The Association Between Childhood Adversity and Attachment/Relationship Style in Mood Disorders

Tamara Cassis

Department of Psychiatry

McGill University

Montréal, QC, Canada

April 2018

A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of Master of Science in Psychiatry

© Tamara Cassis 2018

Table of Contents

Acknowledgements

First and foremost, I would like to thank Dr. Nancy Low for her guidance as my supervisor and mentor. You have provided me with unwavering support, given me your time and knowledge, and patiently taught me skills that I will carry into everything I do moving forward. I feel truly blessed to have been mentored by you. Over the past few years I have learned so many valuable lessons on how to conduct research, how to be an effective and caring clinician and how to find balance in life, for which I am eternally grateful.

Second, I would like to thank Dr. Pablo Cervantes for first believing in me and giving me a chance as a research assistant five years ago. Without your support I never would have had the opportunity to be part of the Mood Disorders Program. My experience here has been incredibly enriching, and I feel very lucky to have been taught by you.

I would also like to thank the rest of the Mood Disorders Program team, specifically Dr. St. Laurent who was on my supervising committee, for always being available for questions and continually supporting the study. In that same spirit, I would like to give my greatest appreciation to the patients at the MDP for their honesty and time, without which this study never would have been possible.

I also want to thank my parents who given me unconditional love and support, without which I never would have been where I am today. Your belief in me and constant encouragement, despite the many miles between us, is the reason for all of my achievements.

Next, I want to thank the rest of my family and wonderful friends who are always there to provide me with emotional support when I need it. Thank you so much for all that you have done for me.

Above all, I would like to thank God, who put all these people in my life.

Abstract

Background. Mood disorders (Major Depressive Disorder (MDD) and Bipolar Disorder Type I and Type II (BPI & BPII)) can have large negative impacts on individuals affected by them, and on the community as a whole. Childhood adversity has been found to be a risk factor for mood disorders. Additionally, childhood adversities, in the form of physical abuse and neglect, have been associated with insecure attachment styles in adulthood. Insecure attachment styles have also been found to be more prevalent in individuals with mood disorders compared to those without. The association between childhood adversity and attachment in mood disorder populations has not been well examined.

Objectives. (1) To examine the prevalence and severity of different forms of childhood adversity in a clinical mood disorders population (patients with MDD, BPI or BPII). (2) To examine the prevalence of attachment styles in a clinical mood disorders population. (3A) To examine the association between different forms of childhood adversity and attachment styles in a clinical mood disorders population. (3B) To determine if mood disorder type modifies the association between childhood adversity and attachment style.

Methods. This was a cross-sectional study of 230 outpatients from a university-based, tertiary-care clinic in Montreal, Quebec, with a diagnosis of MDD (N=71), BP type I (N=68), and BP type II (N=52). Psychiatric diagnoses were determined using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID). Childhood adversity was assessed using the Childhood Experience of Care and Abuse Questionnaire, which measures antipathy, parental loss, neglect, role reversal, and physical, psychological, and sexual abuse. Attachment styles were assessed using the Experiences in Close Relationships Questionnaire, anxious and avoidant attachment styles were examined. One-way ANOVA and Tukey post-hoc tests were conducted for continuous

variables, and chi-square tests were conducted for dichotomous variables, to examine the prevalence of childhood adversities and attachment styles within each diagnostic group. Linear regressions adjusted for age and sex were used to find the association between specific types of childhood adversity and insecure attachment in the mood sample.

Results. Sixty-five percent of subjects experienced at least one form of childhood adversity. Fifty-eight percent suffered from physical abuse from at least one parent, about a quarter experienced marked antipathy, neglect and psychological abuse from at least one parent (25.9%, 22.4% and 27.4%, respectively), 32.4% suffered from sexual abuse, 26.0% experienced parental death or separation, and 15.9% experienced marked role reversal. The mean attachment score was 4.0 for anxious attachment and 3.8 for avoidant attachment, with the BPII group scoring higher than the BPI group (4.5 vs. 3.7) on anxious attachment, and both the BPII and MDD groups scoring higher than the BPI group (4.0 and 4.0 vs. 3.4) on avoidant attachment. Antipathy, psychological abuse and role reversal were found to be associated with both anxious and avoidant attachment, while parental loss and neglect were associated only with avoidant attachment. Mood disorder diagnosis was not detected to modify the association between childhood adversity and attachment style.

Conclusion. Childhood adversity and insecure attachment styles are associated in people with mood disorders. This provides further evidence for clinicians to explore attachment styles and target interventions in mood disorder patients when there is a history of antipathy neglect or psychological abuse, or when issues such as non-adherence arise. Future studies should aim to refine the association between childhood adversity and attachment in mood disorders.

Résumé

Contexte. Les troubles de l`humeur (le trouble dépressif majeur (TDM) et le trouble bipolaire type I et II (TBI et TBII)) peuvent avoir plusieurs effets négatifs sur les individus touchés, et la communauté en général. Des antécédents d'adversité dans l'enfance sont considérés comme un facteur de risque pour les troubles de l'humeur, et aussi, l'adversité dans l'enfance, sous la forme d'abus physique et de négligence, ont été associées à des styles d'attachement insécurisés à l'âge adulte. Les styles d'attachement insécurisés ont également été trouvés plus fréquents chez les personnes souffrant de troubles de l'humeur par rapport à ceux qui n'en ont pas. L'association entre l'adversité dans l'enfance et de l'attachement des populations de troubles de l'humeur n'a pas été bien étudié.

Objectifs. (1) Examiner la prévalence et la sévérité des différentes formes de l`adversité dans l`enfance dans une population clinique des personnes avec un trouble de l`humeur (patients souffrant de TDM, TBI ou TBII). (2) Examiner la prévalence des styles d'attachement dans une population clinique des personnes avec un trouble de l`humeur. (3A) Examiner l'association entre les différentes formes d'adversité dans l'enfance et les styles d'attachement dans une population clinique dont les personnes ont un trouble de l`humeur. (3B) Déterminer si le type de trouble de l'humeur modifie l'association entre l'adversité dans l'enfance et le style d'attachement.

Méthodes. C`était une étude transversale de 230 patients ambulatoires d'une clinique universitaire de soins tertiaires à Montréal, au Québec, avec un diagnostic de TDM (N = 71), de TB de type I (N = 68) et de TB de type II (N = 52). Les diagnostics psychiatriques ont été déterminés avec l`Entrevue Clinique Structurée pour le DSM-IV (SCID). L'adversité dans l'enfance a été évaluée utilisant le questionnaire <<Childhood Experiences of Care and Abuse Questionnaire (CECA-Q)>> qui mesure la perte d`un parent, l`antipathie des parents, la négligence

des parents, l`abus psychologique des parents, l`abus physique, l`abus sexuel, et l`inversion des rôles. Les styles d'attachement ont été évalués avec le questionnaire << Experiences in Close Relationships>>, l'attachement anxieux et l'attachement évitant ont été examinés. Des ANOVA unidirectionnelle et des tests Tukey ont été menées pour les variables continues et les tests de chi carre ont été menées pour évaluer la prévalence d'adversités dans l`enfance et des styles d'attachement dans chaque group diagnostique. Des régressions linéaires ajustée pour l'âge et le sexe ont été appliquée pour trouver l'association entre les formes spécifique de l'adversité dans l'enfance et l'attachement insécurisant.

Résultats. Environ 65% de l`échantillon ont expérimenté au moins une forme d'adversité dans l'enfance. 57,8% ont souffert d'abus physiques d'au moins un parent, environ un quart a souffert d'antipathie marquée, de négligence et d'abus psychologique d'au moins un parent (25,9%, 22,4% et 27,4%, respectivement), 32,4% ont souffert d'abus sexuels, 26,0% ont expérimenté le décès d`un parent et/ou une longue séparation d`un parent, et 15,9% ont expérimenté l`inversion des rôles. Les résultats moyens d'attachement étaient de 4,0 pour l'attachement anxieux et de 3,8 pour l'attachement évitant. Le groupe de TBII avait des scores plus élevés que le groupe de TBI (4.5 vs. 3.7) pour l'attachement anxieux, et les deux groupes de TBII et TDM avaient des scores plus élevés que le groupe de TBI (4.0 and 4.0 vs. 3.4) pour l'attachement évitant. L'antipathie, l'abus psychologique et l`inversion des rôles ont été associés avec l'attachement anxieux et évitant, mais le décès d`un parent et la négligence ont été associés avec l'attachement évitant seulement. Le diagnostic de trouble de l'humeur n'a pas été detecter pour modifié l'association entre l'adversité dans l'enfance et le style d'attachement.

