.001	[1.606, 6.616]
Both direct and indirect abuse	.040	.017	1.041	.897	[.571, 1.896]

Relationship between the Type of Maltreatment and Engagement in SSI

A binary logistic regression analysis was also used to determine if indirect abuse (e.g., exposure to domestic violence), direct abuse (e.g., sexual abuse and physical abuse), and experiencing both types of abuse could predict SSI engagement. A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set of variables, reliably distinguished between those that engage in SSI and those that do not ($\chi^2=12.887$, $p = .005$, $df = 3$). A Goodness of fit model was evidenced by nonstatistically significant results on the Hosmer-Lemeshow test, χ^2 ($n=473$) = .000, $df = 2$, $p= 1.000$. The full model correctly classified 76.3% of cases. Results suggested that of the three predictors in the model, experiencing both direct forms of childhood maltreatment (Wald = 10.058, $df = 1$, $p = .002$) and being exposed to indirect parental violence (Wald = 5.199, $df = 1$, $p = .023$) significantly predicted SSI engagement. Experiencing both indirect and direct childhood abuse were not significant predictors. The odds ratio for direct abuse suggests that as experiences of direct abuse increases, children are nearly five times more likely to engage in SSI, whereas for children experiencing indirect abuse, they are only three times more likely to engage in SSI. Table 3 presents the results for the model including the regression coefficients, Wald statistics, odds ratio and 95% confidence intervals for the odds ratios.

Table 3. *Logistic Regression Results for SSI and Types of Abuse*

Predictor	<i>B</i>	Wald Chi-Square	Odds Ratio (ExpB)	<i>P</i> value	95% Confidence Interval
Direct abuse	1.600	10.058	4.955	.002	[1.843, 13.321]
Indirect abuse	1.244	5.199	3.468	.023	[1.191, 10.101]
Both direct and indirect abuse	.602	1.448	1.825	.229	[.685, 4.865]

Differentiating the Impact of the Type of Maltreatment and Engagement in SSI

Since direct forms of maltreatment consisted of both sexual and physical maltreatment during childhood, another binary logistic regression was used to determine which form of direct abuse more significantly predicted engagement in suicidal self-injury. A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set of variables reliably distinguished between those that engage in SSI and those that do not ($\chi^2 = 9.189$, $p = .01$, $df = 2$). Results suggested that sexual maltreatment significantly predicted engagement in SSI (Wald = 7.753, $df = 1$, $p = .005$) whereas physical maltreatment did not. The odds ratio for sexual abuse suggests that children who experienced childhood sexual abuse are nearly four times more likely to engage in suicidal behaviours. Table 4 presents the results for the model.

Table 4. *Logistic Regression Results for Types of Direct Abuse and SSI*

Predictor	<i>B</i>	Wald Chi- Square	Odds Ratio (ExpB)	<i>P</i> value	95% Confidence Interval
sexual abuse	1.339	7.753	3.815	.005	[1.487, 9.799]
physical abuse	.129	.079	1.138	.779	[.462, 2.800]

Discussion

The current study examined the differences between different types of childhood maltreatment and their unique effects on future NSSI engagement in relation to SSI. Previous studies have examined the unique effects of direct childhood maltreatment (i.e., sexual abuse, physical abuse and emotional abuse) on NSSI; few studies however have included the potential effects that indirect forms of maltreatment (i.e., exposure to domestic violence) have on NSSI. Moreover, fewer studies have compared the

differences between NSSI and SSI predictors, despite research indicating that there are major differences between them (Ougrin, 2012). The current study addresses these gaps in the literature. The discussion discusses the results in the context of NSSI and SSI. The organization of this discussion will present these findings in the context of previous literature, implications for practice, relevance to future research, limitations of the current design and future directions.

Relevance to Previous Research

It was hypothesized that children/youth that have been exposed to both indirect and direct forms of maltreatment would be more likely to engage in NSSI. The present study revealed that children who had experienced both forms of maltreatment were not more likely to experience NSSI or SSI. Findings in this study contradict previous literature which suggests that experiencing a greater degree of victimization through multiple methods of maltreatment is associated with a greater degree of mental health problems (Chan, Brownridge, Yan, Fong & Tiwari, 2011; Hetzel-Riggin & Meads, 2011) due to experiencing higher rates of PTSD from the combined effects (Kulkarni et al., 2011). The explanations for the present study's findings that the cumulative effects of experiencing both forms of maltreatment is not related to NSSI or SSI is unclear and should be examined in future literature. However, possible explanations are explored.

