

CHILDHOOD ADVERSITIES AS ANTECEDENTS OF SUICIDE COMPLETION

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“Seek always to prove mysteries in the light of the rational mind.”
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“There is only one good, knowledge, and one evil, ignorance.”
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CHAPTER 3

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Abstract

Suicide is a worldwide challenge that is associated with an interactive multitude of health, social, environmental and familial factors. In spite of promising advances in research aimed at unraveling the complexity of this distressing behaviour, suicide continues to impact many individuals and families and is considered as one of the principal causes of morbidity and mortality. Evidence from numerous studies has demonstrated childhood traumatic experiences as relevant risk factors for adult psychopathology and suicidal behaviour. Yet, not many research groups studying suicide have directly investigated the relationship between histories of childhood maltreatment and completed suicides. There appears to be a gray area in our understanding: Is suicide directly related to childhood abuse and neglect or do early traumatic life events predispose the individual to poor mental health which affects suicidality among the suicide completers. Studying this relationship may prove useful in assessing future suicide risk among high risk groups with psychiatric problems and childhood adversities. However, not all suicide completers suffer from psychopathology or have experienced childhood maltreatment. As the title suggests, this study aims to examine the relationship between childhood abuse and suicide completion and to investigate the frequency of traumatic childhood events (including sexual abuse, physical abuse, parental neglect, and family discord) so as to better understand and delineate the underlying risk factors associated with suicide. We used a psychological autopsy methodology with two different samples to examine the proportion of completed suicides directly associated with childhood abuse. We also explored types and frequency of childhood maltreatment among adult suicide completers. Based on previous findings among suicide attempters, we expected that high levels of sexual abuse would be found. We will present the main findings, discuss the clinical and research implications, and propose future directions for further research. This research thesis consists of three chapters: a comprehensive review of the related literature; our main research study; and presentation of findings in light of previous studies.

Résumé

Le suicide est une problématique mondiale associée à une interaction de plusieurs facteurs sociaux, environnementaux, familiaux et de santé. Malgré les importants progrès dans la recherche visant à élucider la complexité de ce comportement inquiétant, le suicide continue d'ébranler plusieurs individus et familles et est considéré comme une des principales causes de morbidité et de mortalité. Plusieurs études ont démontré que les expériences traumatiques dans l'enfance constituent un important facteur de risque pour la psychopathologie adulte et le comportement suicidaire. Cependant, peu de groupes de recherche sur le suicide se sont directement adonnés à l'investigation de la relation entre les expériences de maltraitance à l'enfance et le suicide complété. Il semble y avoir une zone grise dans notre compréhension de ce lien : Le suicide est-il directement relié à l'abus et la négligence dans l'enfance où est-ce les expériences de vie traumatisantes qui prédisposent l'individu à des problèmes de santé mentale qui influencerait le comportement suicidaire au sein de ceux qui se suicident?

L'étude de ce lien s'avèrerait utile dans l'évaluation du risque potentiel de suicide au sein des groupes à risques avec problèmes psychiatriques et adversités à l'enfance. Toutefois, parmi les individus ayant commis un suicide, les problèmes psychiatriques ou la maltraitance à l'enfance ne sont pas toujours présents. Comme le titre suggère, cette étude vise à examiner la relation entre l'abus à l'enfance et le suicide complété et à investiguer la fréquence d'expériences traumatiques à l'enfance (comprenant l'abus sexuel, l'abus physique, la négligence parentale et la discorde familiale) afin de mieux comprendre et de délimiter les facteurs de risques associés au suicide. Nous avons utilisé une méthode d'autopsie psychologique avec 2 différents échantillons afin d'examiner la proportion de suicide complétés qui seraient directement associés à l'abus dans l'enfance. Nous avons également exploré les types et la fréquence de maltraitance dans l'enfance chez les adultes ayant commis un suicide. À la lumière des études précédentes sur les tentatives de suicide, nous nous attendions à compter des nombres élevés d'abus sexuels dans cette étude. Nous allons présenter nos résultats principaux, discuter des implications en recherche et en clinique, et proposer de nouvelles avenues pour les recherches ultérieures. Cette thèse de recherche est constituée de 3 chapitres : une revue compréhensive de la littérature scientifique; notre principal projet de recherche; et une présentation des résultats en lien avec les études antérieures.

Chapter 1

Introduction

THE SCOPE OF SUICIDE

Suicide as a health and social plague has been attracting a worldwide interest and many psychiatrists are beginning to call it as an "emerging epidemic" (Brown 2001). Suicide has been studied and expounded upon by various disciplines and branches of knowledge. Primarily, the objective study of suicidal behaviour and its dimensions initiated by the French sociologist Emile Durkheim in 1897 (Simpson, 2002), and later advances in medicine, clinical psychiatry and epigenetic studies contributed enormously to our knowledge and understanding of suicide and its risk factors.

Illustrated by recent statistics and clinical vignettes, the economic and social costs or impact (Anderson and Jenkins 2005) and emotional turmoil that the death by suicide brings to diverse individuals and society are extensive. Since the impact of suicide is more affected the young age groups, it is one of the fundamental causes of "years of potential life lost" (Statistics Canada, 1997; St-Laurent and Bouchard 2004) and consequently, as the "leading cause of unnecessary and premature death" (Maris et al., 2000). Evidently, suicide is an act that can be prevented. World Health Organization (2002) reports suicide to be among the top 10 causes of death in every country and 13th leading cause of death worldwide; one suicide to occur nearly every one minute and one suicide

attempt to happen approximately every three second. Respectively, WHO has currently estimated that for the year 2020 and based on current trends, approximately 1.53 million people will die from suicide and 10-20 times more people will attempt suicide worldwide (Bertolote and Fleischmann 2002). Since 40 decades ago, suicide rates have increased by 60% in some countries, with a noticeable accrual among males (World Health Organization, 2002b). In general, males commit suicide over four times more frequently than females (World Health Organization, 2002a), while women attempt suicide twice as often as men (Weissman et al. 1999). In Canada an estimated 3665 individuals commit suicide each year, about 500 of whom are 15–24 years old (Kutcher and Szumilas 2008). Suicide is not only a social and health concern to Quebec residents but also it is both an individual and a family calamity. The staggering increase in the number of suicides in Québec, with the suicide rate for males in Quebec listed among the highest of the provinces, at 24.1 per 100 000 and the large amount of suffering associated with this problem have mobilized social forces and research determination to deal with the problem (Mercier and St-Laurent, 1998).

Many questions as how to resolve the problem of suicide have been tested and answered diversely, yet with every answer, more questions are generated and revised explanations are offered in terms of suicide characteristics, predictive risk factors and protecting measures. Scientific studies suggest a multitude of factors to be associated with suicide and suicidal behaviour (Mercier and Saint-Laurent, 1998). Despite many findings yielded to date, we still have a long way uncovering and understanding the mechanism and

nature of the relation between the various factors. There is mounting evidence suggesting childhood traumatic events or familial experiences as etiological explanations for later suicidal behaviour. Despite many research efforts of putting different pieces of the suicide puzzle together, the relationship between developmental experiences and later suicidality remains poorly understood and need more systematic and in depth investigation.

It is our hope and aspiration that this study will help with a more complete understanding of the association between childhood adversities and suicidal outcomes and to help clinicians establish measures to prevent people from ending their lives.

WHAT IS SUICIDIALITY: DEFINITION AND CLASSIFICATION

Suicidality is considered a complex web of behaviors, subtypes of behaviors, and hence, difficult to precisely define. A more general and globally accepted definition of suicide according to the World Health Organization (2002) is described as “the act of deliberately killing oneself or an act of self-directed violence.” Suicidal behavior encompasses a spectrum of self-destructive behaviors with explicit or implicit desire to die and with varying degrees of severity, including suicidal ideation or communications, suicide attempts, and finally suicide completion (Leon et al., 1990; O’Carroll et al., 1996; Lewinsohn, Rohde, & Seeley, 1993). The continuum of suicide ranges from ideas to gestures, to risky lifestyles, suicide plans, suicide attempts and finally suicide completions (Maris, 2002). Suicidal ideation or thoughts of wishing to end one’s life lies at one end of the suicide spectrum. Even though

not all suicidal thoughts are translated into action, however, these thoughts should be taken seriously as they are the best antecedents for suicidal attempts and in many cases completion.

Suicidal attempts which stand in the middle of this spectrum are broadly defined as “a potentially self-injurious behavior with a non-fatal outcome, for which there is some evidence that the person intended to kill himself/herself”(O'Carroll et al. 1996).

Notwithstanding this general definition, suicide attempt is difficult to classify, for it entails two main dimensions-having the suicide intent and degree of lethality (Beck et al., 1976). Suicide intent indicates an individual's wish to die and it can be measured by the extent of preparation, and the real desire to put an end to life (Beck et al. 1976). Lethality, the second component of suicide attempt reflects the degree of medical injury an individual suffered as sequelae of their suicidal attempt, and range from little or no damage to very serious injuries that may result in the person's death. Respectively, suicide attempts can be classified in two violent and non-violent methods, with drug overdose as a non-violent method, while other methods such as gunshot, hanging, drowning are considered lethal (Paykel and Rassaby, 1978). In sum, the definition and classification of suicide attempts has stirred different debates and still continues an important challenge.

Lying at the other extreme end of the spectrum, suicide completion depicts a salient and more tangible form of suicidality. Suicide completion is described as death resulting from a self-inflicted injury stemming from a clear intention to die (Rosenberg et al. 1988; O'Carroll et al. 1996). Despite scientific

and clinical research suggesting attempted suicide as an important risk factor for suicide completion, many suicide completers die at their first attempt. Thus, suicide completers may represent a distinguished group with separate risk factors impacting their behavior.

DETERMINING RISK FACTORS IN SUICIDE

As every behavior is determined by a chain of interacting factors, suicidal behaviors are assumed to result from a web of interdependent factors. Suicide is not an illness or a disease by itself. Suicidal behaviors are thought to be indicators of distress or symptoms of deeper childhood traumas or mental and psychosocial problems. In John Mann's (1998) hypothesized stress-diathesis model, a combination of factors such as familial and genetic components, childhood experiences, psychosocial support system, availability of lethal suicide methods and other factors were suggested to contribute to suicidal behavior. In this model, two domains interact and affect suicidality; one domain entails any type of life stressors such as psychiatric disorders, medical ailments, adverse life events and early life abuse. The other domain includes susceptibility to suicide that may correspond to why some people decide to end their lives when exposed to stressors whereas others do not. Over the years, many studies have identified numerous risk factors that are thought to increase susceptibility to suicide, such as childhood physical and sexual abuse, family violence, poverty (Fergusson et al. 2000) and low education (Nock et al., 2008), parental psychopathology, previous or family suicide attempts, a history of mood and personality disorders (Turecki et al, 2005), alcohol and substance

abuse, and social distress among others (Bukstein et al. 1993; Brent et al. 1994; Mann, 2003; Lundqvist, Svedin, & Hansson ,2004).

Two most important factors that constitute adult suicidality are suggested to include poor mental health conditions (Beautrais et al., 1996) and early life traumas such as abuse, neglect and violence within the family (Felitti et al., 1998; Hardt et al., 2008).

FAMILIAL AND CLINICAL ASPECTS OF SUICIDE

Although suicide is a multi-determined behaviour, one of the most important factors in the general population is the mental health of the individual. Many published studies concur that the majority of people who die by suicide met criteria for a psychiatric disorder that contributed to their death (Fleischman et al, 2005; Evans, Hawton, and Rodham, 2004; Gould et al, 1998; Kirmayer et al, 1998). Psychological studies have revealed that over 85. % of completed suicides suffered from a psychiatric disorder before their death (Beautrais et al., 1996; Arsenault-Lapierre et al, 2004). Common psychiatric diagnoses among the suicide completers include major depression, schizophrenia, anxiety disorders, substance use disorders, and personality problems varying widely and depending on methodology and diagnostic criteria applied in the studies (Mann, 1998; Isometsa, 2001; Schmidtke et al., 1996). There is also a good line of evidence that patients diagnosed with personality disorders in particular those with borderline and or antisocial personality disorders are a group at higher risk for suicidal behaviour (Brodsky et al., 1997; Isometsa et al., 1996).

Additionally, other paramount correlates of mental distress and suicide are childhood adverse experiences. Countless studies have suggested that antecedents of adult mental disorders and suicidality can be detected in childhood and adolescence experiences. According to Mann (2003) and Mann et al (1999), besides some of the clinical features that increase the risk for suicidal behaviour such as hopelessness or pessimistic traits, comorbidity for substance abuse and alcoholism, aggressive/impulsive traits, the role of parental effects and a history of childhood abuse including neglect, physical and sexual abuse during childhood also pose serious concern.

Notwithstanding many research, the nature, mechanism, types and intensity of childhood adversities affecting later suicidal completion require diligent examination and deeper understanding of the mediators and moderators of pathways from childhood trauma to later suicidality. In clinical settings, knowing the childhood history of the patient and measurements of any type of severe adversities such as abuse and neglect are important to consider in conjunction with the psychiatric diagnoses when assessing a person's risk of suicide. In research, it is also helpful to have lucid and concise definition of the variables and objective measurements that can explain both correlates of childhood victimizations and suicidal behaviour.

However, despite the prevalence of mental disorders among the majority of suicides, many individuals with a psychiatric problem do not have childhood traumas and do not experience suicidal behaviour. In addition, many suicidal people do not meet criteria for psychiatric diagnoses. But, there may be developmental antecedents that may be directly related to and determine an

individual's suicidality. In this study, we investigate the link between severe childhood experiences and later suicide completion.