Conclusion. Cette étude fournit de plus amples renseignements sur le fait que l`adversité dans l'enfance et les styles d'attachement insécurisés sont associés chez les personnes souffrant de troubles de l'humeur, surtout quand il y a une histoire de négligence, de l'antipathie ou de violence psychologique, ou lorsque des problèmes, comme non-adhésion du traitement surgissent. Des études futures devraient viser à affiner l'association entre l'adversité dans l'enfance et de l'attachement dans les troubles de l'humeur.

Introduction

Background

Mood Disorders

Definition. Mood disorders are a major class of psychiatric illnesses composed primarily of Major Depressive Disorder (MDD) and Bipolar Disorder (BP). Major Depressive Disorder is a common and debilitating mental illness that affects approximately 11% of Canadians (Statistics Canada, 2013). It is characterized by the occurrence of one or more Major Depressive Episodes (MDEs) in which a person will experience a consistently "sad, empty, or irritable mood" or "decreased interest or pleasure in most activities" lasting at least two weeks (American Psychiatric Association, 2013). These periods are accompanied by four or more of the following symptoms: increased or decreased appetite, insomnia or hypersomnia, psychomotor retardation or agitation, fatigue, feelings of worthlessness or inappropriate guilt, diminished ability to concentrate or indecisiveness, and recurrent thoughts of death or suicide (American Psychiatric Association, 2013). MDD is associated with a number of difficulties such as interpersonal problems with family members, romantic partners and friends (Benvenuti, Rucci, Calugi, Cassano, Miniati & Frank, 2010), academic failure (Mazzone, Ducci, Scoto, Passaniti D'Arrigo & Vitiello, 2007), and difficulties in finding and maintaining employment (Lauber & Bowen, 2010).

Similarly, Bipolar Disorder is a mental illness that affects approximately 2.6% of Canadians (Statistics Canada, 2013) and is categorized by intermittent episodes of high and low mood that can cause significant impairment in functioning. Individuals with bipolar disorder experience recurrent MDEs as well as recurrent episodes of mania and/or hypomania. Manic and hypomanic episodes are characterized by "abnormally, persistently elevated, expansive, or irritable

mood" (American Psychiatric Association, 2013). Along with this elevated or irritable mood, manic and hypomanic episodes include three or more of the following symptoms: inflated self-esteem or grandiosity, decreased need for sleep, pressured speech, racing thoughts, distractibility, increase in goal-directed activity (e.g. taking on new projects at work), and excessive/impulsive involvement in risky activities. Such risky activities include increased alcohol or drug use, poor financial or business decisions, and sexual promiscuity (American Psychiatric Association, 2013). Manias can be differentiated from hypomanias by the requirement that manias must endure for at least one week, or fewer days if the manic behaviors lead to psychiatric hospitalization and/or legal intervention. In contrast, a hypomanic episode must endure for at least four days, should not lead to a psychiatric hospitalization or legal consequences, but should involve a change in functioning that is observable by others.

BP can be further classified as Bipolar Disorder type I (BPI) and Bipolar Disorder type II (BPII); BPI requires the presence of at least one manic state, while BPII requires at least one MDE, at least one hypomania, and the absence of any manic episodes (American Psychiatric Association, 2013). There is large variability in the rates of Bipolar II. Approximately 0.57% of Canadians are affected by bipolar type II (McDonald et al., 2015) and a similar prevalence rate of 0.40% for bipolar type II was found across 11 countries using epidemiological data from the World Mental Health Survey Initiative. In contrast, prospective studies of bipolar type II prevalence in adolescents report substantially greater rates of 3-4% (Merikangas & Lamers, 2012).

Mood disorder onset and prognosis. Mood disorder symptoms typically begin in adolescence, however, the average age of onset of MDD is 32 years old and 25 years old for BP (Kessler et al., 2005). An earlier age of onset has been associated with worse outcomes, such as greater functional impairment and less time in remission between episodes (Perlis et al., 2009).

Mood disorders are often accompanied by at least one other psychiatric comorbidity, which can also worsen the prognosis of the disorder. In an epidemiological study involving 18,000 people, 168 of which had bipolar types I and II, 46% also had alcohol abuse or dependence, 41% had substance abuse or dependence, 21% had panic disorder and 21% had obsessive compulsive disorder in comparison to 13%, 6% 0.8% and 2.7% in the general population, respectively (McElroy, 2004). Bipolar disorder (type I and type II) has been shown to have greater comorbidity compared to major depression, and bipolar type II was found to have the highest rate of comorbidity among the three mood disorder types. (Thaipisuttikul et al., 2014; Merikangas, 2011; Dell'Osso et al., 2015).

People with mood disorders have higher rates of suicide attempts than in the general population and rank among the highest psychiatric diagnoses on attempted and completed suicide (Rihmer & Döme, 2016). In a community-based study by Chen and Dislaver (1996), the rate of suicide attempts in major depression and bipolar disorder was found to be 15.9% and 29.2%, respectively, compared to 4.2% for other axis I disorders, such as schizophrenia and anxiety disorders. Similarly, Leverich and colleagues (2003), found that 34% of patients with bipolar disorder had suicide attempts, and the incidence of death by suicide can be more than 20 times higher in bipolar populations than in the general population (Grande, Berk, Birmaher & Vieta, 2016). Suicide attempts have been consistently found to be higher among people with bipolar disorder than major depression, and to be highest in bipolar type II followed by bipolar type I (Chen & Dislaver, 2003; Rihmer & Döme, 2016). Additionally, up to 50% of people with mood disorders will have at least one suicide attempt in their lifetime (Isometsä, 2014). In fact, Beautrais and colleagues (1996) found there to be a 33-fold increased risk of having a mood disorder among those who have attempted suicide compared to those who have not.

Mood disorder burden of illness. The World Health Organization uses the number of years of life lost due to illness or disability to measure the burden of an illness within society. In 2010, they found that mood disorders accounted for more than 87 million disability-adjusted life years (DALYs) worldwide and were responsible for more of the global burden than HIV/AIDS, tuberculosis and diabetes (Whiteford, 2013). In 2008, the direct cost of treating mood disorders in Canada was estimated to be over $2.7 billion Canadian Dollars (Mental Health Commission of Canada, 2013). The toll of depression on the Canadian economy was estimated to cost $32.3 billion Canadian Dollars of loss in gross domestic product (Fererras, 2016). Moreover, both MDD and BP are associated with a lower life expectancy rate, with MDDs having a lower life expectancy rate by 14 years for men and 10 years for women, and BPs having a similar decrease of 12-20 years for men and 11-17 years for women (Kessing, Vradi & Andersen, 2015).

Childhood Adversity

It has been found that people who have experienced childhood adversity have higher prevalence rates of mood and anxiety symptoms than in the general population (Stansfeld, Clark, Smuk, Power, Davidson & Rodgers, 2017; Sheikh, 2017). As well, people with mood disorders have higher rates of adversity in childhood (Garno, 2005; Leverich, 2002; Young, Abelson, Curtis & Nesse, 1997). There is also substantial evidence suggesting that adverse experiences in early life are associated with an increased risk towards developing a mood disorder (Alciati, 2012; Palmier-Claus, Berry, Bucci, Mansell & Varese, 2016).

Definition. Childhood adversity can encompass a number of negative experiences, including maltreatment, trauma and stressors, and is typically categorized into different forms. Some forms of adversity that are more apparent, and therefore more studied, such as parental loss or separation, neglect, physical and sexual abuse. Other, less examined, forms include

psychological abuse, aggression within the household, role reversal or parentification and antipathy or cold/harsh parenting (McLaughlin, 2016). These experiences can be repeated exposures or single events, they can be perpetrated by mothers, fathers or others and their effects can be long standing (Raposo, MacKenzie, Henriksen & Afifi, 2014).