One possible explanation for the present study's finding includes that children who experience more trauma could be attempting to psychologically distance themselves from the trauma they had experienced. Many children who have been maltreated or abused react by either psychologically 'freezing' or dissociating. Dissociation refers to the intended emotional act of removing ones' self from the awareness of a traumatic

situation. Children in particular use dissociation to escape into another reality due to their perception of being helpless in defending themselves (Palermo, 2004). Macfie, Cicchetti and Toth (2001) found that the severity and chronicity of maltreatment was related to an increase in dissociation. Therefore, children who had experienced the cumulative effects of multiple types of abuse may have been more likely to emotionally remove themselves from the trauma in an effort cope without engaging in self-harming behaviours.

Another possible explanation could be related to the way the child/youth interpreted the trauma and other protective factors the child has may have accessed. Numerous studies have examined why some children who have been maltreated are able to buffer the effects of the abuse and cope in more positive ways. Some research suggests that certain children are able to reframe the way they process the trauma while consciously assigning less power and influence attributed to their abuse experience (Bulgar & Hulse-Killacky, 2006). This explanation suggests that how an individual processes the trauma will influence how they cope with the experience. Children who experience more severe maltreatment may find ways to cope more effectively and therefore do not engage in self-harm. Moreover, there may be protective factors in the child's life not assessed in the present study that could affect the child's resiliency including social supports, their relationship to the non-abusive parent, spirituality and treatment options (Bogar & Hulse-Killacky, 2006; Runtz & Schallow, 1997).

Another possible explanation could be that the children/youth in the present study were drawn from a tertiary care facility or other community based child and youth mental health resources. If these children had experienced more severe maltreatment through the cumulative effects of both direct and indirect maltreatment, their symptoms may have

been more noticeable than children who experienced one form of maltreatment. This could suggest that service providers could have been able to identify the impact of the maltreatment and provided necessary treatment.

Finally, the present study did not take into account the severity and frequency of the maltreatment. Although the children indicated they had experienced both direct and indirect forms of maltreatment, the extent to which this maltreatment occurred compared to children who had only experienced one form of maltreatment was not known. It is possible that experiencing both types of maltreatment does not mean that the child was exposed to more severe abuse.

The present study's second hypothesis stated that children who had experienced direct forms of maltreatment (i.e., sexual abuse, physical abuse) would be more likely to engage in NSSI than children who had been exposed to indirect forms of maltreatment (i.e., exposure to domestic violence). Results of the present study revealed that exposure to direct forms of violence was not related to NSSI engagement. Rather, children exposed to indirect forms of violence were three times more likely to engage in NSSI. Despite the results being in the opposite direction of what was predicted, one previous study had found that children's exposure to domestic violence, as well as witnessing physical abuse of a sibling, lead to more externalizing behaviours than the children who were directly physically abused (Renner, 2012). One explanation for indirect maltreatment being related to NSSI rather than direct maltreatment could lie in the ambiguous nature of the loss and helplessness that is experienced when a child witnesses a caregiver being abused that is not experienced when they are being directly victimized themselves.

The second hypothesis examined the nature of maltreatment in relation to SSI. Results exposed to direct maltreatment were five times more likely to engage in SSI compared to children exposed to the indirect effects of violence who were only three times more likely to engage in SSI. This suggests that, in accordance to the present study's hypothesis, children exposed to direct maltreatment are more likely to engage in suicidal behaviours than children exposed to indirect maltreatment. Further results revealed that it is childhood sexual abuse that results in suicidal behaviours rather than physical abuse, which is consistent with previous literature indicating that sexual abuse is significantly associated with self-harm over and above all other types of childhood maltreatment (Bornovalova et al., 2011; Glassman et al., 2007; Madge et al., 2011).