THE TOLL OF CHILDHOOD ABUSE AND NEGLECT

Childhood maltreatment is regarded as an emerging global health concern with a serious impact on the victims' physical and mental health, well-being and development throughout their lives – and, by extension, on society in general (Butchart and Harvey, 2006). Child abuse and neglect represent a challenge for the next millennium (WHO, 1999) and has to be addressed in both developed and developing countries. Surveys of child sexual abuse in large nonclinical populations of adults in 19 countries including the United States and Canada have found females to be abused at 1½ to 3 times the rate for males, and in addition, rates in line with comparable North American research, ranging from 7% to 36% for women and 3% to 29% for men (Finkelhor, 1994). World Health Organization (WHO, 1999) estimated that that 40'000'000 children aged 0-14 around the world suffer from abuse, violence, and neglect and require health and social care. In practice, 80% or more of maltreatment is inflicted by parents or parental guardians (Gilbert et al., 2009). Every year millions of children are victims of family abuse and neglect. Some international studies have shown that, depending on the country, between a quarter and a half of all children report severe and frequent physical abuse, neglected or sexually molested in their family of origin. Studies from around the world also show that approximately 20% of women and 5%–10% of men report having been sexually abused as children (Butchart, 2006). Abused children suffer a wide variety of physical, emotional and developmental

problems which can impede their ability to live healthy and productive lives. In addition to health consequences, abused children have difficulty in school, problems with substance abuse and problems with the law. The burden of ill health caused by injury is staggering in terms of cost and socio-economic development. One study from the United States, for example, revealed that the costs for 2 million child abuse victims were US\$12.4 billion for one year. To build a healthy society, personal well-being and health of the child must be the primary focus of the international community.

Furthermore, childhood traumas may represent potential risk factors for suicide completion. Both retrospective and prospective studies confirm childhood maltreatment as a substantial correlate of adult suicide (Brown et al., 1999; Johnson et al., 2002; Silverman et al., 1996). Childhood abusive experiences in the family of origin are postulated to be among the great environmental burdens of suicidal individuals. Emerging research on early childhood maltreatment suggest an association between childhood abuse, later psychopathology and/or suicidal behaviour.

Recent epidemiological data reported a worldwide prevalence of child abuse and adolescent mental disorders of approximately 20% (World Health Report, 2001). A survey conducted in a random sample of 51 child welfare service areas across Canada from 1998 to 2003, revealed a national sample of 7,672 child maltreatment investigations, and primary reasons for investigation included neglect 38%, physical abuse 23%, psychological or emotional abuse 23%, and sexual abuse 9% (Trocme et al., 2005). Rates of investigated and substantiated maltreatment were lower in Canada compared to the United

States, but were higher than rates reported in Australia (Trocmé et al, 2003).

Noticeably, mental health researchers and professionals are giving more attention to the role of childhood traumas such as sexual or physical abuse or neglect in histories of clients and their effects on psychopathology and suicidality (Akyuz et al., 2005).

DEFINING CHLDHOOD ADVERSITIES

Child adversities encompass a wide range of difficult and severe negative experiences in early life development. Child adversities are known risk factors for ill-health, psychosocial morbidities and in some cases it may lead to early death by suicide. Among child adversities, child maltreatment is the most common cause of adult psychopathology and suicidality, and it is defined as any acts of commission or omission by a parent or care giver that result in harm, susceptibility to harm, or threat of harm to a child under age 18, even if harm is not the intended result. Four major types of child maltreatment encompass sexual abuse, physical abuse, psychological or emotional abuse, neglect and witnessing and experiencing partner or family violence and severe discord (Gilbert e al., 2009). According to WHO (1999) child maltreatment constitute “all forms of physical and or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child’s health, survival, development or dignity in the context of a relationship of responsibility, trust or power.” In addition, children who are exposed to one form of maltreatment often experience other types of abuse once or continuously as for some children, maltreatment becomes a

chronic condition, not an event (Gilbert et al., 2009). For example, Banyard, Williams, & Siegel (2001) found that women with an experience of childhood sexual abuse reported a lifetime history of more exposure to various traumas and higher prevalence of mental health symptoms. Abuse in the family often occurs in conjunction with other types of maltreatments and adverse experiences.

In this current study, however, we examined four specific types of childhood adversities (defined individually in the measurement section) including sexual abuse, physical abuse, parental neglect or indifference, and family discord as described and used in Childhood Experience of Care and Abuse scale (Bifulco, 1994). In the following section, we will review the related literature on various childhood adverse experiences including sexual and physical abuse, neglect and family violence or discord on possible mental health conditions and more specifically later suicidality.

FAMILY AND CHILDHOOD TRAUMATIC EXPERINCES

During early life development, family has the most important impact on the health and adjustment patterns of a person's journey to adulthood (Armstrong and Kelly, 2008). The number of traumas and loss experiences encountered in early childhood predict poor adult self-functioning (Liem & Boudewyn, 1999). Repetti et al., (2002) illustrated childhood family environments to represent vital links for understanding mental and physical health and suicidal acts across the life span. A study of international adoptees indicated that severe early adversities within the home environment increased

the risk of adult psychopathology (Van der Vegt et al., 2009). Research consistently suggests that families characterized by family conflict, negligence of child's important needs, severe recurrent episodes of anger and aggression and other abusive behaviours will jeopardize the child's health and wellbeing. A cohort study of young people in New Zealand reported a relationship between exposure to interparental violence in childhood and rates of psychosocial adjustment problems, mental health complications and substance use related disorders in later life (Fergusson and Horwood,1998).

Respectively, Lu and others (2008) studied 254 adults with major mood disorders and found that increased exposure to childhood adverse experiences such as witnessing family violence, being physically or sexually abused was related to high-risk behaviors, diagnosis of a substance use disorder, psychiatric problems, number of suicide attempts, and diagnosis of posttraumatic stress disorder. Lundqvist, Svedin, & Hansson (2004) similarly noticed women with histories of childhood abuse to manifest more psychiatric conditions such as depression, anxiety, self-destructive behaviours and suicide attempts.

Growing body of research describes the effects of childhood maltreatment and traumas on the development of adult psychiatric complications and suicidality (Arnow, 2004; Anda et al, 2005; Saleptsi et al., 2005; MacMillan and Munn, 2001;Kaplan, 1999). A range of investigations suggest that childhood adverse experiences within the context of home can lead to a variety of negative health outcomes, including substance abuse, depressive disorders, and attempted suicide among adults (Dube et al., 2001). Many early life traumatic experiences in the family are recognized to induce significant

impact on individual's psychological health in adulthood. For instance, Bandelow et al., (2004) did a retrospective study of 50 patients with social anxiety disorder and suicidal tendencies and 120 healthy controls and found among the patients a higher frequency of traumatic childhood experiences including parental discord, sexual abuse, familial violence, childhood illness, and higher rates of anxiety disorders, depression, and suicidality in their families than controls.

Maltreatment and negative experiences in early life may develop not only neurobiological brain damages (Rick & Douglas, 2007) and physical problems but also psychiatric conditions such as chronic depression and anxiety, conduct and bonding problems, personality disorders and suicidal behaviors. Various studies reported rates of child abuse in adult psychiatric patients to be staggeringly higher in patients with suicidality, anxiety disorders, and substance use disorders (Windle et al 1995; Kaufman & Charney, 1999). Likewise, Carballo et al., (2008) found a relationship between history of childhood abuse, borderline disorder and suicidal attempts among 168 Borderline patients. Experiences of maltreating behaviors, especially sexual and psychological abuse in childhood, were also linked to both trauma symptomatology and lack of self-worth in adulthood (Higgins and McCabe, 2000a; Brand et al., 1996; Briere and Runtz, 1988). The study by Langeland, Draijer, & Van den Brink (2004) identified childhood abuse (sexual and physical) in the family as an important factor in understanding and treating alcoholics, especially regarding comorbid psychiatric conditions and suicidality. Also, a review of the past 10 years research on child abuse and neglect and mental health outcomes have evinced

an association between abuse in childhood and risk for suicidal behaviour as well as psychiatric disorders such as anxiety disorders, substance related disorders, depression and personality disorders later in life (Kaplan, 1999). Childhood sexual abuse and physical molestation in the family as attested by abundant literature are amongst the most important childhood traumas and as precursor to psychiatric disorders and suicide in adulthood. For instance, a cross-sectional study of women with a history of childhood sexual abuse (Katerndahl, Burge, & Kellogg, 2005) identified abuse characteristics and the family environment during childhood to associate with development of borderline personality disorder, substance abuse, major depressive episode, suicidality and panic disorder. In a similar manner, another study (Brezo et al., 2008) demonstrated that individuals who were abused by a close family member in their childhood had higher rates of suicidal behaviour and mental health problems.

In an investigation of the relationship between childhood sexual abuse and later depression and suicidality, 16% of male (n=28) and 24% of female participants (n=63) from a college sample reported having been sexually abused as children. In this same study, the presence, severity, frequency, and duration of CSA predicted depression, chronic self-destructive ideation and acts, suicide ideation, and suicide attempts, for both men and women. Duran and co-researchers (2004) conducted a cross-sectional study of 234 American Indian women in an outpatient health centre and found approximately three-quarters of respondents (76.5%; 95% CI=70.4, 81.7) reporting some type of childhood abuse or neglect; over 40% reported exposure to severe maltreatment. Severity

of child maltreatment was linked in a dose response manner to lifetime diagnosis of mental disorders such as PTSD (prevalence ratio [PR] =3.9; 95% CI=1.9, 8.0); substance use disorders (PR=2.3; 95% CI=1.6, 3.3); mood disorders (PR=2.1; 95% CI=1.4, 3.2); and with two or more disorders (PR=2.3; 95% CI=1.6, 3.4). To give more evidence to the effects of childhood abuse in the family, in a large twin study, Nelson and colleagues (2002) found that individuals reporting a history of CSA had increased risk for subsequently occurring adverse outcomes of depression, suicide attempt, conduct disorder, alcohol and/or nicotine dependence, and social anxiety. Experiencing childhood sexual abuse was also important correlates of psychiatric and suicidal conditions among the Chinese students in four provinces of China. Male and female students with CSA were more depressed and suicidal, and drank alcohol more often, than unaffected adolescents (Chen, Dunne, & Han, 2004 & 2006). It is essential to acknowledge that some of the samples in the literatures consist of patients with major depression or bipolar disorder which are known risk factors for suicide. Most of the research on childhood traumas and suicidal behavior include correlational and retrospective studies often with the overlapping or mediating effects of psychopathology, and thus, the pathway from early life experiences and effects on mental disorders and suicidality is not clear. It is, therefore, important to identify and assess those individuals as childhood abuse victims who may proceed to die by suicide. In the following sections, we will present a review of existing literature on childhood traumatic histories first in relations only to psychiatric outcomes and second in association to suicidal behavior.

LINK BETWEEN CHILDHOOD ADVERSITIES AND PSYCHOPATHOLOGY

Adverse childhood events may be key etiological factors in adult psychiatric morbidities. Many research findings have suggested an association between traumatic developmental histories and adverse effects on psychological health. For example, Boudewyn and Liem (1995) noted that survivors of childhood sexual abuse reported suffering more from a physical or mental illness ($X^2 = 26.78$; $p < .001$) than their non-abused counterparts. Also in a prospective cohort study, Johnson et al., (1999) found that persons with reports of childhood abuse or neglect were more than 4 times as likely as those who were not abused or neglected to be diagnosed with personality disorders during early adulthood. Stevenson (1999) presented that abused children were at risk of long-term psychological sequelae related to the abuse itself, not merely as a consequence of other associated background factors. Prospective studies of abused children (Calam and colleagues, 1998), longitudinal studies of adolescents and young adults (Brown, Cohen, Johnson, & Smailes, 1999; Silverman, Reinherz, & Giaconia, 1996), retrospective studies of adults (Barker-Collo, 2001) and adult twins (Nelson et al., 2002) all indicate significant disturbance in the psychological functioning of survivors of abuse. Horwitz, Widom, McLaughlin, and White (2001) noted that adults who reported experiences of abuse and neglect as children manifested higher rates of virtually every type of psychopathology including depression, anxiety, drug and alcohol

disorders or heavy drinking (Bensley et al.,1999), personality disorders, and generalized distress.

Association between childhood victimization or trauma and later susceptibility to adult psychopathology was also reported by Widom et al., (2008), Brown et al., (2005), and Nelson et al., (2002). To ascertain the link between childhood abuse and later psychopathology, Bryer et al., (1987), using objective measures, found a high rate of childhood sexual and physical abuse in a sample of 66 female psychiatric inpatients and that childhood abuse experiences were correlated with severity of adult psychiatric symptoms. There is emerging evidence that suggests pathological childhood experiences and childhood experiences of sexual or physical abuse to be as key risk factors for later psychopathology (Wurr and Partridge,1996; Briere et al., 1989) including substance abuse (Wilsnack et al., 1997; Simpson and Miller 2002), personality disorders (Bierer et al., 2003), borderline personality disorder (Zanarini ,1997; Söderberg et al., 2004), major depression and anxiety disorders (Zlotnick et al., 2001; Ross et al., 1996; Yama and colleagues,1993). Physical and sexual abuse in childhood was also associated to adult high depressive symptoms among 206 low-income single mothers (Hall et al., 1993).

In addition, childhood abuse was reported to be an antecedent of substance abuse in clinical samples. In a cross-sectional study of female primary care patients, those reporting childhood physical or sexual abuse were significantly more likely to be abusing drugs or to have a history of alcohol abuse relative to their peers who had not been abused (McCauley et al., 1997). Furthermore, experience of being maltreated in early life was noticed to

strongly predict poor psychological and physical health in adulthood. Anda and colleagues (2005) investigated the impact of child maltreatment on health and emotional well-being. They used the data from the Adverse Childhood Experiences Study in the U.S. which included 17,337 adults and assessed 8 traumatic childhood experiences encompassing abuse, witnessing domestic violence, and serious household dysfunction. They hypothesized a "dose-response" relationship of the ACE score to 18 selected outcomes and to the total number of comorbidity outcomes. The number of ACEs (ACE score) was used as a measure of cumulative childhood stress. At least one ACE was reported by 64% of respondents. Their results based on logistic regression analysis indicated that the risk of every outcome in the affective, somatic, substance abuse, memory, sexual, and aggression-related domains increased in a graded fashion as the ACE score increased ($P < 0.001$). Findings of this study and related research (Draper et al., 2008; Dube et al., 2003) revealed a strong relationship between early adverse events and their effects on physical health as well as psychiatric disorders in adult life. Spataro and others (2004) also examined the association between child sexual abuse in both boys and girls and subsequent treatment for mental disorder using a prospective cohort design. Higher rates of psychiatric treatment during the study period were found in both male and female victims of abuse than general population controls (12.4% v. 3.6%). Bernet and Stein (1999) investigated the relationship of childhood maltreatment to the onset and course of major depression in adulthood among 47 depressed adults and 41 healthy comparing subjects. Patients with depression reported significantly more severe emotional abuse, neglect and physical abuse the

healthy controls. Depressed patients with childhood trauma also manifested greater mental disorder comorbidities (2.9 vs. 1.9) than depressed patient with no childhood trauma history. Adams, (2002) reported childhood physical abuse in the general population to be approximately 15%, with childhood sexual abuse estimated at 20%–30% for females and 10%–15% for males. In Barry's (2000) literature review, childhood sexual abuse was suggested to be associated with a number of psychiatric disorders and maladaptive lifestyles in childhood and adulthood. Yama and colleagues (1993) studied 46 women with histories of childhood sexual abuse and a control group of 93 women without such histories and found an association between childhood sexual abuse and the women's symptoms of anxiety and depression. Moreover, a cross-sectional research of 235 depressed outpatients indicated that a history of childhood sexual abuse increased the risk of psychiatric complication in patients with major depression (Zlotnick et al., 2001).