Methodological challenges in assessing childhood adversity. Childhood adversity has been of interest to researchers for some time now, yet, there is a surprising lack of consistency in definitions and methods of measurement of this construct. Determining accurate prevalence rates of childhood adversity in the general population is difficult because there is a high tendency towards the underreporting of such cases (Rosenberg & Krugman, 1991). As well, retrospective accounts of childhood adversity in adults show a wide range in the percentage of documented survivors who recall the abuse (62-81%; Goodman et al., 2003). More recently, Colman and colleagues (2016) demonstrated that mental health factors may affect the consistency of individuals' reports of adverse events in childhood. The development of depression or stress was associated with both an increased likelihood of reporting an adverse event that previously was not endorsed, and 'forgetting' an event that was previously endorsed.

In comparison to physical and sexual abuse, childhood psychological or emotional abuse has been less examined because it was often considered an inherent or intrinsic part of experiencing the more obvious abuse (e.g. physical or sexual) and not as a separate construct (Garbarino, 1986). However, Claussen & Crittenden (1991) demonstrated that psychological abuse can occur independently, and more recently, Spertus et al., (2003) found that psychological or emotional abuse in childhood predicted adult psychopathology, even after controlling for other forms of adversity (Alciati, 2012). Similarly, assessing antipathy - defined as "cold/harsh parenting" (Bifulco et al., 2005) - is difficult because antipathy and neglect often co-occur with one-another,

and with other forms of abuse. As such, they are often assessed as a single construct, even though they are distinct (Alciati, 2012).

General prevalence of childhood adversity. The Canadian Incidence Study of Reported Child Abuse and Negelct-2008 (CIS-2008) found that 235,842 investigations involving child maltreatment were opened in 2008 alone (Trocme, 2010). Of these cases, 34% involved neglect, 34% involved witnessing parental-figure or intimate partner violence, 20% involved physical abuse, 9% involved emotional maltreatment, and 3% involved sexual abuse. In 18% of reported cases more than one type of maltreatment was present, with neglect and exposure to parental-figure or intimate partner violence co-occurring the most (Public Health Agency of Canada, 2010). Similarly, child protective services in the United States receive child abuse and neglect reports involving six million children every year (Institute of Medicine and National Research Council of the National Academies, 2013).

In a thorough review by McLaughlin (2016) summarizing findings from epidemiological studies designed to draw inferences at the population level, the prevalence of exposure to childhood adversity was estimated at about 50% in the U.S., which was comparable to similar prevalence estimates in other high-income countries (such as, Belgium and France), as well as in low- and middle-income countries (such as, Brazil and Mexico) worldwide.

A Canadian-wide survey of approximately 10, 000 people found that 27% of females experienced either physical or sexual abuse or both during childhood (MacMillan et al., 1997). A more recent report by Briere & Elliott (2003), shows that the prevalence rate of sexual abuse in childhood is still quite high, as one in three women and one in seven men in the general population have been victims of sexual abuse before the age of 18 years. The range of sexual abuse prevalence rates in children is from 3.0% to 33.2%, however, this is likely an underestimate of the true

prevalence rate due to underreporting. Thus, it is accepted that roughly a third of children experience some form of sexual abuse (Dube et al., 2005).

The prevalence of other forms of adversity at the population level has been less examined. However, Harrison and Herrington (2011) found that 4% of children in North America will experience the death of a parent. Notably, cold, harsh and neglectful parenting is thought to be the most prevalent, but least empirically studied type of adversity (Dubowitz & Bennett, 2007). Prevalence rates of neglectful parenting in the general population has been found to be 16% for physical neglect and 18% for emotional neglect, which can be argued is equivalent to cold/harsh parenting (Stoltenborgh, Bakermans-Kranenburg & van IJzendoorn, 2013), however, there are no reported rates of cold or harsh parenting in community samples (prevalence in clinical samples is about 20%; Young et al., 1997).

Prevalence of childhood adversity in mood disorders. People with mood disorders have higher rates of adversity in childhood than in the general population (Garno, 2005; Leverich, 2002; Dannehl, Rief & Euteneuer, 2017). A study examining self-reported exposure to adverse childhood events in adolescents with mood and anxiety disorders found that 58.3% of adolescents reported at least one form of childhood adversity. Among whom 59.7% reported exposure to multiple forms of adversity (McLaughlin et al., 2011).

In adults, a higher prevalence of childhood adversity was found in people with major depression. Studies by Negele, Kaufhold, Kallenbach and Leuzinger-Bohleber (2015) and Dannehl, Rief and Euteneuer (2017) found a history of childhood adversity in about 75% of people with major depression. Dannehl and colleagues, who compared people with major depression to healthy controls, found higher rates of neglect and emotional abuse in the MDD group than in healthy controls, confirming an earlier report by Bernet and Stein (1999) who had the same finding.

Earlier studies have also reported experiences of emotional, physical, or sexual abuse in approximately 35% of patients with major depression (Young, Abelson, Curtis & Nesse, 1997).

Child abuse is also highly prevalent among individuals diagnosed with BP. A meta-analysis by Palmier-Claus, Berry, Bucci, Mansell and Varese (2016) examining 19 case-control studies found that people with bipolar disorder had a 2.6-fold increased risk of having experienced childhood adversity. In particular, people with bipolar had a 4-fold increased risk of having experienced emotional abuse in childhood. In fact, about half of BP patients have suffered from at least one serious form of child abuse (Brown et al., 2005). About one quarter of BP patients have suffered from childhood sexual abuse, which is higher than the prevalence rates for healthy controls and similar to the prevalence rates for individuals with other psychiatric disorders (Brown et al., 2005). Likewise, Levitan and colleagues (1998) showed a strong relationship between childhood physical abuse and experiencing mania. Weibel and colleagues (2017) found rates of parental neglect were also significantly higher in bipolar populations as compared to controls.

The prevalence of childhood adversity is higher in people with bipolar disorder than those with major depression. The meta-analysis by Palmier-Claus and colleagues (2016) described above found that, while there were no differences between bipolar type I and type II groups in the prevalence of childhood adversity, the combined bipolar group had a greater prevalence of early adversity compared to major depression. Furthermore, Hyun and colleagues (2001) demonstrated that a history of childhood physical and sexual abuse was significantly more frequent in adults with bipolar versus adults with major depression.

Childhood adversity as a risk factor for mood disorders. Experiences of abuse and neglect in childhood can lead to long-lasting negative consequences, such as psychological problems (e.g. mood disorders, anxiety disorders, and personality disorders), aggression, anxiety,

poor interpersonal relationships, and addiction to alcohol and/or drugs (Institute of Medicine and National Research Council of the National Academies, 2013; Raposo, Mackenzie, Henriksen & Afifi, 2013). Childhood experiences of adversity have been reliably and consistently shown to be a risk factor in the development of major depression and bipolar disorder.

In a large prospective cohort study by Widom, DuMont and Czaja (2007), 676 cases of children who experienced marked neglect, physical and/or sexual abuse were matched with 520 controls (that is, no history of abuse) and followed into young adulthood to determine whether children who experienced abuse were at a greater risk of developing major depression. Only court-substantiated cases of abuse were selected. Child physical abuse and neglect was associated with an increased risk of developing major depression, while sexual abuse was not. This finding has been replicated in different countries (Tanskanen et al., 2004) and is supported by a number of cross-sectional studies. For example, Green, McLaughlin, Berglund and colleagues (2010) assessed the relationship between adult psychopathology and 12 forms of childhood adversity including neglect, physical and sexual abuse, parental mental illness or substance abuse, and parental loss or separation. They found that people with a history of any type of childhood adversity assessed had an increased risk for developing a mood disorder, however, they did not distinguish between major depression and bipolar disorder.

Childhood adversity has also been shown to be associated with bipolar disorder. In a Danish prospective longitudinal study by Bergink and colleagues (2016), 980,554 children who had experienced some form of childhood adversity by the age of 15 were followed for up to 19 years to determine whether experiences of abuse provided a greater risk of developing bipolar disorder. They found that those who experienced early adversity (that is, parental illness, family disruption, family financial problems, parental imprisonment, parental loss) were at an elevated

risk for developing bipolar disorder, compared to the background population, with family disruption (that is, any living arrangement other than the child living with both parents) having the highest hazard ratio of 2.2 for bipolar onset. Furthermore, there is also considerable evidence that childhood adversity might represent a non-specific risk factor for bipolar, considering the significantly higher prevalence of early adversity in both clinical and non-clinical samples of bipolar populations (Palmier-Claus, Berry, Bucci, Mansell & Varese, 2016).