When comparing the results of childhood maltreatment and NSSI with childhood maltreatment and SSI, results revealed that children who are exposed to indirect forms of maltreatment are more likely to engage in NSSI whereas children who are exposed to direct forms of maltreatment are more likely to engage in more extreme behaviours such as suicidal behaviours. Previous research has found significant differences between suicidal and nonsuicidal behaviours (Nock & Kessler, 2006; Ougrin et al., 2012). Nock and Kessler (2006) found that suicidal self-harmers had a higher prevalence of depression, drug use, conduct disorders, personality disorders and phobias than nonsuicidal self-harmers. This suggests that suicidal self-injurers have a higher severity of mental health problems than nonsuicidal self-injurers which could also suggest they have experienced more extreme trauma in childhood such as exposure to direct maltreatment rather than indirect maltreatment. The present study contributes to the

existing need for further research to distinguish characteristics and contributors to NSSI from SSI.

Implications for Practice

The present study provides numerous implications for psychologists, counsellors and social workers. First, these findings are consistent with previous research suggesting childhood maltreatment is a risk factor for future NSSI engagement. Although this study was not able to distinguish which form of maltreatment (direct vs. indirect) was more likely to lead to NSSI, it was determined that all forms of abuse are linked to either NSSI or SSI. Moreover, the present study found evidence to suggest that exposure to domestic violence is an extremely significant risk factor for NSSI. Past research has not addressed this type of maltreatment while solely focusing on physical and sexual abuse due to the belief that these forms of maltreatment lead to more detrimental effects in children/youth. The present study lends support to the notion that even more subtle forms of childhood maltreatment can have damaging effects on a child's emotional well-being. Clinicians should be cautious when inquiring about past maltreatment to ensure they explore if the child has experienced vicarious trauma such as exposure to domestic violence. Furthermore, clinicians should focus on treatment that encourages the child to find more adaptive coping strategies than self-harming behaviours when they have been exposed to invalidating environments.

Clinicians should also take into account the type of maltreatment that the child has experienced, as the present study identified that the type of maltreatment can lead to different negative coping strategies. Children who were exposed to domestic violence were more likely to engage in NSSI whereas children who had experienced direct forms

of maltreatment such as physical and sexual abuse were more likely to engage in more extreme forms of self-injury in the intent of committing suicide. Clinicians should be aware of the type of maltreatment the child has experienced and engage in the appropriate interventions and treatment based on this knowledge.

In regards to childhood maltreatment, it is also important to note that clinicians need to remain mindful of how each child processes their victimization. As the present study determined, children who had experienced both direct and indirect forms of maltreatment were not significantly more likely to engage in self-harming behaviours. It is suggested that this could be due to how their victimization was processed and other protective factors in the child's life. Although the type of maltreatment is proven to be important, clinicians should also explore how the child is coping with the trauma; how they interpret the trauma; and other protective factors in the child's life that could impact the child's resiliency in the face of the maltreatment.

The present study also has numerous implications for the NSSI literature and treatment interventions. Recently, the DSM V has included NSSI as its own distinct diagnostic entity independent from suicidal self-injury. Previous researchers continue to use terms to describe all self-harming behaviours collectively without noting the distinct differences between NSSI and SSI. Despite the considerable debate on the issue of viewing these as distinct behaviours, few studies have examined the differences between them. The present study provides more evidence contributing to the distinction between nonsuicidal and suicidal self-injury. Although some previous research has provided evidence for distinct characteristics between the two forms of self-injury (Ougrin et al., 2012) the present study distinguishes between separate contributors to each form of self-

injury. The current study has reported that exposure to domestic violence is more likely to lead to NSSI whereas experiencing sexual abuse was more likely to lead to suicidal behaviours, suggesting that direct forms of maltreatment can lead to more extreme behaviours such as suicide. Future researchers should be cautious in using the two terms interchangeably and begin to research each as distinct entities. Moreover, as suicidal intent and nonsuicidal self-injury are distinct in both characteristics and contributors, they may respond to treatment differently. Clinicians should consider suicidal intent carefully and determine interventions based on this.