Physical and sexual abuse and neglect in childhood showed manifold mental health outcomes for the young victims (Barth, 2006). Gladstone and colleagues (1999) studied depressed patients (269 inpatients and outpatients) who had and had not been exposed to childhood sexual abuse. Forty-six of the patients reported childhood sexual abuse; the patients who experienced abuse showed higher depression; more self-destructive behavior; more personality dysfunction in particular borderline personality characteristics; and more overall adversity in their childhood environment but mediated by other family environmental factors. In Gold's study (1986), the association between childhood sexual abuse experience and adult functioning was assessed among

one hundred and three adult women with abuse history and 88 female controls with no abuse history. Significant difference was observed between victimized women and non-victims in regards to childhood family experiences and level of depression and psychological distress among the others.

Empirical studies and clinical vignettes have also provided evidence of the deleterious physical and psychological effects of childhood maltreatment. In a clinical review, Ammerman et al., (1986) explored the literature on the functioning of abused and neglected children in four areas of physical health, cognitive, emotional regulation and psychopathology and social development. Maltreated children showed deficits in cognitive and academic performance and exhibited a variety of internalizing and externalizing disorders, such as depression, anxiety, conduct problems, social withdrawal, self-harm behaviors and somatic symptomatology and dysfunctions. Cohen et al., (2002) assessed the mental health conditions of participants from early childhood to adulthood in victims of childhood abuse and neglect in a general population. Relative to the normative sample, the abused groups (sexual or physical abuse and neglect) showed elevated rates of mental disorders and symptoms.

The findings of a recent publication of a 25-year longitudinal investigation, data from a birth cohort of over 1,000 New Zealand young adults reported that exposure to childhood sexual and physical abuse was associated with increased risks of later mental disorders including depression, anxiety disorder, conduct/anti-social personality disorder, substance dependence, suicidal ideation, and suicide attempts at ages 16–25 (Fergusson, Boden, & Horwood, 2008). Dervic et al., (2006) compared suicide attempters and non-

attempters among the sample of 119 depressed inpatients who reported childhood physical or sexual abuse or both before age 15 years. 37.8% subjects reported childhood physical abuse, 31.9% sexual abuse, and 20.2% both physical and sexual abuse in childhood. Among the depressed individuals who reported childhood abuse, 76.5% had major depressive diagnoses or 23.5% with bipolar disorders.

Having been physically abused as a child was shown to be associated with numerous adverse behavioral and psychological consequences in particular chronic depression and suicide attempts. For example, Analysis of questionnaire responses of 280 women in the study by Carlin (1994) found that the proportion of women (83%) who experienced depression during their lifetime was highest among those who defined themselves as abused in childhood. Abuse in all its dimensions is harmful and creates enormous problems for those affected by it. The analyses of a sample of women (N = 3,936) by Schneider and colleagues (2007) indicated that child sexual, physical, and emotional abuse were independently associated with increased risk for mental health problems. Exposure and a history of multiple types of victimization during and over a child's life-course represent a substantial source of mental health risks (Turner et al., 2006; Dube et al., 2002 & 2003; Gilbert et al., 2009). Manion and Wilson (1995) found a strong association between childhood maltreatment and later behavioral problems and suicidal ideation for adolescents with histories of multiple victimization than for those exposed to single forms of maltreatment. In a descriptive study of the prevalence of childhood trauma and maltreatment antecedents among 111 criminal offenders both males and females, Armstrong

and Kelly (2008) found that most subjects (70%) reported a history of multiple types of childhood trauma or maltreatment. Findings of this study attested that early childhood trauma and abuse to be significant precursors to individuals' adult antisocial patterns and psychopathology. Additionally, Higgins and McCabe (2000b) suggested that childhood maltreatments occur in combination and are strongly interrelated. If an adult experienced one type of maltreatment during childhood, it is also likely that he or she experienced other types.

Edwards et al.,(2003) also used the data from the adverse Childhood Experiences Study to examine the relationship Between Multiple Forms of Childhood Maltreatment and Adult Mental Health in Community Respondents(n=8,667). Various combinations of childhood maltreatment types included physical abuse, sexual abuse, and witnessing of maternal battering. The prevalence of sexual abuse, physical abuse, and witnessing of maternal violence were 21.6%, 20.6%, and 14.0%, respectively. Among respondents reporting any of the maltreatment types, 34.6% reported more than one type of maltreatment. Emotionally abusive family environment and the interaction of an emotionally abusive family environment with the various maltreatment types had a significant effect on mental health scores.

In addition, children who live in dysfunctional families such as parental conflict and violence may experience other types of maltreatment and be at greater risk for psychiatric disorders and suicidal acts. There is ample research literature that overt conflict, discord and aggression in the family are associated both cross-sectionally and prospectively with an increased risk for a wide variety of emotional and behavioral problems in children, including conduct

disorder, delinquency and antisocial behavior, anxiety, depression, and suicide (Emery, 1983; Grych & Fincham, 1990; Kaslow, Deering, & Racusia, 1994; Reid & Crisafulli, 1990; Wagner, 1997).

Moreover, each type and characteristics of childhood trauma may have different effects on different individuals. In a large project in which data was collected from a National comorbidity survey on the occurrence of mental disorders and associated variables in the U.S. adults, the effects of childhood physical abuse and sexual abuse on later suicidal behaviour were relatively pronounced and exceeded effects for other forms of abuse. There is also evidence that more severe and painful sexual abuse, i.e., forced abuse, are more associated with suicidality than less painful forms (Mullen et al, 1993 and Stepakoff, 1998). Among the childhood adversities and their association with psychiatric disorders and suicidal behaviour, the most studied are the clinical sequela of sexual and physical abuse, and the least studied are parental neglect and family violence. Child physical abuse and neglect and familial conflicts also warrant clinical and empirical attention because of the risks to children's immediate safety and long-term developmental course and psychological adjustment (Hansen et al., 1999).

Despite numerous research findings on the association between early life events and later psychiatric problems, not all people with abuse and or neglect histories develop mental disorders but their repugnant childhood events may independently affect their suicidality. Various reviews have noted that a third of individuals who have experienced sexual abuse did not manifest adult psychiatric problems (Collishaw et al., 2007; McGloin and Widom, 2001;

Fergusson & Mullen, 1999; Stevenson, 1999). Even though child abuse is reported to be a serious risk for long-term adult mental health in profound ways, not all who are abused in childhood will develop psychiatric morbidities.

LINK BETWEEN CHILDHOOD MALTREATMENT AND LATER SUICIDALITY

It is apparent that traumatic experiences and lack of proper care in childhood play a crucial role in a person's later suicidality. Child maltreatment and suicide are both complex phenomena and form significant proportions of global burden of disease (WHO, 1999). Thus, child abuse and neglect and suicidal behavior pose serious social and health concerns worldwide. The quality of the parent-child relationship and home environment are important factors in suicide and suicidal behavior (Wagner, Cole, & Schwartzman, 1995). A range of literature attests that individuals who have had traumatic childhood experiences to become more predisposed to suicidality in adulthood (Babcock and Tomicic, 2006; Bierer et al, 2003). In an evaluation of the population-attributable risk of suicidal ideation in a community sample, 38% of the risk for suicidal ideation was attributed to exposure to traumatic events during young ages (Goldney et al., 2000).

An interpersonal model of suicide developed by Johnson and colleagues (2002) and supported by other research (Hardt et al., 2006) hypothesized that childhood maltreatment and problematic family relationships during childhood contribute to a persistent elevation in risk for suicide during adolescence and adulthood. Despite paucity of empirical research on correlates of suicidal behaviour and specific variable of severe familial discord and tension, there is a

few consistent literature linking family discord and mainly violence in the family with youth suicide and suicide attempts (Asarnow & Carlson, 1988; Brent et al., 1994b; Fergusson & Lynskey, 1995b; Gould et al., 1996; Kerfoot et al., 1996; Kosky, Silburn, & Zubrick, 1990; Reinherz et al., 1995; Gex et al., 1998; Taylor & Stansfeld, 1984). There is growing recognition that family environment, child abuse and neglect, family discord (Shafii et al. 1988; Brent et al. 1993), personality and individual factors, mental health disorders, and other stressful life events contribute to later suicidality (Fergusson et al., 2000; Garrison et al., 1991; Krug et al., 2002). Krarup et al., (1991) also found discordant childhood and negative family environment to predict suicidal behaviour among ninety-nine psychiatric patients.

Neglectful parenting is identified as an independent risk factor for adolescent suicidal ideation and attempts. This is true even after adjusting for other important variables such as the presence of psychiatric disorders (Brown et al, 1999 and Soloff et al, 2000). Database analyses of patients referred to a public hospital Mood Disorders Unit in Sydney, over a consecutive 10-year period revealed that perception of neglectful or rejecting parents was associated with lifetime suicide attempts in females only but not males (Ehnavall et al., 2008). Hardt et al., (2008) conducted a retrospective study of 575 patients of a psychosomatic clinic and general practitioners to examine the link between childhood adversities and suicide attempts in adult life. Results indicated that physical arguments between parents to increase the risk for suicide attempt and multivariate analysis indicated sexual abuse or physical punishment to be predictors of later suicide attempt.

Several research findings have reported a direct relationship between suicidality and childhood adversities after adjusting for psychiatric disorders. For example, Enns et al., (2006) investigated the association between childhood adversities and suicide ideation and attempts in a Netherlands adult population based sample. Among the childhood adversities measured in this same study were also emotional neglect, sexual, physical, and psychological abuse. Various types of childhood abuse emerged as strong predictors of suicidal behaviour and physical abuse, psychological maltreatment and neglect were each strongly associated with suicidal ideation and suicide attempts even after controlling for Axis I disorders and co-morbidity (Jeffrey et al., 2006; Borowsky et al., 1999; Grossman, 1991; Molnar et al., 2001). Similarly, Belik (2008) and colleagues noted that experiencing particular traumatic events, independent of the development of a mental disorder, increased likelihood of suicidal ideation and suicide attempts among American Indians. Correspondingly, there seems to be a direct link between childhood maltreatment and abuse and later suicidality, a link rarely explored. Kaplan and colleagues (1995) explored the relationship between suicidal behaviors and histories of abuse in 251 psychiatric outpatients. Of this total sample, 128 (51%) reported childhood abuse: 84(33%) sexual abuse, 89(35%) physical abuse and 45 subjects (18%) reported a combination of physical and sexual abuse in childhood. The results supported an association between histories of abuse and increased suicidality in psychiatric patients. In a case-control study in which 129 young suicide attempters were contrasted with 153 randomly selected community controls, Beautrais et al., (1996) reported that risks of serious suicide attempt in young people increased with the level of

exposure to childhood traumas(poor parental care and relationship, sexual abuse ($p < .05$), social disadvantages ($p < .0001$),, and psychiatric problems($p < .0001$). Emerging evidence suggest that suicidal tendencies are often a culmination of adverse life course sequences (Beautrais, 2003) that encompass multiple risk factors. Besides genetics, neurobiology, personality and other environmental factors, early life experiences are also substantial in the development of mental disorders and suicide (Joiner, 2005; Makhija,& Sher, 2007; Brodsky and Stanley, 2008). From a psychodynamic and developmental view, the link between childhood abuse or neglect and subsequent suicidal behaviour are explained by three reasons. First, violence may be abused as a coping strategy. The victim of child abuse may use more self-aggression than the person who has not experienced child abuse. Second, self-esteem is shown to be a characteristic of both people with childhood abuse or neglect and suicidal individuals. Third, if people with childhood abuse experiences were removed from their abusive environments and received no supportive and bonding relationships, these individuals may become emotionally and socially disconnected and desire to end their lives(Deykin, Alpert, & McNamarra, 1985). For example, the same authors conducted a pilot study of the effect of exposure to child abuse or neglect on adolescent suicidal behavior among 159 adolescent suicide attempters. The suicide attempters were age and sex matched with two comparison subjects who had been treated for medical conditions unrelated to suicide attempts. Adolescent suicide attempters reported more experiences of family disruption and higher indication of childhood abuse and neglect in their medical history. In general, these findings suggested that young

people exposed to adverse, dysfunctional, or abusive childhood environments to be at significantly greater risk of subsequent suicidal behaviour, and as a result, a life course model of the development of suicidal behaviour in which an individual's risk of suicidal behaviour is determined by his/her accumulative exposure to a wide range of risk factors, spanning social disadvantage, family and childhood adversity, personality, current mental health, and exposure to recent adverse life events (Fergusson et al., 2000; Fergusson and Horwood, 1998).

There is extensive and growing research that attests exposures to a broad range of adverse childhood experiences increase individual vulnerability to suicidal behaviors. A recent study (De Ravello, 2008) of 36 American Indian and Alaska Native incarcerated women revealed the most prevalent adverse childhood experiences to be dysfunctional family (75%), followed by witnessing violence (72%), sexual abuse (53%), physical abuse (42%), and physical neglect (22%). ACE scores were positively associated with lifetime suicide attempt(s) and multiple physical, social, and emotional concerns. Evren and Evren (2006) studied the relationship of suicide attempt history with childhood abuse and neglect in 154 Turkish male substance dependents. Suicide attempters reported higher rates of physical, emotional abuse and neglect. Fergusson et al., (2003) and Fergusson et al., (2000) used data from a 21-year longitudinal study of a birth cohort of 1265 youth in New Zealand to explore predisposing factors to suicidal ideation and attempt. Results of this study found suicidal ideation and attempt to be associated ($P < 0.005$) to a series of family

factors including childhood sexual and physical abuse; interparental violence; quality of parental care and bonding.