Sexual abuse. Experiencing sexual abuse during childhood increases the risk of developing psychiatric illnesses such as major depression, phobias, obsessive-compulsive disorder, and panic disorder (Saunders, Villeponteaux, Lipovsky, Kilpatrick & Veronen, 1992), posttraumatic stress disorder (PTSD) (Putman, 2009), eating disorders (Mullen, Martin, Anderson, Romans, & Herbison, 1996), attention-deficit hyperactivity disorder (McLeer, Callaghan, Henry, & Wallen, 1994).

Physical abuse. Childhood physical abuse has been associated with an increased risk of developing a mood disorder, eating disorder, PTSD, or substance abuse/dependence (Mullen et al., 1996; Silverman et al., 1996). Women who have experienced either physical or sexual abuse during their childhood have a 4-fold increased risk of developing MDD in adulthood, as compared to women who have not been abused (Mullen et al., 1996).

Parental loss. In a case-control study, Agid and colleagues (1999) found that the loss of a parent early in life, due to either parental death or separation, significantly increased the risk of developing bipolar disorder. This finding was later confirmed by Mortensen and colleagues (2003) who used data from psychiatric registries in Denmark and found that the death of a parent during early childhood, especially of the mother, significantly increased the risk for developing bipolar disorder. In contrast, Jacobs & Bovasso (2009) have shown that maternal death was not a predictor

of adult pathology, while paternal death more than doubled the risk of major depression in adulthood. Children gowning up in homes with a high level of parental conflict and/or divorce were also found to have an increased risk of developing MDD (Gilman, Kawachi, Fitzmaurice, & Buka, 2003).

Neglect and Psychological abuse. Parental neglect has consistently been implicated in the development of abnormal emotional processing and prosocial behavior (Young & Widom, 2014). In a Swiss cross-sectional study conducted by Weibel and colleagues (2017), neglect in childhood was also found to be negatively associated with finding meaning in life. Psychological abuse has also been associated with an increased risk of developing a mood or eating disorder (Mullen et al., 1996).

Gender of the perpetrator and survivor of CA. It is important to note that gender plays a significant role in experiences of childhood adversity. First, the frequency of childhood adversity types differs by gender (Briere & Elliott, 2003; MacMillan et al., 1997; Alciati, 2012; Mullen et al., 1996). Second, the perpetrator of the abuse (mother or father) affects the impact of the abuse, and the gender of the perpetrator can have different effects depending on the gender of the child. Brown et al. (2007) examined the impact of maternal versus paternal child abuse. They found that persistent maternal antipathy, abuse and neglect is a strong predictor of chronic depression in women with MDD. For the father, they only found an association between physical abuse and chronic adult depression, irrespective of gender of adult. When examining gender differences in depressive symptoms, Seiffge-Krenke and Stemmler (2002) found that "stress in the relationship with the mother" had a significant effect on symptoms for adolescent females but not for adolescent males, suggesting a potential gender difference in the long-term negative effects of maternal abuse or neglect in individuals with MDD.

Mechanism of association between childhood adversity and mood disorders. There are two main step-wise processes thought to explain the downstream effects of childhood adversity leading to adult psychopathology, particularly mood disorders. First, experiences of adversity early in life may initiate an accumulation of stressful experiences. In fact, people who have experienced early adversity experience a higher number of stressful life events (Low et al., 2012; Pearlin, Schieman, Fazio & Meersman, 2005), which is not surprising considering the high rates of co-occurrence of different forms of childhood adversity (Green, McLaughlin, Berglund et al. 2010).

Second, this set of accumulating childhood adversity or stressors may lead to heightened psychological reactivity to stress and can foster a sense of vigilance towards threats as well as mistrust of others (Miller, Chen & Parker, 2011). This has been supported by studies demonstrating that the negative emotional effects of stressful events are heightened among those with childhood adversity (Glasser et al., 2006; McLaughlin et al., 2010). In turn, this tendency towards maladaptive processing can increase susceptibility to psychopathology and influence the quality of the individual's relationships in adulthood. For example, adolescents who reported experiencing more worry or stress related to common life events such as romantic breakups or financial problems in the family, have an increased risk of experiencing depressive symptoms (Low et al., 2012).

Attachment Style

A higher prevalence of insecure attachment has been found in both people with childhood adversity and a mood disorder (Shaver et al. 2005). As a result, it has been thought to explain the association between childhood adversity and mood disorders (Widom, Czaja, Kozakowski & Chauhan, 2018).

Definition. "Attachment" can be conceptualized as the drive to engage in strong emotional bonds with others, and as such it holds great importance for emotional and social well-being throughout the lifespan (Bowlby, 1977). It is thought that the interactions and subsequent bond (or lack thereof) between infants/children and their parents/parental-figures is the basis upon which an individual's attachment style will develop (Ng & Hou, 2017). An integral component of attachment style involves the child's propensity towards seeking out his/her parent in times of stress. Based on parental behaviours, children will learn to expect certain responses in their interactions with parents and future interpersonal relationships. Individuals will form implicit assumptions about how they should relate to others, especially when seeking support. These assumptions are often maintained through the individual's life because they will tend to act in a manner that elicits the original parental response.

Brennan, Clarke, and Shaver (1998) conducted a large-scale study to examine adult romantic attachment styles based on self-reports. They found that insecure attachment could be divided into two subtypes: anxious and avoidant. Anxious attachment refers to a style in which individuals have an overly negative view of the self and an overly positive view of their intimate partner. An anxiously-attached individual may also be fearful of intimacy or confuse dependence on the partner for intimacy. In contrast, avoidant attachment refers to a style in which the individual is reluctant to trust or achieve intimacy within their relationships. The avoidantly-attached individual will prefer to remain independent and maintain a defensive façade of security, while avoiding confrontation and distress (Milkulincer & Shaver, 2016).

Attachment style is thought to be relatively stable throughout adulthood (Moriss et al., 2009). However, subsequent relationships and partner responses can have a great impact on an individual's attachment related thoughts and behaviors, thereby repairing attachment injuries

(Milkulincer & Shaver, 2016). Similarly, attachment styles can be targeted and modified by the therapeutic alliance between patient and therapist and is often a major goal in different forms of talk therapy, such as psychodynamic analysis, family therapy, eye movement desensitization and reprocessing therapy (EMDR) and cognitive behavioral therapy (CBT; Bartholomew & Horowitz, 1991; Johnson 2004).

Prevalence of insecure attachment in general population. Attachment style prevalence in the general population was assessed in a large cross-sectional study of 5000 individuals in the U.S. Secure attachment was found in 64% of the sample, followed by 22% avoidant, 9% were unclassified and only 6% were anxious (Meng, Arcy & Adams, 2015). This is in line with previous studies reporting prevalences of 25% for avoidant and 11% for anxious attachment (Mickelson, Kessler & Shaver, 1997)

Insecure attachment and mood disorders. A higher prevalence of insecure attachment has been found in both clinical and non-clinical samples of people with major depression and bipolar disorder. For example, Marganska and colleagues (2013) reported that secure attachment was associated with fewer depression and anxiety symptoms, while insecure attachment styles were associated with higher levels of depression and anxiety in a general population sample.

When assessing attachment styles in clinical samples, Shaver and colleagues found that excessive reassurance seeking (anxious attachment) in romantic relationships is associated with depression (Shaver et al., 2005). More recently, people with major depression and bipolar disorder were found to have higher rates of both anxious and avoidant attachment than controls (Marazziti, et al., 2007; Moriss et al., 2009; Kokcu, 2010; Wongpakaran & Wongpakaran, 2012). Moriss and colleagues (2009) also found that avoidant attachment specifically was more prevalent in individuals with bipolar than in controls.