Directions for Future Research

Future research should first attempt to replicate these findings in a community based sample rather than a clinical sample. The participants in the current study were children/youth taken from tertiary care or community based mental health services. Although these participants were not diagnosed with borderline personality disorder (BPD), the DSM V created the diagnostic criteria of nonsuicidal self-injury as its own distinct diagnostic entity in order for it to be recognized as independent from BPD. Numerous studies have found evidence suggesting that prevalence rates of NSSI range from 13-54% in community based samples (Lloyd-Richardson et al., 2007; Ross & Heath, 2002). This suggests that future research should examine the differing effects that direct and indirect maltreatment have on NSSI in community samples to determine if the present study's results can be replicated.

Future research should also further explore that when a child experiences both types of maltreatment they are not more likely to engage in NSSI. A few hypotheses were presented for why this may occur, including that the more trauma the child had

experienced the more likely they may begin to dissociate from the trauma and psychologically ‘remove themselves’ from the trauma’s effects. Children/youth who had experienced multiple traumas may have sought out more protective factors that allowed them to be resilient to the trauma. Future research should seek to examine these two hypotheses to help explain why children who experienced cumulative forms of maltreatment did not reflect higher rates of either NSSI or SSI.

Furthermore, future research examining the effects of childhood maltreatment and NSSI should include characteristics related to the degree of the maltreatment that had occurred. The present study only examined if childhood maltreatment had been present in the child’s life. An examination of the severity of the maltreatment, how long the maltreatment occurred in the child’s life and the frequency that the maltreatment occurred was not examined in the present study. Examining these characteristics of the maltreatment would contribute to further understanding in regards to self-injury.

Lastly, the current study is one of few studies examining the differences between nonsuicidal and suicidal self-injury. Although Nock & Kessler (2006) determined that there are numerous characteristics that set the two forms of self-harm apart, this is the first study to our knowledge that has examined the differences between their contributing factors. Since NSSI has recently become its own distinct diagnostic entity, more research is needed to determine the differences between NSSI and SSI. This will not only further help researchers but will also be of use to clinicians in helping to determine treatment plans and interventions based on the type of self-injury experienced.

Limitations

Despite the many strengths in the present study including a large sample size and the use of many sources of information, the current study is not without limitations. The sample in the present study was limited to children and youth in a tertiary care and community mental health facilities from Ontario, Canada. These facilities specialize in mental health issues which may not be generalizable to the general child and youth mental health population. Moreover, the sample was not randomly selected. Parents and guardians of the children and youth signed consent forms for their child to complete the interRAI ChYMH, making the present sample a convenience consenting sample.

Another limitation of this study is that it examined correlates between NSSI, SSI and childhood maltreatment. It did not directly test bidirectional associations between self-harm and childhood maltreatment. Although it is assumed that childhood maltreatment would occur prior to the negative coping strategies of self-harming, it may also be the case that NSSI engagement predicts changes in the external environment, particularly in family dynamics. Nevertheless, these findings provide clinicians with distinct differentiation between different types of childhood maltreatment.

Lastly, as previously mentioned in the future directions section, the present study did not take into account the severity and the frequency of childhood maltreatment. The extent to which the child/youth experienced abuse and trauma is unknown, and it is unclear if children who had experienced both direct and indirect maltreatment experienced a higher degree of abuse than children who only experienced one type of maltreatment. Future studies on childhood maltreatment should ensure they examine the severity and frequency of the abuse.

Summary

Despite the limitations of the present study, critical information has emerged. Children who had been exposed to domestic violence were more likely to engage in NSSI, whereas children who had experienced sexual or physical abuse were more likely to engage in SSI. These findings suggest there are differential pathways between different types of self-harm and contributes to the gaps in the literature regarding the contributors to both suicidal and nonsuicidal behaviours. Moreover, the present study is in line with previous studies suggesting that different types of childhood maltreatment can have differential effects on future behaviours (Di Pierro et al., 2012; Yates, 2008). The present study furthers this research by including exposure to domestic violence and reflecting its unique effects on children/youth's coping. The present study also provides clinicians with an understanding of the unique effects of different types of childhood maltreatment and suggests that the type of intervention used should include the type of maltreatment that the child/youth has experienced.