Taken together, many psychological autopsy studies, life trajectories and family studies on characteristics and dynamics of the home environment and parent-child relationships and interpersonal family problems have provided consistent and compelling evidence that there is a link between what is experienced in childhood within the family environment and later suicidal behaviour in the offsprings.

A large body of evidence has been accumulated indicating childhood adversities including experiences of sexual abuse and molestation, physical abuse and or parental neglect to associate to adult suicidal acts. Among the childhood adversities that are found to be related to both suicide and suicide attempts are: history of physical and/or sexual abuse in childhood (Beautrais et al., 1996; Briere&Runtz, 1993; Brown et al., 1999; Fergusson et al., 2000; Molnar, Berkman, & Buka, 2001; Silverman, Reinherz, & Giaconia, 1996; Wagner, 1997); neglectful parenting (Beautrais et al., 1996; Brent et al., 1994; Gould et al., 1996; Johnson et al., 2002; Lewinsohn, Rohde, & Seeley, 1993); parental or family discord (Beautrais, Joyce, & Mulder, 1996; Fergusson et al., 2000; Pfeffer et al., 1994; Taylor & Stansfeld, 1984).

However, the most widely studied childhood trauma has been sexual abuse and to a lesser extent physical abuse. It has been well documented that sexual and physical abuse in childhood constitutes vulnerability to suicidal behaviour (Beautrais, 2000), defined as suicidal ideation, making threats, plans, deliberate self-harm, and suicide attempts (Pearce and Martin, 1994). A more

recent meta-analysis, however, confirms the association between all forms of CSA and negative short- and long-term sequelae, including increased suicidality (Paolucci et al., 2001). Cross-sectional studies have found a significantly increased risk of suicide attempts in younger adolescents who report experiences of CSA (Mullen et al., 1996; Riggs et al., 1990). Retrospective studies of adults (Brown et al., 1999; Dube et al., 2001) and longitudinal studies of individuals from birth to 18 and 21 years (Fergusson et al., 1996; Silverman et al., 1996) confirm a greatly increased risk of attempted suicide in those experiencing CSA (odds ratios of 10-11) (Bergen et al., (2003). Brodsky and colleagues (2001) found that depressed adults (n=136) who reported a history of either physical or sexual abuse in childhood were more likely to have made a previous suicide attempt than those who did not report a history of abuse. Of these 136 subjects, 52 (38%) reported a history of physical or sexual abuse before the age of 15 years. In addition, personality factors such as aggressivity and impulsivity did not seem to mediate the link between abuse history and suicidal behaviour. There was significantly strong association between abuse history and suicide attempt status. The same authors have illustrated that studies of university students, patients in primary care settings, and other nonclinical populations have also documented a relationship between abuse history in childhood and suicidal behavior later in life. In a multivariate logistic regression analysis, the risk for a suicidal attempt appeared four times higher for those who had been victims of violence, sexual abuse or neglect in childhood (Christoffersen, Poulsen & Nielsen, 2003). In two studies, Coll, Law and colleagues (1998) found women with a history of sexual abuse in childhood to

be more prone to subsequent deliberate self-harm (self-injury and overdose). In this study 257 female patients participated, of which, 72.0 % reported some form of sexual abuse. Physical and sexual abuse in the family, particularly the latter, was strongly associated with attempted and completed suicide (Borowsky et al., 1999; Brent et al., 1999; Fergusson, Horwood, & Lynskey, 1996; Kosky et al., 1990; Molnar, Berkman, & Buka, 2001; Pfeffer et al., 1994a; Wagner et al., 1995).

Exposure to sexual trauma in childhood was regarded as a substantial key determinant in suicidal ideation and attempt. Data from a study compared adolescent suicide attempters (n=48) with both depressed (n=66) and non-depressed adolescents (n=43) who never attempted suicide with respect to life events that happened in two periods: childhood (defined as the period up to age 12 years) and adolescence (age 12 and older). Indeed, it has been suggested that among depressed adults, a history of physical or sexual abuse increases the likelihood of engaging in suicidal behavior (Brown et al. 1999; Brodsky et al. 2001). Waldrop et al., (2007) studied a national probability sample of 4,023 adolescent ages 12 to 17 and reported sexual and physical abuse to be significantly associated with suicide attempts.

Physical or sexual abuse, especially during childhood, have been shown to be associated with increased risk of suicidal behaviors in a number of populations(McHolm, Macmillan, & Jamieson, 2003; Molnar, Berkman, & Buka, 2001; Brown et al., 1999; Johnson et al., 2002; Fergusson, Hoodward, & Horwood, 2000; Belik et al., 2007; Enns et al., 2006; Afifi et al, 2008; Silverman et al. 1996; Read et al., 2001). To understand better the association

between childhood abuse experiences and later suicidality, Farber, Herbert, & Reviere (1996) examined the data from a retrospective chart review of 309 patients evaluated in a psychiatry obstetrics consultation service. Thirty-four percent reported a history of childhood abuse. Of those, 9% (n = 27) reported physical abuse only, and 14% (n = 41) reported sexual abuse only. Eleven percent (n = 34) reported a history of both physical and sexual abuse. Results revealed that women reporting a history of childhood sexual abuse, physical abuse, or both were significantly more likely than those not reporting a history of abuse to evidence suicidal ideation during the pregnancy. Furthermore, those reporting a history of sexual abuse or both physical and sexual abuse were more likely than those not reporting such a history to have made a suicide attempt in the past at some point prior to the current pregnancy.

The adolescent suicide attempters demonstrated more histories of childhood turmoil in their families and more often sexually abused during their adolescence (DeWilde et al., 1993). McIntyre et al., (2008) did a recent chart review of adult outpatients (N= 381) with DSM-IV-TR-defined bipolar disorder to examine the relationship between child abuse and suicidality. The findings of this study indicated that Eighteen percent (n = 68) of adult patients with bipolar disorder had a recorded history of childhood abuse (p = 0.009). Sixty-three percent (n = 43) of bipolar patients with a history of childhood abuse reported lifetime suicidality (chi² = 6.885, df= 1, p = 0.009). Logistic regression analysis indicated that Childhood abuse was a significant predictor of lifetime suicidality in adult bipolar patients (OR = 2.05, CI = 1.19-3.510). Read et al., (1998 & 2001) studied 200 outpatient files to assess the relationships between being

abused in childhood and later suicidality. In their analyses, child abuse was related to past and present suicidality. Current suicidality was predicted better by child sexual abuse than by a current diagnosis of depression. Clients who reported at least one form of child abuse (CSA or CPA) were more likely to have attempted suicide, $\chi^2(1, N = 200) = 13.45, p < .001$, than those who reported neither form of abuse. Those reporting both forms of abuse (CSA and CPA) were more likely to have attempted suicide than those reporting only one form of abuse or neither, $\chi^2(1, N = 200) = 5.91, p < .05$. In addition, to examine the effects of childhood abuse (sexual and physical) and neglect on depression and suicidality, Brown and colleagues (1999) conducted a prospective study of a cohort of 776 randomly selected children from a mean age of 5 years to adulthood from 1975, 1983, 1986, and 1992 during a 17-year period. They found being abused as a child put an adolescent or adult 3 or 4 times at higher risk of becoming depressed or suicidal compared to those without a history of abuse ($p < .01$). Among the three types of abuse assessed in this study, sexual abuse and to some extent physical abuse showed the greatest risk for depression and suicidal behaviour. Risk of repeated suicidal attempt was 8 times greater in youth with a history of sexual abuse ($OR = 8.40, p < .01$). Bryant and Range (1995) found that women with childhood experiences of sexual and physical abuse were at greater risk for suicide than the non-abused women. Lipschitz et al., (1999) assessed the relationships between adolescent suicidal behaviour including ideation, attempt, and self-mutilation and five types of childhood abuse (physical, sexual, emotional) and neglect (physical and emotional) in seventy-one adolescent inpatients. The results revealed seventy-five percent of

the sample with one form of maltreatment and 51% of the sample had made suicidal attempts. Findings among these sample indicated 37.5 % with sexual abuse and 43.7% with physical abuse. 31.3% reported emotional neglect and 61% reported physical neglect. Suicidal ideation and attempts were more prevalent among female adolescents with history of sexual abuse ($p=.02$) and emotional neglect ($p=.001$).

A history of childhood abuse or neglect is regarded as an important contributing stress-related factor that increases the risk of suicide (Van der Kolk et al. 1991; Gladstone et al. 1999; Dube et al. 2001; Esposito,1997; Esposito and Clum ,2002). One self-report study examined the risk factors for deliberate self-harm among 133 college students. Among some of the risk factors, emotional neglect and or sexual abuse were significant predictors of self-harm (Gratz, Conrad, & Roemer, 2002; Gratz, 2003). In another similar study, Green (1978b) examined three groups of children including abused, neglected and controls (aged 5 to 11) using psychiatric interviews with mothers. Compared to neglected and control children, abused subjects manifested more self-destructive behaviors such as suicide attempts, suicide gestures, and self-mutilation. In a recent study from the US national comorbidity survey replication, Afifi and colleagues (2008) found a positive relationship between experiences of sexual abuse, physical abuse, and witnessing family violence in childhood and poor mental health outcomes and suicidality among men and women. Suicide ideation and attempts were more prevalent among women (16% to 50% respectively) and men (21% and 33%, respectively) with severe childhood experiences than individuals with no abuse history. Akyuz et al., (2005)

investigated the frequency and the link between childhood abuse and neglect and attempted suicide among 628 adult women in general population in Turkey. Sixteen women (2.5%) reported sexual abuse, 56 women (8.9%) physical abuse, and 56 women (8.9%) emotional abuse in childhood. The most commonly reported childhood trauma was neglect (n=132, 33.9%) and the prevalence of suicide attempts was 4.5 % (n=28).

Andover et al., (2007) in a cross-sectional study examined the association between physical and sexual abuse with later single and multiple suicidal attempts. 121 psychiatric inpatient subjects were recruited from a larger longitudinal study for depression. Findings of this same investigation revealed a significant correlation between suicide attempts and histories of sexual abuse ($r=.29$, $p=.005$) and physical abuse ($r=.23$, $p=.03$) in childhood even after controlling for the scores on the Beck Inventory Depression. However, no difference was noticed in reported abuse between single and multiple suicide attempters. Among the suicide attempters, 42.9% reported sexual abuse and 65.7% reported physical abuse. Single and multiple suicide attempters had both types of abuse than non-attempters (33.3%, 34.8%, and 12.1%, respectively). Similarly, in a cross-sectional survey of 892 female students in a Chinese medical school, 25.6% reported having experienced CSA before the age of 16 with serious thoughts of attempting suicide (23.7% vs. 15.4%, $\chi^2(2) = 8.09$, $P = 0.004$) and making a plan to attempt suicide (17.9% vs. 9.7%, $\chi^2(2) = 10.62$, $P = 0.001$) during the 12 months preceding the survey (Chen, Han, & Dunne, 2004).

To investigating the linkages between childhood abuse and later suicide attempts, 30 individuals from a psychiatry inpatient hospital unit were recruited. The findings showed that comorbidity among the three forms of abuse in sample was common. 20.% reported no abuse, 26.7% reported emotional abuse, 6.7% reported sexual abuse and 20.% reported both emotional and physical abuse, 6.7% reported physical and sexual abuse, and 20% reported all three forms of abuse(Gibb et al., 2006).

In addition, women who suffered one, two, or three forms of abuse(sexual, physical or emotional) were proportionately more likely to attempt suicide (Dube et al., 2001), to have had suicidal ideation (Gutierrez et al., 2000), or to repeatedly harmed themselves by overdosing (Xavier et al., 1998). Bergen and co-researchers (2003) carried out a cross-sectional study of 2603 adolescents in an Australian community sample and found sexual abuse to affect healthy functioning (Santa Mina and Gallop, 1998) in adulthood and to be associated with suicidality, both directly and indirectly through hopelessness and depressive symptoms. In another study by Gladstone et al., (2004), the authors used data from depressed women (n= 125) with and without a history of childhood sexual abuse to explore the role of childhood sexual abuse to deliberate self-harm. Women with a childhood sexual abuse history manifested more childhood physical abuse, childhood emotional abuse, and parental conflict in the home, compared to women without a childhood sexual abuse history. The two groups were similar in severity of depression, but the women with a childhood sexual abuse history were more likely to have attempted

suicide: Path analysis confirmed the effect of childhood sexual abuse to suicidal behaviour and self harm acts.

The impact of exposure to multi- abuse types on suicide attempts has also been examined. Anderson et al., (2002) studied the association between exposure to multiple childhood abuse (emotional, physical, and sexual) and adult suicidal behaviour in a sample of 360 low-income African-American. Results of the Logistic regression revealed a positive relationship between number of types of abuse experienced in childhood and later suicide attempt. 34.% suicide attempters and 66.% non-attempters reported no childhood abuse.; one types of abuse,52% versus 48%; two types of abuse,57% versus 43%; and three forms of abuse,82% versus18%. . Additionally, women with one or two types of abuse reported statistically lower prevalence of suicide attempt than women with three or more forms of childhood abuse. Each type of abuse was significantly correlated with making a suicide attempt: emotional abuse $r(360)=.34$, $p<.0001$; physical abuse $r(360)=.25$, $p<.0001$; sexual abuse $r(360)=.22$, $P,.0001$. The risk of suicidal attempt appeared to be higher (54%) in women who had experienced some forms of childhood abuse and 49% of those who were abused during childhood experienced more than one type of abuse.

In a recent cross-sectional research by Larrivee, Tourigny, & Bouchard (2007), the authors examined whether childhood physical abuse occurred alone or co-occurred with other types in maltreatment in childhood. The data for this study were taken from the Quebec Incidence Study (QIS), which examined 4,929 reports investigated by Quebec CPS in the fall of 1998. The cases

included 514 children who were physically abused: 269 of them were not subjected to any other type of maltreatment and 245 were also victims of one or two other forms of maltreatment. Childhood physical abuse had important role in adolescents who died by suicide when matched with a control group (Brent et al, 1994).A research of over 3,000 female adolescent twins suggested that childhood physical abuse was one of the factors most correlated to a history of attempting suicide (Glowinski et al, 2001).

With all the findings and literature garnered from numerous studies on clinical effects and correlates of childhood traumas and suicide, there are still some unclear areas and aspects to be addressed. Most of the research for the association of childhood traumas and suicide has concentrated on sexual or physical abuse and later psychopathology, suicidal ideation or attempts. Little attention is given to the link between various childhood adversities and adult suicide completion, and therefore, more systematic research is required to enhance our understanding of this topic and to provide us with better perspectives in research, clinical practices and public awareness.