There is conflicting evidence that insecure attachment style differs between people with major depression, bipolar type I and type II. Marazitti and colleagues (2007) found no differences in anxious and avoidant attachment prevalence between major depression and bipolar groups. This was confirmed by Fuhr and colleagues (2017) in a study examining the effect of attachment style on subsyndromal symptoms of depression in MDD and BP remitted patients, which also found no differences between the groups. In contrast, Fonagy and colleagues (1996) found a had a higher prevalence of insecure attachment in bipolar subjects than those with major depression. A difference was also found between bipolar type I and II, with bipolar type I groups having higher prevalence of insecure attachment (Kokcu, 2010).

Childhood adversity as a risk factor for insecure attachment. The association between childhood adversity and attachment style was first reported by Hill, Young and Norn (1994) who found that early adversity predicted insecure attachment in adults. This finding has since been replicated several times (Fonagy et al. 2010; Bifulco et al., 2002). In a recent prospective study by Widom, Czaja, Kozakowski & Chauhan (2018) that followed 650 subjects with and without a history of abuse into adulthood, childhood adversity was again found to be associated with insecure attachment.

Gaps in Literature and Rationale

Childhood adversity has been thoroughly examined in both the general population as well as in mood disorder populations. It is clear that people who have experienced childhood adversity are likely to experience mood symptoms later in life, and adults who have a mood disorder will likely have experienced some form of adversity in their youth. In spite of the wealth of knowledge, studies examining childhood adversity have mostly focused on sexual and physical abuse and

parental neglect, while other forms of childhood adversity, such as role reversal, parental loss, cold parenting have been somewhat ignored.

The relationship between childhood adversity and insecure attachment has also been well documented in the general population, however, this relationship has been less studied in mood disorder populations, and reports on differences in attachment style between mood disorder types has been inconsistent.

Experiencing childhood adversity is hypothesized to increase the risk of experiencing more stressful events and to sensitize an individual to process these experiences/events in maladaptive ways, which in turn, may contribute to the onset of mood symptoms and a mood disorder. Childhood adversity also impacts the development of insecure attachment styles in adults, and that this association may vary between anxious to avoidant attachment style. As such, it is possible that the type of mood disorder diagnosis may contribute to the variation between childhood adversity and adult attachment style.

Given that the development of secure or insecure attachment styles is formed by the child-parent bond, we would expect that parental neglect and antipathy as well as loss or separation would be most implicated in later romantic attachment styles, since these forms of abuse are typically experienced through repeated interactions between the child and parent that can hinder the formation of a secure bonds, leading to the development of insecure attachment. Moreover, we know that the prevalence of childhood adversity types differs by gender, yet, we do not have consistent evidence demonstrating if the long-term effects of childhood abuse vary by the gender of the survivor. We also do not know if the gender of the perpetrator, whether the abuse was carried out by the mother or the father, have differing detrimental effects.

Finally, studies examining childhood adversity in bipolar disorder have often grouped bipolar type I and II together; however, it has become apparent in the literature that bipolar type I and II are more distinct than what was previously believed (Dell'Osso et al., 2015). As such, it is important to consider the effects of adversity on those with bipolar type II disorder separately.

Objectives

(1) To examine the prevalence and severity of different forms of childhood adversity in patients with major depression (MDD), bipolar type I (BPI) or bipolar type II (BPII).

(2) To examine the prevalence of attachment styles in patients with major depression (MDD), bipolar type I (BPI) or bipolar type II (BPII).

(3A) To examine the association between close relationship/attachment styles and different forms of childhood adversity in patients with major depression (MDD), bipolar type I (BPI) or bipolar type II (BPII).

(3B) To determine if mood disorder type modifies the association between childhood adversity and attachment style.

Methods

Sample

Two hundred and thirty subjects were recruited from the Mood Disorders Program (MDP) of the McGill University Health Center, a tertiary care outpatient clinic of the Department of Psychiatry situated in Montreal, Quebec. Patients aged 18 years and older and had a diagnosis of MDD, BPI or BPII were invited to participate in the study. All patients retained in the MDP with a diagnosis of MDD were required to have refractory depression (i.e., failing to respond to at least two anti-depressant trials). Of those 230 subjects, 191 were included in the analytical sample. The reasons for exclusion from the analytical sample were: 3 subjects did not have a mood disorder as their primary diagnosis, 3 did not want to complete the diagnostic interview, and 33 did not complete the self-report package. Of the 191 subjects, there were 71 in the MDD group, 68 in the BPI group and 52 in the BPII group.

Study Procedures

Eligible subjects with a primary mood diagnosis of MDD, BPI or BPII were identified and informed about the study by a member of their treating team at the MDP, usually either a psychiatrist, psychiatry resident or nurse. In addition to having a primary mood disorder, subjects had to be currently euthymic (i.e. not actively experiencing a major depressive, manic, or hypomanic episode) and able to provide informed consent before being approached a member of the research team for recruitment. The subjects were then met by either a graduate student or trained research volunteer (e.g., medical school student) who would describe the purpose of the

study and its procedures. Upon agreeing to participate and signing the consent from, subjects were given a package of questionnaires to take home and complete. They then underwent a single three-hour session which included a psychiatric diagnostic interview and a family history interview administered by a trained graduate student or research assistant. Following their participation, subjects were provided with twenty dollars compensation to cover their travel expenses. Accuracy about the participants' psychiatric history, treatment, and diagnosis was verified by a review of their medical charts and confirmation from their treating physician when necessary.

Measures

Sociodemographic information **and** ***psychiatric diagnoses*** were obtained by administering the Structured Clinical Interview for the Diagnosis of DSM-IV Disorders (First, Spitzer, Gibbon, & William, 2002). This interview collects information about psychiatric symptoms required to diagnose mood disorders (MDD, BPI, BPII, Dysthymic Disorder, Cyclothymic Disorder, and BP Not Otherwise Specified), psychotic disorders, substance use disorders, anxiety disorders, somatoform disorders, and eating disorders as defined by the DSM-IV. Only subjects who met the lifetime criteria for either MDD, BPI, BPII were included in the analytic sample.

Childhood adversity was measured using the Childhood Experience of Care and Abuse Questionnaire (CECA-Q), version 3 (Bifulco, Bernazzani, Moran, & Jacobs, 2005; see appendix B for questionnaire). The CECA-Q3 is a self-report questionnaire based on the Childhood Experience of Care and Abuse Interview and assesses eleven types of childhood adversity: parental loss/separation, antipathy, neglect, role reversal, and, psychological, physical

and sexual abuse. Antipathy, neglect, psychological and physical abuse are measured for both the mother and father figures, thus, yielding a total of eleven forms of childhood adversity assessed.

Parental Loss within the context of the CECA-Q3 is measured using two questions: (1) "Did either parent die before you were age 17?" and (2) "Have you ever been separated from your parent for one year or more before age 17?" A positive endorsement of either question is scored as 1 for loss of a mother and 1 for loss of a father while an answer of "no" for either mother or father loss is scored as 0. This section yields a score ranging between 0-4 where higher scores are indicative of more parental loss during childhood.

Parental Care – Antipathy & Neglect. The subjects' experience of care was assessed using 16 items that measure antipathy and neglect as perpetrated by both the mother and father figure. Subjects agreed or disagreed with each statement using a five-level Likert scale ranging from 1 (=not at all) to 5 (=definitely).

Antipathy within the context of the CECA-Q3 refers to "hostile or cold parenting" (Bifulco et al, 2005), and was assessed using eight statements, such as: "S/he made me feel unwanted" and "S/he often picked on me unfairly." Two of the statements, "S/he would usually have time to talk to me" and "S/he was there if I needed him/her," were reverse-scored and therefore responses ranged from 5 (=definitely) to 1 (=not at all). Scores for this section ranged from 8-40 with higher scores indicating more experienced antipathy during childhood. According to Bifulco and colleagues (2005), a 'marked or moderate' level of maternal antipathy was any score greater than or equal to 28, and 30 for paternal antipathy.

Neglect, or a parent's disinterest in material care, health, schoolwork and friendships (Bifulco et al., 2005) within the context of the CECA-Q3 was also assessed by eight statements, such as: "She would leave me unsupervised before I was 10 years old" and "She neglected my

basic needs (e.g. food and clothes).” Six of the statements, such as: “She was interested in how I did at school” and “She cared for me when I was ill,” were reverse-scored and thus responses ranged from 1 (=definitely) to 5 (=not at all). Scores for this section also ranged from 8-40, with higher scores indicating more experienced neglect during childhood. According to Bifulco and colleagues (2005), a ‘marked or moderate’ level of maternal neglect was any score greater than or equal to 25 and 26 for paternal neglect.