References

- Armiento, J. S., Hamza, C. A., & Willoughby, T. (2014). An Examination of Disclosure of Nonsuicidal Self-injury among University Students. *Journal of Community & Applied Social Psychology*.
- Asgeirsdottir, B. B., Sigfusdottir, I. D., Gudjonsson, G. H., & Sigurdsson, J. F. (2011). Associations between sexual abuse and family conflict/violence, self-injurious behavior, and substance use: The mediating role of depressed mood and anger. *Child Abuse & Neglect, 35*(3), 210-219.
doi:<http://dx.doi.org/10.1016/j.chiabu.2010.12.003>
- Bogar, C. B., & Hulse-Killacky, D. (2006). Resiliency determinants and resiliency processes among female adult survivors of childhood sexual abuse. *Journal of Counseling & Development, 84*(3), 318-327. doi:<http://dx.doi.org/10.1002/j.1556-6678.2006.tb00411.x>
- Bolen, R. M., Winter, V. R., & Hodges, L. (2013). Affect and state dysregulation as moderators of the relationship between childhood sexual abuse and nonsuicidal self-injury. *Journal of Interpersonal Violence, 28*(1), 201-228.
doi:<http://dx.doi.org/10.1177/0886260512448844>
- Bornovalova, M. a., Tull, M. T., Gratz, K. L., Levy, R., & Lejuez, C. W. (2011). Extending models of deliberate self-harm and suicide attempts to substance users: Exploring the roles of childhood abuse, posttraumatic stress, and difficulties controlling impulsive behavior when distressed. *Psychological Trauma: Theory, Research, Practice, and Policy, 3*(4), 349–359. doi:10.1037/a0021579

- Briere, J., & Runtz, M. (1990). Differential adult symptomology associated with three types of child abuse histories. *Child Abuse & Neglect*, *14*, 357-364.
- Buser, T. J., & Hackney, H. (2012). Explanatory style as a mediator between childhood emotional abuse and nonsuicidal self-injury. *Journal of Mental Health Counseling*, *34*(2), 154-169.
- Campbell, R., Greeson, M. R., Bybee, D., & Raya, S. (2008). The co-occurrence of childhood sexual abuse, adult sexual assault, intimate partner violence, and sexual harassment: A mediational model of posttraumatic stress disorder and physical health outcomes. *Journal of Consulting & Clinical Psychology*, *76*, 194-207.
- Cerutti, R., Manca, M., Presaghi, F., & Gratz, K. L. (2011). Prevalence and clinical correlates of deliberate self-harm among a community sample of Italian adolescents. *Journal of Adolescence*, *34*(2), 337-47. doi:10.1016/j.adolescence.2010.04.004
- Chan, K. L., Brownridge, D. A., Yan, E., Fong, D. Y. T., & Tiwari, A. (2011). Child maltreatment polyvictimization: Rates and short-term effects on adjustment in a representative hong kong sample. *Psychology of Violence*, *1*(1), 4-15.
doi:<http://dx.doi.org/10.1037/a0020284>
- Favazza, A. R. (1996). *Bodies under siege: Self-mutilation and body modification in culture and psychiatry*. JHU Press.
- Favazza, A. R. (1998). The coming of age of self-mutilation. *Journal of Nervous and Mental Disease*, *186*, 259-268

- Favazza, A. R. (2011). *Bodies under siege: self-mutilation, nonsuicidal self-injury, and body modification in culture and psychiatry*. JHU Press.
- Gibb, B. E., Alloy, L. B., Abramson, L. Y., Rose, D. T., Whitehouse, W. G., & Hogan, M. E. (2001). Childhood maltreatment and college students' current suicidal ideation: A test of the hopelessness theory. *Suicide and Life-Threatening Behavior, 31*, 405-415.
- Glassman, L. H., Weierich, M. R., Hooley, J. M., Deliberto, T. L., & Nock, M. K. (2007). Child maltreatment, non-suicidal self-injury, and the mediating role of self-criticism. *Behaviour Research and Therapy, 45*(10), 2483–90. doi:10.1016/j.brat.2007.04.002
- Glenn, C.R., & Klonsky, E. (2009). Social context during nonsuicidal self-injury indicates suicide risk. *Personality and Individual Differences, 46*(1), 25-29.
DOI:10.1016/j.paid.2008.08.020
- Gratz, K. L. (2006). Risk factors for deliberate self-harm among female college students: the role and interaction of childhood maltreatment, emotional inexpressivity, and affect intensity/reactivity. *The American Journal of Orthopsychiatry, 76*(2), 238–50.
doi:10.1037/0002-9432.76.2.238
- Gratz, K. L., Conrad, S. D., & Roemer, L. (2002). Risk factors for deliberate self-harm among college students. *American Journal of Orthopsychiatry, 72*(1), 128–140.
doi:10.1037//0002-9432.72.1.128
- Gratz, K. L., & Roemer, L. (2008). The relationship between emotion dysregulation and deliberate self-harm among female undergraduate students at an urban commuter