SUMMARY

In conclusion, there is copious evidence linking suicide to early life events and in particular the role of childhood abuse and neglect within the context of family or caregivers. Abuse in childhood can lead to behavioral, physical, and psychological problems in childhood that continue throughout adult life. Yet, there are many intriguing dimensions of the relationship that are questionable and ambiguous and deserve further investigation. In clinical

studies, there is new evidence that the sequela of child abuse and dysfunction of the family in early life include substantial increases in substance abuse, depression, and suicide among the others (McEwen, 2003). The period of childhood years and negative events experienced during these years are among the most significant antecedents of various mental health and behavioral problems later in adult life (McEwen, 2003; Molnar, Buka, & Kessler, 2001). Current knowledge on the specific risk factors associated to suicide completion is not conclusive. Further research is needed for understanding e.g. the mediating mechanisms of family related risk factors, and the role or types of childhood traumatic experiences (Marttunen, Aro, & Lönnqvist, (1993). Our study examine the relationship between childhood adversities and later act of suicide completion. We also report the forms and frequency of childhood traumas among the suicide completers. We are proposing that certain early life experiences such as parental neglect, family discord, sexual or physical abuse may leave many individuals vulnerable to suicide completion.

RATIONALE

Extensive amount of evidence has attested and given support to the association between childhood adverse events and later effects on mental health and suicidal behaviour. However, many aspects of this association remain unclear and many questions are to be investigated. In order to expand our understanding of the correlates of suicidal behaviour, it is necessary to examine the effects of various early life events and later mental disorders and symptoms including suicidality. Traumatic events may increase the probability of

psychiatric disorders (Kaplow et al., 2005), and psychiatric disorders may affect suicidality (Borges et al., 2006a; Kessler, Borges, & Walters, 1999; Nock & Kessler, 2006); hence the relationship between traumatic events and suicidality may be a function of these relationships. An important first step in understanding how and why traumatic events and suicidality are related is to understand the extent to which this relationship remains after taking into account the presence and accumulation of psychiatric disorders and other known risk factors (Salzinger et al., 2007). If a relationship exists after accounting for psychiatric disorders, a next step is to begin to understand what more specific factors might play a role in this relationship (Borges et al., 2008). To date, very few studies have investigated the relationship between childhood abuse and neglect and suicidal acts within the group of suicide completers. The purpose of current investigation was to assess this relationship. We have posed a number of questions about the link between childhood abuse and neglect, later suicidal completion, and correlates of psychopathology as the basis for our investigation. The findings of this clinical study are presented in chapter 2. Our first question concerns the notion of whether childhood abuse link to later suicidal outcomes. This question generated whether there is a direct association between having experienced childhood maltreatment and later suicidal completion without necessarily the mediating effects of psychiatric diagnoses. The novelty of our study is that it investigates the correlates of childhood abuse and neglect among the suicide completers rather than suicide ideators or attempters, the focused population in other research studies.

Other questions pertain to types and frequency of early negative life events and their association with psychiatric problems. Whereas considerable evidence convey a relationship between childhood sexual and to lesser extent physical abuse and later psychopathology in adulthood, a few studies have included and examined other forms of traumas in childhood. Another valuable contribution of this study is that it has assessed four types of childhood maltreatment including severe family discord, parental neglect, sexual abuse and physical abuse among the suicide completers.

In spite of clinical and societal concern and research interest, there have been few studies of the relationship between traumatic experiences in childhood and suicidal completion in later life. Most studies in this area have only examined the role of childhood experiences such as physical and sexual abuse with later psychopathology and or suicidal ideation and attempts.

Hence, there is a paucity of research in addressing the association between different types of abuse in childhood and later suicidal completion. In our study, we first examined the association between a history of childhood maltreatment and later suicidal completion and second we explored the severe types as well as frequency of childhood maltreatment and psychopathology among adult suicide completers.

HYPOTHESES

In the present study we hypothesized an association between childhood maltreatment (sexual, physical abuse, parental neglect, family discord) and suicide completion. Second, we aimed to describe the prevalence of different

types of childhood traumas in a sample of suicide completion. Based on previous findings among suicide attempters, we expected that high levels of sexual abuse would be found.

RESEARCH OBJECTIVES

This study first assessed the relationship of childhood abuse and suicide completion. With the second sample, we examined suicide completers with childhood physical or sexual abuse, childhood experiences of severe family discord or parental neglect as well as having experienced more than two types of abuse with individuals who did not have any history of childhood adversities. We were interested in examining proportion of suicides that associated with childhood abuse directly. Also, we explored types and frequency of childhood maltreatment among the adult suicide completers.

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Chapter 2

CHILDHOOD ADVERSITIES AS ANTECEDENTS OF SUICIDE COMPLETION

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Preface

The evidence from numerous studies has demonstrated childhood traumatic experiences as salient risk factors for psychopathology and suicidal behaviour. Yet, not many research groups studying suicide have investigated directly the relationships between childhood experiences and suicide among the suicide completers. There appears a gray area in our understanding of whether suicide is directly related to adverse childhood history or do early traumatic life events predispose the individual to poor mental health affecting suicidality among the suicide completers. Studying this relationship may prove useful in assessing future suicide risk in high risk groups with psychiatric problems and childhood adversities. However, not all suicide completers suffer psychopathology or have experienced childhood adversities. In this chapter, as the title suggests, we aimed to examine the relationship between adverse childhood events and suicide completion in an attempt to better understand and characterize the underlying risk contributors to suicide.

Abstract

Background: research to date has demonstrated an association between childhood abuse and suicide attempts, but this relationship has remained largely unexamined for completed acts of suicide.

Objectives: we used a case-control design to examine the association between childhood abuse and suicide completion in adults, and to explore the prevalence of various types of childhood maltreatment.

Method: A structured psychological autopsy method with best informants was used to investigate two different samples (first sample: N=422; second sample: N= 94). Measurements included in the psychological autopsy interviews were socio-demographic, SCID I and II interviews and CECA assessments.

Results: As we hypothesised, our findings suggested an association between childhood maltreatment and suicide completion ($\chi^2 = 5.545, P < .019$). For the first sample, childhood abuse was present in 41.4% of suicide completers (N=174), 29.3% of the psychiatric controls (N=174), and 6.8% of the community controls (N=74). In our second sample of 94 suicide completers, childhood abuse was present in 38.3 % (N=36). Childhood maltreatments observed in this study include sexual or physical abuse in 10 (10.6) subjects, parental neglect or family discord in 20 (21.3) subjects, and those with more than two types of abuse totalled 6 (6.4) subjects.

Conclusions: Our findings suggest an association between childhood abuse and completed suicide in adulthood. Our results are also consistent with previous studies that demonstrated abuse, neglect, and severe family discord in childhood are regarded as important familial and environmental risk factors for suicide completion.

Limitations: This study was a retrospective case study and carried out using proxy-based interviews.

Key Words: suicide, childhood maltreatment, abuse and neglect, family discord, psychopathology

Introduction

Suicide and childhood maltreatment represent pressing health and social concerns on a global scale, being widely present in many societies. The association of adverse childhood events and mental health disorders during adulthood has been consistently demonstrated (Armstrong and Kelly, 2008). Several lines of evidence suggest that physical abuse, sexual abuse, and neglect are clear risk factors for development of psychopathology, mental disorders, personality disorders, behavioural problems and suicidality. Moreover, a variety of social difficulties in adulthood are associated with childhood adversities (Mann, 2003; Turecki, 2001; Zouk et al., 2007; Enns et al., 2006; Bandelow et al., 2004; Brent et al., 2004; Brodsky et al., 2008; Barth, 2006; Adams, 2002; Beautrais et al., 1996). More specifically, sexual abuse during childhood appeared to be a risk factor for emotional and behavioral problems (Garnefski & Diekstra, 1997) such as suicidal thoughts and behaviour (OD = 4.23, $p < .040$), depression (OR=8.40, $p < .01$; OR=5.79, $p = .04$), anxiety (OR=2.20; OR=2.01), low self-esteem ($t=2.77$, $d.f.=3.20$, $P=0.006$), substance abuse (OR = 7.75, $p = .02$), aggression (OR= .41, 95% CI 1.08–1.83), and antisocial behaviour (OR= 3.7) later in life (Briere and Runtz, 1986; Plunkett et al., 2001; Van der Veget et al., 2009; Macmillan et al., 2001; Romans et al., 1996; Berzo et al., 2008; Bensley et al., 1999; Green, 1993). Similarly, a review of the long-term effects of childhood physical abuse suggested physical abuse to be related to a wide range of consequences such as depression, self-injurious and suicidal behaviors, anxiety, and dissociation in women (Thakkar et al., 2000; Malinosky-Rummell & Hansen, 1993).

Notwithstanding clinical and societal concern and previous research demonstrating a connection between childhood abuse and suicide ideation and attempts (Glowinski et al., 2001; Roy, 2003), there is a dearth of empirical literature on the influence of various childhood maltreatments on suicide completion. Thus, it is important to investigate further the relationship between an individual's childhood experiences and later effects involved in suicide completion, without the mediating role of mental disorders. A majority of studies and many clinical literature reviews have suggested an association between childhood sexual and or physical abuse and later self harm and suicidality in adulthood (Santa Mina & Gallop, 1998; Thompson et al., 2000; Briere (1984). Among female college students, Thakkar et al., (2000) observed physical abuse and sexual abuse to account for variance in current suicidal ideation. Briere and Runtz (1986, 1988) found that suicidal women at time of intake were more likely to have had a history of sexual

abuse (35.6%) than were non-suicidal intakes (22.6%), $X^2(1) = 4.23, p < .040$. A study by Wiederman et al., (1998) also corroborated that women who had experienced early life sexual or physical abuse – and, to a lesser extent, emotional abuse and witnessing of family violence showed higher rates of suicide attempts. There are also compelling findings that parental neglect (Gilbert et al., 2009) and family discord (Kashani et al., 1988; Wagner, 1997) are linked to youth and adult suicide attempts (Asarnow and Carlson, 1988; Brent et al., 1994b; Fergusson and Lynskey, 1995b; Gould et al., 1996; Kerfoot et al., 1996; Kosky, Silburn and Zubrick, 1990; Reinherz et al., 1995; Gex et al., 1998; Taylor and Stansfeld, 1984).

Many studies, as well as most large-scale epidemiological studies, of childhood traumas have examined the outcome effects of sexual and or physical abuse only among suicide ideators and attempters (Brown, Cohen, Johnson and Salzinger, 1998; Finkelhor, Hotaling, Lewis and Smith, 1990; MacMillan et al., 1997; Vogeltanz et al., 1999). Recent studies by Borges et al., (2008) and Waldrop and colleagues (2007) have supported the view that traumatic events in childhood increase the odds of suicidal ideation, planning and attempting. It is important to note that characteristics and factors linked to suicidal behaviour differ from those for suicide attempters and suicide completers (Dumais et al., 2005; Innamorati et al., 2008). For example, Michel (1987) found that, between suicide attempters and completers, circumstances preceding suicide and depressive symptomatology were more severe in completed suicides. The need for systematic information is greater concerning completers since the impossibility of direct assessment poses a singular methodological challenge (Brent, 1989; Conwell et al., 1996). Thus, the issue of childhood maltreatment and developmental sequela towards suicide completion merits highest research priority.

The uniqueness of the present study is its use of psychological autopsy methodology to explore associated risk factors in completed suicides. Psychological autopsy is a well-known and well-established method of retrospectively examining and reconstructing the life history, behavior, and social and psychiatric features of the deceased person, as well as the events preceding the suicide. It is based in proxy-based interviews with family members and key persons who knew the deceased person (Sourander et al., 2009; Shafii et al., 1985). Studies assessing the effectiveness and validity of the psychological autopsy technique support its reliability and validity, with estimates of concordance between direct clinical assessment and psychological

autopsy varying between 0.8 and 0.9 (Kelly and Mann, 1996; Conner et al., 2001; Brent et al., 2003; Cavanagh, 2003; Isometsa, 2001; Kim et al.,2005; Zouk et al., 2006;McGirr et al., 2007). Ample evidence attests that the majority of suicides are preceded by or linked to a history of psychiatric disorders (Nock et al, 2008; Zouk et al., 2006;Portzky et al., 2005; Suokas et al., 2001;Mann et al.,1999; Renaud et al., 1999; Nakagawa ,2009). Several studies have also confirmed the association between childhood exposure to a harmful environment and to different types of abuse and later psychiatric complications (Seguin et al., 2007; Higgins and McCabe (2000a; Winde et al., 1995). For instance, Chen et al., (2004) reported an association between childhood sexual abuse and high prevalence of depression, alcohol drinking and self-injurious behaviours among female Chinese students.

Even though there may be a developmental link extending from negative childhood events to mental health problems and to suicidal behaviour (Van der Kolk et al.,1991;Lu et al., 2008; Lipschitz et al., 1999; Manion and Wilson ,1995; McHolm, et al., 2003; Makhija and Sher, 2007;), it is not clear whether this association is necessarily mediated by psychopathology. Yet data is scarce concerning the relationship between childhood maltreatment and suicide completion.

In the present study we hypothesized that childhood maltreatment (sexual and/or physical abuse, parental neglect, family discord) has a direct association with adult suicide completion that is not dependent upon the effects of psychopathology. Based on previous findings among suicide attempters, we expected that high levels of sexual abuse would be found among suicide completers. Moreover, we set out to explore the prevalence of different types of childhood traumas in a sample of adult completed suicides.

METHODS

Study Samples

The current sample consisted of two different samples from the Greater Montreal area. The first group was made up of 422 Caucasian subjects including sub-groups of individuals who died by suicide (174) and two different comparable sub-groups of control subjects (174 living psychiatric outpatients matched with suicide completers by age and gender, and 74 living community controls). The second sample consisted of a different sample of 94 Caucasian subjects who met criteria for CECA and had died by suicide. To recruit participants, a trained research coordinator and clinical interviewer first contacted families of suicide victims at the

Montreal central morgue and then re-contacted them approximately four months following the death. Our control subjects included psychiatric outpatients referred to Douglas Mental Health University Institute and community controls who were recruited through a community advertisement inviting participation in our research. If participants agreed to take part in the study, a trained interviewer would contact them and their family members to conduct a telephone screening questionnaire and to ensure that subjects met the study criteria, including current and past Axis I and II disorders and history of suicidal behaviour but excluding Psychotic diagnoses and symptoms due to physical illness. This study was approved by the ethics board of the Douglas Mental Health University Institute and participants signed informed consents. For our second sample of 94 suicide completers, the recruitment and interview criteria were the same as our first sample of suicide completers. However, these 94 subjects were assessed in greater depth regarding childhood abuse with the CECA.