Physical Abuse in the CECA-Q3 was assessed by the screening question: “When you were a child or teenager, were you ever hit repeatedly with an implement or punched, kicked, or burnt by someone in the household?” (yes=1, no=0). The severity of physical abuse from the mother and father was assessed using four follow-up questions such as “Were you ever injured, e.g. bruises, black eyes, broken limbs?” Endorsed items were scored as 1, thus yielding a final score range of 0-4. According to Bifulco and colleagues (2005), a ‘marked or moderate’ level of physical abuse was any score greater than or equal to 3 for either the mother or father figure.

Psychological Abuse in the CECA-Q3 was assessed for frequency and amount of experienced psychological abuse perpetrated by both the mother and father figure. This section of the questionnaire was assessed by 17 statements such as “S/he liked to see me suffer,” “S/he would shame me in front of others,” and “S/he would deliberately deprive me of light, food, or company.” To measure the amount of psychological abuse subjects agreed or disagreed with each statement. Each item was scored as 0 (=no), 1 (=unsure), or 2 (=yes), thus yielding a final score ranging from 0-34, with higher scores indicating more maternal or paternal psychological abuse during childhood. Frequency was measured by asking how often the experience occurred, each item was scored as 0 (=never), 1 (=once), 2 (=rarely) and 3 (=often). Therefore, the total possible score for frequency of psychological abuse ranged between 0-51, with higher scores indicating a higher

frequency of experienced psychological abuse during childhood. Standard cut-off scores for 'marked or moderate' psychological abuse have not yet been established.

Sexual Abuse in the CECA-Q3 was assessed by three screening questions, such as: "When you were a child or a teenager, did you ever have any unwanted sexual experiences?". The screening questions were scored as Yes=1, Unsure=1, and No=0, with total scores ranging from 0-3 and higher scores indicating more sexual abuse during childhood. Severity of sexual abuse was further assessed by 7 dichotomous questions such as "Was the other person someone you knew?" and "Did the other person live in your household? (yes=1, no=0). Severity of sexual abuse yielded scores ranging from 0-7, with higher scores indicating more severe sexual abuse. The cut-off score for 'marked' sexual abuse is a score of at least 1 for the three sexual abuse screening questions, and 2 for the severity questions.

Role Reversal in the CECA-Q3 refers to the degree to which the child was required to take-over parental responsibilities, and/or provide emotional support for the parent that would be more appropriately provided by an adult (Brown et. al, 2007). Role reversal was assessed using seventeen questions such as: (1) "Were you expected to do a lot of housework, more than other children your age?" and (2) "Did your parents rely on you for emotional support when you were a child?". Total role reversal scores ranged from 17-85, with higher scores indicating more role reversal during childhood. Standard cut-off scores for 'marked or moderate' role reversal have not yet been established.

Relationship attachment style was assessed using the self-report Experiences in Close Relationships Questionnaire (ECR) (Fraley et al., 2000; see appendix C for questionnaire). The ECR is composed of 36 statements that are rated on a 7-point Likert scale ranging from 1 (=strongly disagree) to 7 (=strongly agree). The ECR measures two styles of attachment: anxious

and avoidant attachment. It is of note that there is a significant correlation (r = 0.28, *p*-value = .000) between anxious and avoidant attachment styles, however because the Pearson correlation coefficient is considerably low, the two forms of attachment will be regarded as independent. Moreover, the romantic attachment styles determined by the ECR can be considered for a variety of interpersonal relationships, not just romantic ones (Fraley, 2016).

Anxious Attachment was measured using 18 out of the 36 items and prompted subjects as to whether they agreed or disagreed with the statements. Two examples of such statements are as follows: "I am afraid that I will lose my partner's love," and "My desire to be very close sometimes scares people away". Out of the 18 anxious attachment statements, items 9 and 11 were reverse-coded, such that participant answers of "7" for example were scored as "1", "6" was scored as "2", and so on. The range of possible scores for anxious attachment was 7-126 for each participant. This score was then averaged to obtain the anxious attachment score, which could range between 1 and 7. A higher average score is indicative of a greater propensity towards anxious attachment.

Avoidant Attachment was measured using 18 out of the 36 statements, such as: "I prefer not to show a partner how I feel deep down," and "I don't feel comfortable opening up to romantic partners". Out of the 18 avoidant attachment statements, 12 items were reverse-coded, similarly to the two anxious attachment items that were reverse-coded above. The range of possible scores for avoidant attachment was 7-126 for each participant. This score was then averaged to obtain the anxious attachment score, which could range between 1 and 7. A higher average score is indicative of a greater propensity towards avoidant attachment.

Statistical Analysis

To describe the sociodemographic characteristics (i.e., age, sex, marital status, living arrangement, education and occupation) and severity of illness indicators of the sample (i.e.,

age of onset of symptoms, age first sought help, age of first psychiatric consultation, number of hospitalizations, number of comorbidities, number of suicide attempts), univariate statistics (i.e., means, standard deviation and frequencies) were employed. Differences in these characteristics and indicators among the three groups (i.e., major depression, bipolar type I and bipolar type II) were tested using chi-square tests for the dichotomous variables and one-way ANOVA tests for the continuous variables. Significant findings from the one-way ANOVA were followed-up using Tukey's post-hoc tests.

To examine the prevalence of our exposure, childhood adversity, within each diagnostic group chi-square tests were used for the dichotomous variables, and one-way ANOVA tests for the continuous variables. Significant findings from the one-way ANOVA were followed-up using Tukey's post-hoc tests. To establish dichotomous variables for psychological abuse and role reversal (as the original paper does not provide cut-offs for these CA types; Bifulco and colleagues 2005), cut-off scores of the mean plus one standard deviation were used. These yielded a cut-off scores of 12.6 and 12.3 for maternal and paternal psychological abuse respectively, and 54.0 for role reversal.

To examine the concurrence among childhood adversity types, chi-square tests and Pearson's correlations were conducted. It is of note that there is a significant correlation ($r = 0.66$, *p*-value = .000) between maternal antipathy and maternal neglect, and between maternal antipathy and maternal psychological abuse ($r = 0.78$, *p*-value = .000). Paternal antipathy is also significantly correlated to paternal antipathy ($r = 0.70$, *p*-value = .000) paternal psychological abuse ($r = 0.74$, *p*-value = .000). Finally, paternal and maternal neglect were significantly correlated ($r = 0.64$, *p*-value = .000). Other forms of childhood adversity were significantly correlated, but the Pearson correlation coefficients was less than 0.5. Correlations among the forms of childhood adversity

can be found in Appendix A. Due to the high tendency for antipathy and psychological abuse to be experienced from the same parent, these constructs/ experiences should not be considered independent.

To examine the prevalence of our outcome measure, insecure attachment styles, within each diagnostic group, chi-square tests were used for the dichotomous variables, and one-way ANOVA tests for the continuous variables. Significant findings from the one-way ANOVA were followed-up using Tukey's post-hoc tests.

To examine the association between childhood adversity as the exposure and attachment style as the outcome, two multiple linear regression models were used. Both models were run for each of the 13 different forms of childhood adversity assessed and its association with both anxious and avoidant attachment, yielding a total of 52 linear regressions. Even though childhood adversities are known to be highly co-occurring, their association with mental illness has been shown to be non-additive (McLaughlin et al., 2012), and therefore were examined separately, one at a time.

Both models 1 and model 2 controlled for age and sex, which have been shown to vary. To determine if mood disorder diagnosis modifies the association between childhood adversity and attachment style, model 2 included a single mood disorder diagnosis variable with a 3-level response of MDD, BPI or BPII.

All data analyses were conducted using IBM SPSS Statistics, version 24 (IBM Corp., 2016).