university. *Cognitive Behaviour Therapy*, 37(1), 14–25.

doi:10.1080/16506070701819524

Hawton, K., Harriss, L., Simkin, S., Bale, E., & Bond, A. (2004). Self-cutting: Patient characteristics compared with self-poisoners. *Suicide and Life-Threatening Behavior*, 34(3), 199-208. doi:http://dx.doi.org/10.1521/suli.34.3.199.42776

Heath, N. L., Toste, J. R., Nedecheva, T., & Charlebois, A. (2008). An examination of nonsuicidal self-injury among college students. *Journal of Mental Health Counseling*, 30(2), 137–156.

Hetzel-Riggin, M., & Meads, C. L. (2011). Childhood violence and adult partner maltreatment: The roles of coping style and psychological distress. *Journal of Family Violence*, 26(8), 585-593. doi:http://dx.doi.org/10.1007/s10896-011-9395-

Jaffe, P.G. Sudermann, M. & Reitzel, D., (1992). Child witnesses of marital violence. In R. Ammerman & M. Hersen (Eds) *Assessment of Family Violence: A Clinical and Legal Source book*. New York, NY: John Wiley & Sons.

Jaffe, P., Wolfe, D., Wilson, S., & Zak, L. (1986). Similarities in behavioral and social maladjustment among child victims and witnesses to family violence. *American Journal of Orthopsychiatry*, 56(1), 142-146. doi:http://dx.doi.org/10.1111/j.1939-0025.1986.tb01551.x

Klonsky, E. (2007). The functions of deliberate self-injury: A review of the evidence. *Clinical Psychology Review*, 27(2), 226-239. DOI:10.1016/j.cpr.2006.08.002

Klonsky, E. D., & Muehlenkamp, J. J. (2007). Self-injury: A research review for the practitioner. *Journal of Clinical Psychology*, 63(11), 1045-1056

- Klonsky, E., & Olino, T. M. (2008). Identifying clinically distinct subgroups of self-injurers among young adults: A latent class analysis. *Journal of Consulting and Clinical Psychology, 76*(1), 22–27. DOI:10.1037/0022-006X.76.1.22
- Kulkarni, M. R., Graham-Bermann, S., Rauch, S. A. M., & Seng, J. (2011). Witnessing versus experiencing direct violence in childhood as correlates of adulthood PTSD. *Journal of Interpersonal Violence, 26*(6), 1264-1281.
doi:<http://dx.doi.org/10.1177/0886260510368159>
- Lanius, R. A., Frewen, P. A., Vermetten, E., & Yehuda, R. (2010). Fear conditioning and early life vulnerabilities: Two distinct pathways of emotional dysregulation and brain dysfunction in PTSD. *European Journal of Psychotraumatology, 1*
doi:<http://dx.doi.org/10.3402/ejpt.v1i0.5467>
- Lloyd-Richardson, E., Perrine, N., Dierker, L., & Kelley, M. L. (2007). Characteristic and functions on non-suicidal self-injury in a community sample of adolescents. *Psychological Medicine, 37*(8), 1183-1192.
doi:<http://dx.doi.org/10.1017/S003329170700027X>
- Low, G., Jones, D., MacLeod, A., Power, M., & Duggan, C. (2000). Childhood trauma, dissociation, and self-harming behaviour: A pilot study. *British Journal of Medical Psychology, 73*, 269-278.
- Nixon, M. K., Cloutier, P. F., & Aggarwal, S. (2002). Affect regulation and addictive aspects of repetitive self-injury in hospitalized adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 41*(11), 1333-1341.
doi:<http://dx.doi.org/10.1097/00004583-200211000-00015>