Instruments and assessments

Proxy-Based Assessments

We used a psychological autopsy or proxy-based interviews for all groups. This is a well-validated diagnostic technique, with estimates of concordance between direct clinical assessment and psychological autopsy ranging between 0.8 and 0.9 (Kelly et al., 1996; Conner et al., 2001). This methodology was used to obtain diagnoses and other phenotypic information by means of interviews with proxies (Brent et al., 1993; Kelly and Mann 1996; Conner et al., 2001a; Conner et al., 2001b; Zhang et al., 2003). Proxy-based interviews involve at least two people best acquainted with the subject serving as informants. For the present study, informants included spouse, parent, sibling, child, and friend, with suicides being more likely to have a first-degree relative serving as a proxy ($X^2 = 7.55, df = 1, P < 0.01$). In our experience, the relationship to the deceased does not influence the rate of psychopathology identified (Lesage et al., 1994), multiple informants reporting on the same person provide consistent information (Dumais et al., 2005) and high levels of agreement are obtained between a living subject and informant in this regard (McGirr et al., 2007) and for other diagnostic categories(Dumais et al., 2005)

Axis I and II Diagnoses:

Psychiatric diagnoses were obtained using the SCID I (Spitzer et al., 1992) interview for axis I DSM-IV diagnosis, as well as the SCID II (Williams et al., 1992) for axis II (personality disorders) diagnoses. This information was complemented by the coroner's notes and medical

records. To avoid biases, clinical vignettes were generated for each subject and then assessed by a panel of double blind clinicians and trained researchers to reach a consensus regarding DSM-IV diagnosis for each subject. Inter-rater reliability for this methodology was previously calculated for a sample comprising part of the individuals included in this study and proved to be excellent, as reported elsewhere (Dumais et al., 2005a). A socio-demographic questionnaire was used to obtain information on age, gender, level of education and presence of childhood abuse. Level of education was defined as low if the person had less than high school and as high, or educated, if the person had more than high school education. Childhood abuse under age 18 was categorized as having experienced physical, sexual and/or psychological abuse. The question was as follows” “Has the subject ever been a victim of abuse by one or more people during the course of his or her life?”

Measures for childhood adversities:

Measures of childhood maltreatment were obtained through the Childhood Experiences of Care and Abuse (CECA) (Bifulco et al., 1994). Used with adults, CECA is a semi-structured retrospective measure of adverse childhood experiences (Smith et al., 2002). In this study we administered CECA to our second sample to assess sexual abuse, physical abuse, family discord, and parental neglect or indifference before age 17. An item was rated as severe when it was reported as occurring “always” or “most of the time”. The scales in the standard CECA interview were scored as 4- or 6-point scales from 1 (severest) to 4-6 (little or none). Hence, the scores of the childhood adversities described below were dichotomized. For each variable, a score of 1 was regarded as the severest neglect, discord in the family, physical abuse, and sexual abuse respectively. Scores of 2 to 4 or 6 on the CECA 4- or 6-point scale were combined into *not severe* or *no such event*. Internal consistency and concurrent and convergent validity measures for the informant version of instruments/scales used in our data are excellent overall and have been reported elsewhere for a different but overlapping sample of suicides (Dumais et al., 2005a). The CECA has proved to have high validity and inter-rater reliability(Dumais et al., 2005b);. The following are brief definitions of childhood experiences of care and abuse (Melhum et al., 2004 and Bifulco, 2006). Parental neglect or indifference is described as the amount of neglect shown by parents in terms of providing for the child's material, social, educational and emotional needs. Family discord is the degree of conflict in the home between parent figures and also, to a lesser degree, other household members. This involves the level of (i) general severe

discord, argument and tension in the home and (ii) violence between parents. Physical abuse is defined as the degree of violence and physical harm in the home directed to the subject by an older household member, usually the parents. Sexual abuse is regarded as single or repeated sexual contact(s) (e.g., rape , sexual intercourse, oral sex, and touching of genitals) with an older person before age 17, excluding willing contact with peers.

Statistical Analyses

Statistical analyses were performed using the SPSS statistical package version 15 (SPSS Inc., Chicago, IL). Categorical variables such as gender, education and history of abuse were tested by chi-square test and Fisher’s exact test when appropriate. Continuous variables were analyzed by two-tailed Student’s *t* test and two-way analysis of variance (ANOVA).

Results

The socio-demographic characteristics of all three groups in the first sample are presented in Table 1. Age was significantly different between suicide group (and psychiatric controls, since the two groups were matched by age) and community controls ($F=36.672, P<.001$). Among these three groups, suicide completers reported lower levels of education (less than high school) than the two control groups ($\chi^2 =39.718, P<.001$)

Table 1. : Demographic characteristics of suicide completers, living psychiatric controls, and living community controls from the Quebec general population

variables	Suicide Completer: (N=174) N (%)	Psychiatric control (N=174) N (%)	Community controls (N N (%))	Statistics	
				X ² or F	P Value
Age	40.57(10.89)	40.57(10.89)	27.97(13.96)	F=36.676	<.001*
Sex				.468	.791
Male	129(74.1)	129(74.1)	52(70.3)		
Female	45(25.9)	45(25.9)	22(29.7)		
Education				39.718	<.001*
Less than high school	131(75.3)	96(55.2)	25(33.8)		
More than high school	43(24.7)	78(44.8)	49(66.2)		

*P≤.05

Psychopathology

We examined the prevalence of selected current and lifetime Axis I and Axis II psychiatric diagnoses and comorbidities in the three sub-samples (Table 2). Lifetime Axis I psychiatric

diagnoses were less prevalent in the suicide completers (N=108) than in the living outpatient referrals (N=142) with ($\chi^2 = 16.420, P < .001$). For instance, compared to suicide completers (N=42) and community controls (1), Major Depressive Disorder proved to be higher in the living outpatient controls (N=111) ($\chi^2 = 55.533, P < .001$). Among the Axis II disorders, Antisocial Personality Disorder proved to be more prevalent in suicide completers (N=39) ($\chi^2 = 8.276, P < .05$). The three groups were similar in terms of Axis I ($\chi^2 = 2.718, P > .05$) and Axis II Comorbidities ($\chi^2 = 1.058, P > .05$).

Table 2. Prevalence rate of selected Axis I disorders in three groups

Variables	Suicide completers =174)	Psychiatric controls=174)	Community controls=74)
Axis I Disorders	N (%)	N (%)	N (%)
Past 6 months			
Current MDD	72 (41.4)	81 (46.6)	0 (0.0)
Current Substance Abuse	42 (24.1)	30 (17.2)	2 (2.7)
Current Anxiety	12 (6.9)	25 (14.4)	1 (1.4)
Current Any Axis I	108 (62.1)	114 (65.5)	6 (8.1)
Lifetime			
Past MDD	42 (24.1)	111 (63.8)	1 (1.4)
Past Substance Abuse	46 (26.4)	49 (28.2)	4 (5.4)
Past Anxiety	13 (7.5)	29 (16.7)	1 (1.4)
Past Any Axis I	108 (62.1)	142 (81.6)	13 (17.6)
Axis II Disorders			
Cluster A Disorder	11 (6.3)	7 (4.0)	0 (0.0)
Cluster B Disorder	55 (31.6)	48 (27.6)	2 (2.7)
Borderline PD	28 (16.1)	39 (22.4)	(0.0)
Antisocial PD	39 (22.4)	19 (10.9)	1 (1.4)
Cluster C Disorder	35 (20.1)	35 (20.1)	4 (5.4)
Axis I & II Comorbidities			
Axis II co-morbidity	43 (24.7)	35 (20.1)	1 (1.4)
Current Axis I co-morbidity	49 (28.2)	36 (20.7)	0 (0.0)
Lifetime co-morbidity	44 (25.3)	58 (33.3)	2 (2.7)

Childhood Abuse

Among the suicide completers, childhood abuse was present in 41.4 % (n=72). 49 were men and 23 women. Among the psychiatric outpatient controls, the abuse rate was 29.3 % (n=51) and in the 74 community controls, only 6.8 % (n=5). As we hypothesized, our findings suggest a relationship between childhood abuse and later suicide completion ($\chi^2 = 5.545, df=1, P < .019$).

In addition, compared with the community controls (n=5), suicide completers (n=72) manifested a higher rate of abuse ($\chi^2 = 29.071$, $df=1$, $P<.001$).

Prevalence of Child Maltreatment

The prevalence and correlates of childhood maltreatment were explored in depth in 94 suicide completers. Besides the standardized assessment, relatives and friends of the deceased were also invited to complete the CECA instrument in order to gather more specific information about the experiences of childhood maltreatment, particularly sexual abuse, physical abuse, family discord and neglect.

General statistical description of the second sample is illustrated in Table 3.

Table 3 : Statistical Description of the second sample

		Total Sample (N= 94)
Age	M(SD)	38.0 (12.325)
Gender		N (%)
	Male	82 (87.2)
	Female	12 (12.8)
Education		N (%)
	< than high school	65 (69.1)
	> than high school	29 (30.9)
History of Childhood Maltreatment		N (%)
	Presence	36 (38.3)
	Absence	58 (61.7)

Childhood Maltreatment

Of the 94 suicide completers, 36 (n=38.3%) individuals were reported by informants to have had a history of severe maltreatment experiences before the age of 17 (Table. 3). Childhood maltreatments observed in this study include sexual or physical abuse reported in 10 (10.6%) subjects, parental neglect or family discord reported in 20 (21.3%) subjects, and 6 (6.4%) subjects were found to have had more than two types of abuse.

Comparisons of age, gender and education levels between suicide completers with no abuse history and those with any abuse history showed no significant differences.

The psychiatric profiles of the group with no maltreatment history were compared to that of other groups including those with maltreatment history, the group with sexual or physical abuse,

and those with parental neglect or family discord. Chi square analyses of psychiatric disorders comparing the group with abuse history (N= 36(38.3%) with those without any abuse experiences (N=58 (74.4%) found higher rates of current anxiety disorder ($p < .013$) and cluster B personality disorder ($p < .026$) among the abused group. No significant results were obtained through comparisons between sexual or physical abuse and no abuse, family discord or parental neglect and no abuse, and more than two types of abuse and no abuse.

Comparisons of Axis I co-morbidity scores between the groups revealed that the group with any maltreatment history (63.9 %) had higher rates of comorbidity than the group with no abuse history (39.7%)($t = 791.00$, $p < .023$). We did not find significant results from comparison between the group with no maltreatment history and groups with sexual or physical abuse and parental neglect or family discord, respectively. Axis II co-morbidities did not show significant variations between any groups ($t = 993.000$, $P = .308$).

Discussion

To our knowledge, this is the first study to investigate the relationship between childhood maltreatment and death by suicide. The findings of our study highlight high rates of childhood maltreatment among suicide completers and suggest a strong association between early life traumas and suicide completion. In the present study, we first investigated the association of childhood abuse with suicide completion in a sample of 422 individuals comprised of suicide completers, living psychiatric controls and community controls. Our results showed a significant association between abuse before the age of 17, for both men and women, and death by suicide in adulthood. Compared to our control subjects, suicide completers also had a higher rate of childhood maltreatment. While there are no previous findings on suicide completers suggesting a relationship to childhood histories of maltreatment, our results support the results of earlier studies of suicide attempters which reported early abuse and trauma in life to be significant antecedents of suicide (van der Kolk et al., 1991; Gladstone et al., 1999; Dube et al., 2001) and child abuse to trigger genetic vulnerability (McGirr, Turecki et al., 2009).

Some authors believe that psychopathology is crucial in determining suicide completion among abused subjects (Roy, 2004). We tested this notion and found it not to be the case in our study. Psychiatric backgrounds of our subjects were examined. Mental health diagnoses were reported more frequently among the outpatient psychiatric controls than the suicide completers with histories of childhood abuse. This indicates the better accessibility and availability of

information from the living psychiatric outpatients as compared to those who were deceased. After controlling for psychiatric disorder between the suicide group and other two control groups, we found that abuse history was still higher among the suicide completers. Thus, the presence of psychiatric diagnoses did not seem to explain the relationship between childhood abuse and death by suicide. These findings are consistent with previous research corroborating an independent association between childhood maltreatment and suicidality (Ystgaard et al., 2004; Joiner JR et al., 2007). Childhood adversities are pathways for further vulnerability toward self-destructive behaviors and are among the many etiological factors in the development of suicidal behaviour (Brodsky and Stanley, 2008). Childhood exposure to violence – in the form of physical, sexual or emotional abuse, neglect, or witnessing discord and violence in the home – has a significant effect on the wellbeing of children (Krug et al., 2002) and their healthy functioning.