Results

Sociodemographic Characteristics

Information about subjects' psychiatric diagnosis, age, sex, marital status, education and occupation are reported in Table 1. The average age of participants was 47.2 years, and 35.6% of participants had a diagnosis of BPI, while 27.2% had a diagnosis of BPII and 37.2% MDD. Thirty-four percent of the sample had at least one suicide attempt and about 60% had at least one comorbid diagnosis, and about 10% had greater than 5. It is important to note that the groups differed in age (p = .002), with the MDD group (M = 51.1 years, SD = 13.2) group being significantly older than the BPII (M = 42.4 years, SD = 14.7, p = .002).

Indicators of Illness Severity

Information about subjects' age of onset of symptoms, age first sought help, age of first psychiatric consultation, number of hospitalizations, number of comorbidities and number of suicide attempts are reported in Table 2. BPII group had a higher average of comorbid diagnoses (2.3 ± 2.1) compared to the MDD group and BPI group (1.6 ± 1.9, and 1.5 ± 2.0, respectively), however this difference was not significant (p = .053). In addition, the BPII (25%) group had a lower percentage of subjects with no comorbid conditions when compared to the MDD group and BPI group (42.3% and 45.6%, respectively), however this difference was also not significant (p = .054)

Participants differed in the age at which they first sought help from a mental health professional (p = .037), and their age at first psychiatric consultation (p = .025). Post-hoc testing showed that the MDD group will first seek help at a significantly older age (M = 30.1 years, SD =

15.0) than the BPII group (M = 24.5 years, SD = 12.4, p = .043), and are also significantly older (M = 33.8, SD = 14.8) at their first psychiatric consultation than the BPII group (M = 28.1, SD = 12.8, p = .045). The groups differed in number of psychiatric hospitalizations (p = .000), with BPI having significantly greater number of psychiatric hospitalizations (M = 4.0, SD = 4.3, p = .000) than the BPII (M = 0.9, SD = 1.7) and MDD groups (M = 1.2, SD = 1.7, p = .000).

Prevalence of Childhood Adversity

The distribution of childhood adversity in the sample is summarized in Tables 3 and 4. Thirty-seven- percent of our sample did not experience a marked level of any form of childhood adversity, 20.9% experienced one type of childhood adversity, 16.2% experienced two forms, and approximately 10% experienced at least 5 out of the 11 types of childhood adversity assessed. On average, participants experienced one form of adversity from their mother and one from their father. About a quarter (26.0 %) of participants experienced either a loss or separation from one or more of their parents. Marked paternal neglect was experienced by 20.0% of participants while only 6.9% experienced marked neglect from their mother. In contrast, 17.9% of participants experienced marked antipathy from their mother, while 12.4% experienced marked antipathy from the father. About 30% of the sample experienced some form of sexual abuse in childhood, and about 60% experienced marked physical abuse from either their mother or their father.

The severity of maternal physical abuse differed in the MDD, BPI and BPII groups (p = .033). Post-hoc testing revealed that the BPII group (M = 2.5, SD = 0.8) experienced more physical abuse from their mothers than the BPI group (M = 1.5, SD = 1.2, p = .027). The prevalence of marked physical abuse from mothers in our sample was 32.4% in the sample, and 34.7% for marked physical abuse from their father; however, there was no difference in amount of paternal

abuse from fathers between the three groups. No other forms of childhood adversity differed in prevalence among the three groups.

Table 5 summarizes the overlap of antipathy, neglect and psychological abuse experienced in our sample. Parents (either the mother or the father) who psychologically abused their children were also cold or harsh (antipathy) in about 70% of cases and were neglectful towards the child in about 40% of cases. This association is illustrated in Figure 1. Out of 74 subject who experienced marked levels of antipathy, neglect and/or psychological abuse, 17 subjects experienced all three forms of adversity. Of the 48 subjects who experience marked antipathy, 18 also experienced marked psychological abuse and 8 experienced marked neglect while only 5 experienced marked antipathy alone. Similarly, of the 41 subjects who experienced marked neglect, 4 also experienced marked psychological abuse and only 12 experienced marked neglect alone. Only 10 of 48 subjects who experienced marked psychological abuse did not experience marked antipathy or neglect as well

Table 6 summarizes the overlap of marked antipathy from mothers and fathers. About 70% of participants who experienced neglect from their mothers also had neglectful fathers.

Prevalence of Attachment Styles

The mean anxious and avoidant attachment scores are reported in Table 7. The mean anxious attachment score was 4.0 ± 1.2 and the mean avoidant attachment score was 3.8 ± 1.4. The prevalence of anxious attachment differed in the MDD, BPI and BPII groups ($p = .002$). Post-hoc testing revealed that the BPII (4.5 ± 1.3) scored significantly higher than the BPI group (3.7 ± 1.3, $p = .001$). The prevalence of avoidant attachment style also differed between the groups ($p = .019$). Post-hoc testing revealed that both the BPII group (4.0 ± 1.2) and the MDD group (4.0 ± 1.4) scored significantly higher than the BPI group (3.4 ± 1.5, $p = .039$ and $p = .043$, respectively)

It is of note that the BPII and MDD groups (who had similar scores) always scored higher than the BPI group on both the anxious and avoidant dimensions. Furthermore, the BPI and MDD groups yielded similar scores on both the anxious and avoidant attachment, while the BPII group had higher scores for anxious attachment (4.5 ± 1.3) than they did on avoidant attachment (4.0 ± 1.2).

Association between Childhood Adversity and Insecure Attachment Styles

Results from multivariate linear regression models examining the association between childhood adversity and (1) anxious attachment, and (2) avoidant attachment are reported in Tables 8 and 9, respectively. Two regression models were used to measure the relationship between childhood adversity types and anxious attachment. The second model used a 3-level mood disorder type as a modifier while the first measured the association without mood disorder type as a covariate. Our results indicated that specific types of childhood adversity are associated with both forms of insecure attachment.

Childhood Adversity and Anxious Attachment

The association between childhood adversity and anxious attachment is reported in table 8. In both models, a higher anxious attachment style was associated with four out of the eleven forms of childhood adversity assessed: antipathy from both the mother ($\beta = 0.21$, $p = .004$) and father figures ($\beta = 0.16$, $p = .034$), psychological abuse perpetrated by a mother figure ($\beta = 0.22$, $p = .004$), and role reversal ($\beta = 0.18$, $p = .041$). Parental loss, neglect, physical and sexual abuse were not significantly associated with higher anxious attachment. It is of note that mood disorder diagnoses did not contribute significantly to any form of childhood adversity.

Childhood Adversity and Avoidant Attachment

The association between childhood adversity and avoidant attachment is reported in table 9. In both models, a higher avoidant attachment style was associated with eight of the eleven forms of childhood adversity assessed: parental loss (β = 0.21, p = .013), maternal antipathy (β = 0.33, p = .000), paternal antipathy (β = 0.20, p = .009), maternal neglect (β = 0.26, p = .001), paternal neglect (β = 0.22, p = .004), maternal psychological abuse (β = 0.31, p = .000), paternal psychological abuse (β = 0.18, p = .019), and role reversal (β = 0.18, p = .041). Physical and sexual abuse were not significantly associated with higher anxious attachment. Once again, the type of mood disorder diagnosis did not contribute significantly to any form of childhood adversity.