- Nock, M. K., & Favazza, A. R. (2009). Nonsuicidal self-injury: Definition and classification. (pp. 9-18) American Psychological Association, Washington, DC.
doi:<http://dx.doi.org/10.1037/11875-001>
- Nock, M. K., & Kessler, R. C. (2006). Prevalence of and risk factors for suicide attempts versus suicide gestures: Analysis of the national comorbidity survey. *Journal of Abnormal Psychology, 115*(3), 616-623. doi:<http://dx.doi.org/10.1037/0021-843X.115.3.616>
- Nock, M. K., & Prinstein, M. J. (2004). A functional approach to the assessment of self-mutilative behavior. *Journal of Consulting and Clinical Psychology, 72*(5), 885–90.
doi:[10.1037/0022-006X.72.5.885](http://dx.doi.org/10.1037/0022-006X.72.5.885)
- Ontario Association of Children's Aid Societies. (2000). Risk assessment model for child protection in Ontario: Eligibility spectrum, risk assessment model for child protection in Ontario. Toronto, ON.
- Ougrin, D., Zundel, T., Kyriakopoulos, M., Banarsee, R., Stahl, D., & Taylor, E. (2012). Adolescents with suicidal and nonsuicidal self-harm: Clinical characteristics and response to therapeutic assessment. *Psychological Assessment, 24*(1), 11-20.
doi:<http://dx.doi.org/10.1037/a0025043>
- Osofsky, J. D. (2003). Prevalence of Children ' s Exposure to Domestic Violence and Child Maltreatment : Implications for Prevention and Intervention, *6*(3).

- Renner, L. M. (2012). Single Types of Family Violence Victimization and Externalizing Behaviors Among Children and Adolescents. *Journal of Family Violence, 27*(3), 177–186. doi:10.1007/s10896-012-9421-9
- Rodham, K., & Hawton, K. (2009). Epidemiology and phenomenology of nonsuicidal self-injury. (pp. 37-62) American Psychological Association, Washington, DC.
doi:http://dx.doi.org/10.1037/11875-003
- Ross, S., & Heath, N. (2002). A study of the frequency of self-mutilation in a community sample of adolescents. *Journal of Youth and Adolescence, 31*(1), 67-77.
doi:http://dx.doi.org/10.1023/A:1014089117419
- Runtz, M. G., & Schallow, J. R. (1997). Social support and coping strategies as mediators of adult adjustment following childhood maltreatment. *Child Abuse & Neglect, 21*(2), 211-226. Retrieved from
<http://search.proquest.com/docview/619142292?accountid=15115>
- Scott, K. M., McLaughlin, K. a, Smith, D. a R., & Ellis, P. M. (2012). Childhood maltreatment and DSM-IV adult mental disorders: comparison of prospective and retrospective findings. *The British Journal of Psychiatry : The Journal of Mental Science, 200*(6), 469–75. doi:10.1192/bjp.bp.111.103267
- Sedlak, A. J., Mettenburg, J., Basena, M., Petta, I., McPherson, K., Greene, A., & Li, S. (2010). Fourth national incidence study of child abuse and neglect (NIS-4): Report to congress. Washington, DC: US Department of Health and Human Services, Administration for Children and Families.