While sexual abuse in childhood is the most widely studied form of childhood maltreatment, substantial evidence from recent studies indicates that most maltreated children had been exposed to other types of maltreatment such as physical abuse, neglect of physical and emotional needs, family conflict and or multiple types of abuse (Teicher et al., 2006), all of which leave effects as deleterious as those of sexual abuse, yet perhaps with varied intensity. In this study, we also used CECA interview scales to explore the types and prevalence of maltreatment (sexual or physical abuse, parental neglect or family discord, and more than two types of abuse) occurring in childhood among the suicide completers. Accordingly, our second sample was divided into suicides with early maltreatment experiences and suicides with no abuse history. As we had speculated, sexual or physical abuse was highly prevalent in suicide completers. In addition, we found high rates of reported experiences of parental neglect and family discord among the suicide completers. While previous studies focused more on sexual and physical abuse in childhood and its correlation with suicidal behaviors among suicide ideators and attempters (Thakkar et al., 2000; Brezo et al., 2007 & 2008) and severity of these types of abuse (Joiner et al., 2007; Mullen et al., 1993; Stepakoff, 1998), our study also examined rates of neglect and severe discord in the families of suicide completers. Other retrospective studies of suicide attempters showed similar results. Among suicide attempters admitted to a general hospital, the prevalence of neglect was 27%, and exposure to family violence was 31% (Ystgaard et al., 2004). This indicates that parents are not only role models but providers of a healthy or

malfunctioning home environment (Ghadirian, 2007). In spite of the relatively low numbers of subjects in our study for whom CECA data was available, we were able to investigate the forms of maltreatments and provide evidence for the role of parental neglect and family discord as important negative life events associated with suicides. Recent studies by our group on developmental trajectories in suicide completers support this view (Séguin et al., 2007), and previous studies of suicide completers have consistently found an association with precipitating life events (Zouk et al., 2007; Heikkinen et al., 1997; Cavanagh et al., 1999; Cheng et al., 2000). As for psychopathological characteristics of suicides with abuse histories, we found current anxiety disorder and cluster B personality disorder to be significantly higher in the abused group and related to suicide and childhood maltreatment. These findings buttress previous research (Brodsky and Stanley, 2008) identifying psychiatric diagnoses and co-morbidities as a possible link between early abuse or neglect and suicidal behaviour in adolescents and adults. The present study addresses the link between childhood maltreatment and suicide completion, about which there is a paucity of reported findings. In addition, it explores different types of childhood maltreatment among suicide completers, as opposed to previous research that focused exclusively on one type of abuse (mainly, sexual abuse) and suicide ideation or attempts. Though our design does not support inference of causality or the associational direction, we might theoretically speculate that early life stressors (particularly negligence, family discord and violence, and history of abuse) probably contribute to future suicide completion. This is consistent with suggestions that adverse early life experiences, including a history of physical or sexual abuse (Mann et al., 1999) and neglect in childhood to have manifold outcomes for the young victims (Barth, 2006) and may be, at least in part, linked to self-destructive behavior in adulthood (Brodsky et al., 2001; Soloff et al., 2002). Research suggests that suicidality and many mental health problems share a common early behavioral pathway that is somehow severely affected by negative life events (Grilo et al., 1999).

Limitations

The most significant limitations of this study are inherent in the methodology employed, i.e., post-mortem investigation using proxy-based interviews, thus entailing the possibility of incomplete information and difficulty in assessing the psychopathologic disorder (Hawton et al., 1998; Pouliot et al., 2006). However, the validity of this procedure with regard to the type of variables used in the current study has been well demonstrated by previous work from our group

(Lesage et al., 1994; Dumais et al., 2005a; Dumais et al., 2005b) and others (Conner et al., 2001a; Conner et al., 2001b). Another limitation of this study is the relatively small sample size of the group of subjects with suicide completion and lack of detailed information on child maltreatment. Further analysis within this group could not be carried out due to sample size limitations.

Conclusion

Overall, the results of this study suggest linked interplay between negative early life stressors and history of abuse and later death by suicide. While many individuals who have experienced childhood maltreatment may suffer various psychiatric problems leading to suicidal behaviours, our findings open the possibility of a direct association between a history of childhood abuse and suicide completion. Our results are also consistent with previous studies that demonstrated abuse, neglect, and severe family discord in childhood serve as important familial and environmental risk factors for suicide completion. Suicide itself, as mentioned earlier, results from the interaction of a multitude of different factors. Many of these - such as mood disorders, alcohol and substance abuse, personality disorders, aggressive behaviours, and previous suicide attempts – are thought to be influenced in part by childhood traumas and familial experiences of severe adversity. Prospective studies should be carried out aiming at identification and better understanding of risk factors and developmental mechanisms for suicides with no maltreatment histories and psychopathology.

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Chapter 3

Discussion and conclusions

SUMMARY OF RESULTS AND DISCUSSION

This research mainly involves the investigation of the role of traumatic childhood events including maltreatment and abuse in suicide completers. The relationship between childhood maltreatment and maladaptive outcomes including suicidal behaviour has been invariably investigated (Shaffer et al., 2008; Makhija and Sher, 2007; MacMillan et al., 2001), suggesting the vital role of early life traumas in the etiology of suicide. Even though this relationship has been accepted, the link from childhood events to mental health problems to suicide completion is not clear. Some studies have noticed a distinction between suicide ideators, attempters and completers with respect to their childhood histories and psychiatric health (Innamorati et al., 2008; Yoder, 1999). The literature is elusive regarding what proportion of psychiatric disorders and suicidal behaviour is attributable to traumatic childhood experiences in the general population (Afifi et al., 2008). The objective of the present study was to examine this association. It is worth noting that recent years have witnessed substantial interest in systematic investigation of the relation between early life adverse events, including abuse and neglect and suicidal acts (Sourander et al., 2009; Sfoggia et al., 2008; Turecki 2005; Seguin et al., 2005; Dube et al., 2001; Gladstone et al., 1999; Brent et al., 1993; Van der Kolk et al., 1991). Yet, most of the research to date has examined the role of childhood sexual and physical abuse in suicide ideators and attempters, leaving many issues and questions pertaining to the link between abuse in childhood, forms of maltreatment and completed suicide inadequately addressed. The research presented in chapter 2 was

conducted using novel methods to explore this relationship in an effort to enhance our understanding of how certain negative events in childhood might be related to suicide risk. This study provides better insight and new evidence to corroborate an associational link between childhood maltreatment and suicide completion. The innovative aspect of our study is its use of Psychological Autopsy methodology and Childhood Experiences of Care and Abuse interviews to reconstruct an overall picture of the subject's psychiatric health history and life events and to examine different types of childhood traumatic events (sexual abuse, physical abuse, parental neglect, and family discord) in relation to suicide completion. It is evident that the causes of suicide are multiple and interactive, and that suicide is associated with many known risk factors, such as socio-demographic, psychiatric, biogenetic, familial, and situational variables (Voracek et al., 2008; Zouk et al., 2006; Moscicki, 2005; Evans et al., 2004; Maris, 2002; Wagner et al., 1995; Brodsky and Stanley, 2008; Bryant and Range, 1995; Brent et al., 1994; Mann, 1998 and 2003; Kirmayer et al., 1998). Childhood histories of trauma and maltreatment are regarded among the environmental stressors and familial factors predisposing for suicide. Among the salient familial and experiential variables are quality of family environment, stressful life events and childhood experiences of sexual and physical abuse (Brezo, 2007). Additionally, family factors associated with suicide and suicidal behaviour were family "dysfunction," defined variously as discord (Kashani et al., 1988), low support (Lewinsohn et al., 1993), interpersonal discord with parents, and physical or sexual abuse (Brent et al., 1993d). Similarly, the number of negative family experiences and stressful events in childhood were greater in suicide victims (Brent et al., 1993d; Shafii et al., 1988) and suicide attempters (Garrison et al., 1991) than in controls. Moreover, there is

substantial research on the association between childhood maltreatment and increased risks for medical illnesses (Felitti et al., 1998), substance abuse, depression, aggression, anxiety, post-traumatic stress disorder and suicide (Brent and Mann, 2006; Bierer et al., 2003; Thompson et al., 2000; Bernet and Stein, 1999; Boudewyn & Liem, 1995; Shearer et al., 1990). There is, hence, no consensus as to what factors differentiate suicide completers from the ideators and attempters as well those which differentiate suicide completers with mental health problems from those with no disorders. Our study sought to address this relationship. The following paragraphs will briefly summarize general results obtained from our analyses, as well as their implications.

The findings of our study underscore the strong association between suicide completion and childhood abuse, as well as the emotional impact childhood traumas inflict upon the person. This echoes other studies that found childhood traumatic events to act as markers or antecedents of suicidal behaviour (Santa Mina and Gallop, 1998; Brent, 1995; Gutierrez et al., 2000; Fergusson et al., 2008). This present study first assessed the association between early life experiences of severe abuse before the age of 17 and adult suicide completion ($\chi^2 = 5.545, P < .019$). Our findings accord with previous research illustrating a link between childhood abuse and suicidal behaviour (Briere and Runtz, 1986; Wiederman, Sansone and Sansone, 1998; Anderson et al., 2002; Ystgaard et al., 2004; Zouk et al., 2006; Evren and Evren, 2006; Belik et al., 2007; Brezo et al., 2008; Shaffer et al., 2008; Sfoglia et al., 2008; Sourander et al., 2009). However, while previous studies reported a relationship between childhood maltreatment and suicidal ideation and suicide attempts, our study shed light on correlates of childhood abuse among the population of suicide completers. The results from individuals ($n = 422$) in our

first sub-samples provided evidence for the association between abuse exposure and experiences in childhood and completed suicide in later life. Among the three sub-samples in this study – comprising suicide completers, living psychiatric controls and community controls - we observed a higher proportion of childhood abuse in the suicide group even after controlling for their history of psychopathology. We reported a 41.4% prevalence of childhood abuse among the suicide completers.

This finding is important and confirms that: not all individuals with abuse histories develop mental disorders; not all individuals with psychopathology have childhood experiences of abuse; and not all will end their lives by suicide. Whereas a large body of evidence suggested more than 85% of suicides to be associated with one or more mental disorders (Brent et al., 1987; Mann et al., 1999; Righini et al., 2005; Brezo et al., 2006; Rhodes et al., 2006; Suokas et al., 2001) or a relationship between childhood abuse and psychiatric problems (Van der Vegt et al., 2009; Weber et al., 2008; van der Vegt et al., 2008; Dinwiddie et al., 2000; Calam et al., 1998; Gould et al., 1996; Brown et al., 1991), and an association between negative childhood events and psychiatric complications, suicidal ideation and suicide attempts (Rigges et al., 1990), our results raise the possibility of a strong link between childhood histories of maltreatment and completed suicides without the mediating influence of psychiatric morbidities. A recent study by Clements-Nolle and colleagues (2009) also found childhood trauma to be an independent risk factor for attempted suicide among incarcerated women which persisted into adulthood and was not fully attributable to psychological distress, illicit drug use or length of incarceration.

In our groups, psychiatric diagnoses proved to be less prevalent among the suicide completers than the living outpatient referrals. Comparing the three groups, no significant results emerged for co-morbidity of Axis I and II. Regarding Axis II personality disorders among the three groups, only Antisocial Personality Disorder proved to be higher in suicide completers. This finding is in line with previous studies indicating an association between anti-social behavior problems and suicidal behavior in suicide attempters (Douglas et al., 2008; Guy et al., 2008).

Other characteristics of childhood maltreatment reported by our team and other groups provide evidence that factors such as severity of abuse and neglect, victim's age, frequency and type of abuse, identity of the perpetrator, and the way abuse or neglect is perceived (Ehnavall et al., 2007) are all associated with or serve to predict later suicidal ideation and attempts (Brezo et al., 2008; Bryant and Range, 1997; Clemmons et al., 2007; Ehnavall et al., 2008). Like various other studies, ours showed that being abused at a young age has permanent effects on those affected and leaves many victims with emotional scars which will most significantly influence the adjustment patterns and healthy functioning of a person's transition to adulthood (Armstrong and Kelly, 2008).

Numerous studies have examined socio-demographic determinants of suicidal behaviour and other mental health symptoms, including age, gender, ethnicity, type of neighborhood, income and socio-economic status and education, among others (Storr et al., 2009; Brezo et al., 2007; Mann, 2002; Langlois and Morrison, 2002; Righini et al., 2005; Dupere, Leventhal and Lacourse, 2008; Afifi et al., 2008; Roeger and Allison, 2004; Roy and Janal, 2005; Gould et al., 1996). Among the three sub-groups we observed, the suicide completers had the lowest level of education (less than high school). In regards to age, the mean of suicide completers was higher than in community

controls. This highlights the importance of education and age as major correlates of suicidal behaviours. However, in this study, the recruitment criteria and procedures for each group varied, which might have confounded our results. For example, the community controls were recruited for the purpose of youth studies and, therefore, their average age was younger than for the two other groups. Another important point arising from our study to consider is that the number of males greatly exceeded that of females, so that results observed might be associated more with male than with female suicide. Having more male subjects among our suicide completers accords with previous findings suggesting greater prevalence of death by suicide among men than among women (Murphy, 1998; Rich et al., 1988; WHO, 2002).

Our study also described the prevalence of different types of childhood traumas in a sample of 94 suicide completers. The current analysis suggests that about (38 %) of completed suicides were attributable to the types of childhood traumas or experiences of maltreatment that we studied. Our observations parallel those of many studies, suggesting that the rate of childhood maltreatment ranges from 10% to 30% among suicidal people (Finkelhor et al., 1990; Silverman et al., 1996; Dube et al., 2001; Brodsky et al., 2001; Trocmé et al., 2003; Brezo et al., 2008; Afifi et al., 2008). Based on previous findings among suicide attempters, we expected that high levels of sexual or physical abuse would be found. Furthermore, as it seemed especially needed, besides examining the effects of sexual and physical abuse in childhood, we also sought to provide information on the prevalence and sequela of family discord, and parental neglect. To date, most studies have investigated mainly the correlates and effects of childhood sexual or physical abuse in suicidal behaviour, while less attention has been given to other types of maltreatment including parental neglect, family discord and other traumatic family events.

We found that besides the enormous role of sexual and physical abuse in suicidal behaviour, there was a high prevalence of family discord and parental negligence among the suicide completers. Recognizing the occurrence of various forms of childhood abuse and neglect, as well as identifying and treating individuals who have been affected by such experiences could assist our suicide prevention efforts. In addition to the considerable body of literature documenting the deleterious effects of abuse and family violence on children's well-being and behaviors (Turner and Kopiec, 2006; Fergusson and Horwood, 1998), our study furnishes information on the role of parental neglect and discord experienced during childhood, and their possible link to suicide completion. Despite the fact that indifference to and neglect of a child's emotional and physical needs and severe familial discord are, in the long term, at least as damaging as physical or sexual abuse, this issue has received the least scientific and public attention (Gilbert et al., 2009). There is a dearth of evidence concerning child neglect and family discord in relation to suicidal behaviour owing to limited empirical research, challenges involving issues of definition and methodology, and meshing of child neglect with child abuse (Tang, 2008). The quality of the parent-child relationship, the role of family environmental risk factors and the occurrence of stressful events play a vital role in suicide and the suicidal behavior of adolescent suicide victims (Seguin et al., 2004; Wagner, Cole and Schwartzman, 1995). There is also compelling evidence that parental neglect (Gilbert et al., 2009) and family discord are linked to youth and adult suicide attempts (Asarnow & Carlson, 1988; Brent et al., 1994b; Fergusson & Lynskey, 1995b; Gould et al., 1996; Kerfoot et al., 1996; Kosky, Silburn, & Zubrick, 1990; Reinherz et al., 1995; Gex et al., 1998; Taylor & Stansfeld, 1984). A negative father-child relationship

had a key and enduring role in suicidal behavior of adolescents and young adults (Tousignant et al., 1993; Gould et al. 1996; Bridge, Goldstein, and Brent, 2006). Among various factors, a lifetime history of parent-child discord or family "dysfunction",- defined alternatively as discord (Kashani et al., 1988), low support (Lewinsohn et al., 1994), neglect and experiences of physical or sexual abuse by parents – has been shown to influence suicidality (Brent et al., 1994; Brent, 1995; Brent et al., 2002; Brent and Mann, 2003). Wagner (1997) noted that completed suicides and suicide attempts were often preceded by conflicts and discord with family members. Adverse experiences such as abuse, negligence, physical violence, incest, interpersonal conflict between parents and with parents (Brent, Kolko, Wartella et al., 1993) have been reported to play an important role in the development of suicidal behavior in youth (Seguin et al., 2004; Garland and Zigler, 1993; Miller, King, Shain et al., 1992; Spirito, Brown, Overholser et al., 1989). Studies have found that young persons who attempted suicide experienced more chronic family discord (Kosky, Silburn and Zubrick, 1990; Spiroto, Valeri, Boergers et al., 2003), adjustment problems (Dubow et al., 1989; Fergusson and Lynskey, 1995) and negative life events and less family support (Seguin et al., 2004; Dubow, Kausch, Blum et al., 1989). The findings of our research accord with many studies that suggest suicide to be correlated with various interacting risk factors that frequently act synergistically (Mann et al., 1999; Kim et al., 2003; Baud, 2005; Turecki, 2005).

In comparing the psychiatric diagnoses of the groups with a history of maltreatment and those without such history, the group having experienced maltreatment manifested a higher prevalence of anxiety disorder, cluster B personality disorder and comorbidity of Axis I disorders. These findings are similar to a psychological autopsy study

of 79 suicide completers in New Brunswick. Individuals with extensive childhood exposure to physical and sexual abuse showed a higher number of prior suicide attempts, multiple addiction disorders, and a higher number of Axis II psychiatric disorders (Seguin et al., 2007).

While results from the work discussed here are promising, they also raise important issues that should be considered in future studies to gain a better understanding of the nature and effects (interactive and mediating) of traumatic events in childhood on later suicidal acts. On the other hand, although we observed a few interesting results, very little is known about what mediates and moderates suicide completers with no history of trauma or psychopathology. It would be interesting to compare this group with controls from the general population with regard to all the variables investigated in our study so as to gain deeper insight into mediators and moderators of non-maltreatment suicide risk. Prospective studies may wish to: examine the mechanism and dynamics of childhood traumas and possible pathways to suicide completion; more deeply investigate the predictive value of forms of childhood trauma for psychopathology and suicidality; and compare short-term and long-term consequences of childhood maltreatment. Whereas it was demonstrated that negative life events, particularly those taking place in early childhood, were more significant in completed suicides, further research is required to properly describe the relationship of childhood events, psychosocial variables, psychopathology and suicide. It would be of great clinical value for future studies to explore which life stressors mediate suicide risk - and how - and who is at particular risk.

Also emphasized is the potential impact of more attention to being given to childhood trajectories and their independent effects independently on adult mental health and self-harm behaviors.

Unfortunately, only psychosocial measurement was available for a sub-sample of the subjects included in our study, which prevented us from testing the relationship between variables other than by measuring associations. It would be valuable to carry out additional studies – prospective studies, if possible – to replicate findings from this study in a larger sample with more complete information concerning negative childhood experiences and psychosocial variables.

Interpretation of the results should take into account certain limitations and strengths of the study. Our sample consisted of Caucasians of French-Canadian origin, representing a relatively homogeneous ethnic population. Since our findings are based on a relatively culturally-homogeneous community sample, they have limited generalizability to other cultural groups. The most important limitations of this study are inherent in the methodology employed: post-mortem investigation using proxy-based interviews with the possibility of incomplete information, recall bias and difficulty with assessment of psychopathological disorder (Hawton et al., 1998; Pouliot et al., 2006). However, the validity of this procedure with regard to the type of variables used in the current study has been well demonstrated by previous work from our group (Lesage et al. 1994; Dumais et al. 2005a; Dumais et al. 2005b) and from others (Conner et al., 2001a; Conner et al., 2001b). Another limitation of this study is the small sample size and lack of CECA information on all subjects included in this report, thereby affecting its extrapolational power for psychosocial analysis. Nevertheless, power issues may explain

why, in spite of previous reports indicating higher frequency among this group, certain variables such as psychiatric diagnosis or age of suicide completers with history of sexual or physical abuse were not statistically significant. Another drawback of our study was that the majority of our subjects were clinically referred or subjects were recruited under different criteria and were, therefore, more likely to have complex psychiatric profiles and abuse history.

However, our study used psychological autopsy and CECA measurement tools, two reliable methods(Shafii et al., 1985) for reviewing all the subjects' available medical and psychiatric records, family trajectories, interviews with the deceased's close acquaintances, and for obtaining valid information on childhood traumas, types of maltreatment and their relation to suicidal behaviour.

CONCLUSIONS

Suicide is a global health and social concern and the outcome of a constellation of factors. Despite decades of dedicated research, individuals at risk for suicide are not easily identified, and prevention and management of suicidal tendencies present considerable clinical challenges (Brezo, 2007). Personal history of childhood physical or sexual abuse, neglect, discord in the family and dysfunctional parent-child relationships are all linked to suicide and have all been studied as risk factors for suicidal behaviour (Kutcher and Szumilas, 2008). Many adults who end their lives by suicide have been shown to have had childhood histories of various types of abuse, neglect and severe discord or tension in the family. These adverse experiences can induce numerous health consequences, including emotional, psychological and behavioral problems and disorders. Yet not every person having traumatic experience will develop psychiatric

problems or become suicidal. Our study suggested a link between childhood maltreatment and adult suicide completion without necessarily having suffered any intervening mental disorders. Suicide is seen as one of the aftermath effects of negative early life trajectories. However, the true extent and relationship of these problems cannot be assessed due to the paucity and limited accuracy of data (Cardinal et al., 2003), definition and methodology issues. Assessing the contributive effects of childhood adversities and traumas – such as sexual and physical abuse, neglect and family violence – on mental disorder and suicidal completion requires standardized definitions and examination of the risk factors both in isolation and in conjunction with other distressing experiences, so as to determine the impact of co-occurring factors (Jacobs, 2007). The causality and effect scope of these risk factors are still uncertain and require further empirical evidence.

Abuse and neglect experienced during young ages can make many people vulnerable or susceptible to self-harm behaviors and suicide. Great effort is needed to develop effective and efficient approaches and methods of preventing childhood maltreatment and unearthing the underlying roots of suicidal behavior. With many children and adolescents growing up in chaotic environments and being subjected to abuse, exploitation of many kinds and suicidal behaviors, societies need to respond appropriately based on reliable information and accurate research (Saxena., et al., (2006): World Health Organization's Mental Health Atlas 2005). Studies are needed to understand the complex pathways between early exposure to various types of abuse and multi-abuse and diverse outcomes. It is also important to explore the underlying reasons and determinants involved in childhood maltreatment. The collective results of this study

provide further substantiation of the role of childhood events in suicidality. Although the aim of bringing more information and deeper understanding of key determinants of suicide to clinical practice with a view towards improving suicide prevention, more research is required before concluding that all childhood events relate to suicidal behaviour and that all people with childhood maltreatment are at risk of suicide.

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Appendix A

Ethic Approval Certificate

Appendix B


Childhood Experiences of Care and Abuse Scale



479

CECA

(feuille de cotation)



Sujet

 - -

Date de l'entrevue

 - -
AAA - **MM** - **JJ**

Sujet: oui
 non

Initiale(s) du (des) prénom(s)
et nom(s) de l'intervieweur

Prénom(s) Nom(s)

Variables	Personne Responsable	
	Mère	Père
<i>Indiff./Négligence</i>	1 2 3 4	1 2 3 4
<i>Rejet</i>	1 2 3 4	1 2 3 4
<i>Chaleur aff.</i>	1 2 3 4	1 2 3 4
<i>Supervision</i>	1 2 3 4	1 2 3 4
<i>Discipline</i>	1 2 3 4	1 2 3 4
<i>Violence psycho.</i>	1 2 3 4	1 2 3 4
<i>Type violence</i>	Nombre d'items <input style="width: 20px;" type="text"/> Entrer un chiffre (1 à 9) items 1 2 3 4 5 6 7 8 9	Nombre d'items <input style="width: 20px;" type="text"/> Entrer un chiffre (1 à 9) items 1 2 3 4 5 6 7 8 9
<i>Antipathie</i>	1 2 3 4	1 2 3 4
<i>Inversion rôles</i>	1 2 3 4	1 2 3 4
Parents (père/mère)		
<i>Favoritisme</i>	<input type="checkbox"/> OUI <input type="checkbox"/> NON <input type="checkbox"/> NSP	
<i>Bouc émiss. Par.</i>	<input type="checkbox"/> OUI <input type="checkbox"/> NON <input type="checkbox"/> NSP	
<i>Secrets</i>	<input type="checkbox"/> OUI <input type="checkbox"/> NON <input type="checkbox"/> NSP	
<i>Discorde familiale</i>	1 2 3 4 5	
<i>Abus phys.</i>	1 2 3 4 5	
<i>*seulement S</i>		
<i>Fréq.</i>	<input style="width: 20px;" type="text"/>	
<i>Protection</i>	1 2	
<i>Abus sex.</i>	1 2 3 4 5 6*	
<i>*seulement S</i>		
<i>Fréq.</i>	<input style="width: 20px;" type="text"/>	
<i>Protection</i>	1 2	
<i>Figure dominante</i>	1 2 3	

CECA INTERVIEW SCHEDULE

(Childhood experience of care and abuse)

The CECA is a semi-structured interview that collects data about parents cares and attitudes toward the subject in his/her childhood. It investigates various variables such as indifference, negligence, antipathy, rejection, etc. Each question in the CECA should be repeated for each parent figure and household arrangement for the child.

Concrete examples are necessary and should be accompanied by their frequency, duration and severity. They will allow an objective assessment of the brought up experiences.

First of hand, I would like that you tell me about the household arrangement when S was a child. Have there been any changes over S childhood in the household arrangement, because of (S misconduct, illness of one the parent, death, divorce...)

INDIFFERENCE/NEGLIGENCE/REJECTION/AFFECTION

How would you describe the attitude of his/her parents toward him/her?

Were they close to S?

Would you say that S get on better with his mother or his father when he was a child?

Do you think S's parents always had time for him and took interest?

Did S's parents spend much time with him when he was little.?

Did they take an interest in S pass-times and school activities?

- Would they go and see the teachers for open days? Was that both parents?
- Did S parents help him in his schoolwork?
- Would they read school reports? Was that both S mother and father?
- Did they inform him about sexuality? How old was S?
- Could S speak freely about the subject at home?

Did S's parents take good care of his material needs ? (food, clothes, pocket money)

- What did happen If S was ill?
- Were S's parents particularly caring if S was ill?
- Did S share a bedroom?
- Did S ever have to share a bed?
- How did this affect things?

Were S's parents affectionate toward him ?

- How would they show it? (words, behaviour, etc.)

Did S feel that he/she was desired by both parents?

How did they show it to S?

- Did S ever feel that he/she was not liked or not wanted?
- Did S ever feel that he/she was a burden for them? When?
- What did they say that have made S feel in such a way?

Did they support or give him encouragements when S needed it?

- Did S feel safe at home?
- Did S feel neglected?

DISCORD AND VIOLENCE BETWEEN PARENTS

How well did S's parents get on together?

Did they argue much?

- How often was that? For how long did they dispute last?
- What was it like?
- Would there be raised voices?
- Was there any violence or thrown objects?
- Were the arguments in front of S?

Was there a lot of tension in the home?

- Any periods when they stopped talking to each other?

Did they work things out or let things between them remain the same?

PHYSICAL ABUSE

Was there any violence towards S in the household?

Did his/her parents hit him/her?

- Which parent did that?
- What would happen?
- How often did it happen?
- How old was S?
- Did it was the same on every occasion?
- Has S ever been threat of being slapped?
- What was doing the other parent meanwhile?

Did they ever become angry with S or bit her/him, break objects?

Was it was the same for S's siblings?

What was the worst occasion?

- Who was there?
- How did S react?
- How did S feel? Did S cry, blame somebody at that time?

Did anyone try to stop that one way or another?

- What was doing the other parent?
- Did S tell someone about what was going on at home?

- What has been their reaction? Were they helpful?
- Were the social services or the police involved?
- Did S need hospital treatment?
- Did anyone at school notice something about it?
- Did anyone try to protect S from it?
- Who were the persons involved?

SEXUAL ABUSE

When S was a child or teenager did he /she ever has an unwanted sexual experience with a member of his/her family?

- Who was that?
- How old was S when the abuse happened?
- Can you tell me what happened?

When S was a child or teenager did he /she ever has an unwanted sexual experience with a stranger or someone else?

- **If yes:** Who was that?
- When did it happen?
- Can you tell me what happened?
- How many times did it happen? How long did it go on for?
- Did S confide in someone? Tell somebody about it?
- Did anyone do anything or try to stop that?
- What was doing the other parent?

Who was the figurehead at home?

- Father-mother-equivalent

Variables	Personne Responsable	
	Mère	Père
<i>Indiff./Négligence</i>		
<i>Rejet</i>		
<i>Chaleur aff.</i>		
<i>Supervision</i>		
<i>Discipline</i>		
<i>Violence psycho.</i>		
<i>Type violence</i>		
<i>Antipathie</i>		
<i>Inversion rôles</i>		
Parents (père/mère)		
<i>Favoritisme</i>		
<i>Bouc émiss. Par.</i>		
<i>Secrets</i>		
<i>Discorde familiale</i>		
<i>Abus phys.</i>		
<i>*seulement S</i>		
<i>Fréq.</i>		
<i>Protection</i>		
<i>Abus sex.</i>		
<i>*seulement S</i>		
<i>Fréq.</i>		
<i>Protection</i>		
<i>Figure dominante</i>		