- Sternberg, K. J., Lamb, M. E., Greenbaum, C., Cicchetti, D., Dawud, S., Cortes, R. M., ... Lorey, F. (1993). Effects of Domestic Violence on Children ' s Behavior Problems and Depression, *29*(1), 44–52.
- Stewart, S. L., Currie, M., Arbeau, K., Leschied, A., & Kerry, A. (In Press). Assessment and Planning for Community and Custodial Services: The Application of interRAI Assessment in the Youth Justice System. In R. Corrado & A. Leschied (Eds.), *Serious and Violent Young Offenders and Youth Criminal Justice: A Canadian Perspective*.
- Trocmé, N., Fallon, B., MacLaurin, B., Daciuk, J., Felstiner, C., Black, T., Tonmyr, L., ... & Cloutier, R. (2010). *Canadian incidence study of reported child abuse and neglect, 2008*. Ottawa: Public Health Agency of Canada.
- Wachter, T., Murphy, S., Kennerley, H., & Wachter, S. (2009). A preliminary study examining relationships between childhood maltreatment, dissociation, and self-injury in psychiatric outpatients. *Journal of Trauma & Dissociation : The Official Journal of the International Society for the Study of Dissociation (ISSD)*, *10*(3), 261–75. doi:10.1080/15299730902956770
- Weierich, M. R., & Nock, M. K. (2008). Posttraumatic stress symptoms mediate the relation between childhood sexual abuse and nonsuicidal self-injury. *Journal of Consulting and Clinical Psychology*, *76*(1), 39-44. doi:http://dx.doi.org/10.1037/0022-006X.76.1.39
- Whitlock, J., Eckenrode, J., & Silverman, D. (2006). Self-injurious behaviours in a college population. *Pediatrics*, *117*, 1939-1948. DOI: 10.1542/peds.2005-2543

- Whitlock, J., Muehlenkamp, J., & Eckenrode, J. (2008). Variation in nonsuicidal self-injury: Identification and features of latent classes in a college population of emerging adults. *Journal of Clinical Child and Adolescent Psychology, 37*(4), 725-735.
doi:<http://dx.doi.org/10.1080/15374410802359734>
- Wolfe, D. A., Crooks, C. V, Lee, V., McIntyre-smith, A., & Jaffe, P. G. (2003). The Effects of Children ' s Exposure to Domestic Violence : A Meta-Analysis and Critique, *6*(3).
- Yates, T. M., Carlson, E. a, & Egeland, B. (2008). A prospective study of child maltreatment and self-injurious behavior in a community sample. *Development and Psychopathology, 20*(2), 651–71. doi:10.1017/S0954579408000321
- Yates, T. M. (2009). Developmental pathways from child maltreatment to nonsuicidal self-injury. (pp. 117-137) American Psychological Association, Washington, DC.
doi:<http://dx.doi.org/10.1037/11875-007>
- Zlotnick, C., Shea, T. M., Pearlstein, T., Simpson, E., Costello, E., & Begin, A. (1996). The relationship between dissociative symptoms, alexithymia, impulsivity, sexual abuse, and self-mutilation. *Comprehensive Psychiatry, 37*, 12–16.

Jenna Armiento

EDUCATION

- Masters of Arts (MA) Counselling Psychology** (June, 2015)
Western University, London, ON
- Bachelor of Arts (B.A) Honours Specialization Psychology** (June, 2013)
Brock University, St.Catharines, ON

RELATED WORK EXPERIENCE

- Counsellor (Intern)** (Sept. 2014-April 2015)
Psychological Services, Western University, London, ON
- Research Assistant** (Oct. 2014-Present)
Dr. Shannon Stewart, Western University, London, ON
- Grief and Bereavement Support Group Co-facilitator** (Sept. 2014-Present)
Wellspring, London, ON
- Research Assistant** (May 2014-Nov. 2014)
Child and Parent Resource Institute, London, ON

PUBLICATIONS

- Armiento, J. S.**, Hamza, C. A., & Willoughby, T. (2014). An examination of disclosure of nonsuicidal self-injury among university students. *Journal of Community & Applied Social Psychology*. doi: 10.1002/casp.2190
- Hamza, C. A., Willoughby, T., & **Armiento, J.** (2014). A laboratory examination of pain threshold and tolerance among nonsuicidal self-injurers with and without self-punishing motivations. *Archives of Scientific Psychology*, 2(1), 33-42.
doi:http://dx.doi.org/10.1037/arc0000008

AWARDS AND SCHOLARSHIPS

- Ontario Graduate Scholarship (OGS) (2014-2015)
- Western Graduate Research Scholarship (WGRS) (2013-2015)
- Social Science and Humanities Research Scholarship (SSHRC) (2013-2014)
- Dean's Honour List, Brock University (2011-2013)