Tables

Table 1

Sociodemographic Characteristics of Subjects

Sociodemographic Characteristic	Mood Disorders (n = 191)	Major Depressive Disorder (n = 71)	Bipolar Disorder Type I and II (n = 120)	Bipolar Disorder Type I (n = 68)	Bipolar Disorder Type II (n = 52)	*p*-value[a]
Age in years, Mean (SD)	47.2 (13.9)	51.1 (13.2)	44.9 (13.8)	46.8 (13.0)	42.4 (14.7)	**.002**[b]
Sex, %						
Male	37.7	14.7	23.0	13.6	9.4	.856
Female	62.3	22.5	40.0	22.2	17.8	
Marital Status, %						
Married	37.2	14.7	22.5	12.0	10.5	.490
Widowed, divorced or separated	25.7	10.5	15.2	10.5	4.7	
Never married	37.2	12.0	25.1	13.1	12.0	
Lives with, %						
Alone	38.7	18.2	20.4	11.6	8.8	.090
With partner & kids	14.4	6.1	8.3	1.7	6.6	
With partner only	24.9	8.3	16.6	10.5	6.1	
With kids only or with parents	11.0	3.9	7.2	4.4	2.8	
other	11.0	2.8	8.3	5.5	2.8	
Education, %						
Partial or full high school	14.8	5.8	9.0	6.3	2.6	.175
Part college	14.8	4.8	10.1	5.8	4.2	
Graduated 2-yr college	17.5	5.8	11.6	8.5	3.2	
Part or full 4-yr college	37.0	12.7	24.3	10.6	13.8	
Graduated post-college	15.9	8.5	7.4	3.7	3.7	

Sociodemographic Characteristic	Mood Disorders (n = 191)	Major Depressive Disorder (n = 71)	Bipolar Disorder Type I and II (n = 120)	Bipolar Disorder Type I (n = 68)	Bipolar Disorder Type II (n = 52)	*p*-value[a]
Occupation, %						
Administrative/ executive	41.1	18.4	22.6	11.6	11.1	.158
Technical/clerical/ skilled laborer	20.5	7.9	12.6	7.9	4.7	
Unskilled laborer/ homemaker	29.5	8.4	21.1	13.7	7.4	
Student	8.9	2.6	6.3	2.1	4.2	

[a] *p-values reported for differences between MDD, BPI and BPII groups.*
[b] *post-hoc testing reveals difference is between MDD and BPII groups.*

Table 2

Severity of Illness Indicators

Illness Severity Characteristic	Mood Disorders (n = 191)	Major Depressive Disorder (n = 71)	Bipolar Disorder Type I and II (n = 120)	Bipolar Disorder Type I (n = 68)	Bipolar Disorder Type II (n = 52)	*p*-value[a]
Age, mean (SD)						
Onset of symptoms	20.1 (12.0)	21.3 (14.1)	19.4 (10.5)	21.3 (9.6)	17.0 (11.2)	.095
First sought help	27.1 (12.9)	30.1 (15.0)	25.3 (11.1)	26.0 (9.9)	24.5 (12.4)	**.037**[b]
First consultation with psychiatrist	30.4 (13.1)	33.8 (14.8)	28.5 (11.5)	28.8 (10.5)	28.1 (12.8)	**.025**[b]
Number of psychiatric hospitalizations, mean (SD)	2.1 (3.2)	1.2 (1.7)	2.6 (3.7)	4.0 (4.3)	0.9 (1.7)	**.000**[c]
Number of suicide attempts, mean (SD)	0.7 (1.4)	0.6 (1.3)	0.8 (1.5)	0.7 (1.6)	0.8 (1.4)	.793
Number of comorbid psychiatric illnesses[d], mean (SD)	1.8 (2.0)	1.6 (1.9)	1.9 (2.1)	1.5 (2.0)	2.3 (2.1)	.053
No comorbidity (%)	38.7	42.3	36.7	45.6	25.0	.054

[a] *p-values reported for differences between MDD, BPI and BPII groups.*
[b] *post-hoc testing reveals difference is between MDD and BPII groups.*
[c] *post-hoc testing reveals difference is between BPI and MDD, and BPI and BPII groups.*
[d] *Out of 15 from SCID-I, alcohol/substance abuse and dependence, PD, AG, Social Phobia, Specific Phobia, OCD, PTSD, GAD, AN, BN, BED, EDNOS.*

Table 3

Prevalence of Childhood Adversity (Dichotomous)

Type of Childhood Adversity	Mood Disorders (n = 191) %	Major Depressive Disorder (n = 71) %	Bipolar Disorder Type I and II (n = 120) %	Bipolar Disorder Type I (n = 68) %	Bipolar Disorder Type II (n = 52) %	*p*-value[a]
Loss Risk Factor	26.0	31.5	22.8	20.0	26.2	.411
Antipathy						
Mother	17.9	16.9	18.5	14.9	23.1	.497
Father	12.4	15.7	10.3	12.1	8.0	.448
At least 1 parent	25.9	28.6	24.3	21.5	28.0	.601
Neglect						
Mother	6.9	8.5	5.9	4.5	7.7	.641
Father	20.0	23.2	18.1	18.2	18.0	.448
At least 1 parent	22.4	24.6	21.1	20.3	22.0	.834
Psychological abuse [b]						
Mother	16.6	15.7	17.1	13.4	22.0	.454
Father	16.3	19.1	14.5	15.4	13.3	.696
At least 1 parent	27.4	30.9	25.2	23.1	28.3	.594
Physical abuse						
Mother severity	29.8	26.7	31.3	15.8	53.8	.066
Father severity	34.7	36.8	33.3	28.6	44.4	.683
At least 1 parent	57.8	64.7	53.6	47.1	63.6	.525
Role Reversal [b]	15.9	16.7	15.5	13.2	18.2	.786
Sexual abuse	32.4	25.4	36.8	40.9	31.3	.148
Number of childhood adversities						
0	37.2	36.6	37.5	35.3	40.4	.628
1	20.9	21.1	20.8	23.5	17.3	
2	16.2	11.3	19.2	22.1	15.4	
3 - 4	14.7	19.7	11.7	8.8	15.4	
5 or more	11.0	11.3	10.8	10.3	11.5	

[a] *p-values reported for differences between MDD, BPI and BPII groups.*
[b] *Psychological abuse and Role reversal, cut-off score established by mean + 1 standard deviation of continuous variable.*

Table 4

Prevalence of Childhood Adversity (Continuous)

Type of Childhood Adversity	Mood Disorders (n = 191) Mean, SD	Major Depressive Disorder (n = 71) Mean, SD	Bipolar Disorder Type I and II (n = 120) Mean, SD	Bipolar Disorder Type I (n = 68) Mean, SD	Bipolar Disorder Type II (n = 52) Mean, SD	*p*-value[a]
Parental Loss	0.4 (0.8)	0.5 (0.8)	0.4 (0.8)	0.3 (0.7)	0.5 (0.8)	.499
Antipathy						
Mother	17.6 (8.5)	17.8 (8.5)	17.46 (8.6)	6.2 (8.1)	19.1 (9.1)	.181
Father	18.7 (8.5)	20.11 (8.4)	17.8 (8.5)	17.9 (8.8)	17.8 (8.2)	.198
Neglect						
Mother	14.07 (5.7)	14.9 (6.1)	13.6 (5.4)	13.1 (5)	14.2 (5.9)	.180
Father	18 (8.2)	19 (8.6)	17.3 (8)	17.4 (8.1)	17.1 (8)	.359
Psychological abuse						
Mother	5.9 (6.7)	6 (6.8)	5.8 (6.6)	5.4 (6.4)	6.4 (7)	.682
Mother frequency	9.2 (9.7)	9.1 (9.6)	9.2 (9.9)	9.2 (10.3)	9.3 (9.2)	.995
Father	5.5 (6.8)	6.3 (7.4)	5 (6.4)	5.2 (6.3)	4.6 (6.5)	.369
Father frequency	8.8 (9.7)	10.7 (11.3)	7.7 (8.6)	7.8 (8.9)	7.4 (8.2)	.198
Physical abuse						
Mother severity	1.9 (1.1)	1.8 (1.1)	1.9 (1.1)	1.5 (1.2)	2.5 (0.8)	**.033**[c]
Father severity	2.1 (1.1)	2.2 (1.2)	2.13 (1)	2.1 (1.1)	2.1 (1.1)	.995
Sexual abuse						
Screening	0.6 (1)	0.5 (0.9)	0.7 (1.1)	0.9 (1.2)	0.7 (.98)	.118
Severity	3.42 (1.6)	3.3 (1.4)	3.5 (1.6)	3.5 (1.6)	3.4 (1.7)	.938
Role reversal	40.1 (13.9)	39.9 (12.4)	40.2 (14.7)	39 (13.9)	41.6(15.7)	.657
Number of childhood adversities	1.7 (1.9)	1.8 (2.0)	1.6 (1.9)	1.6 (1.7)	1.8 (2.2)	.784
By mother [b]	0.5 (1.0)	0.5 (0.9)	0.5 (1.0)	0.4 (0.9)	0.7 (1.1)	.280
By father [b]	0.6 (1.0)	0.7 (1.1)	0.5 (0.9)	0.6 (0.9)	0.5 (0.9)	.498

[a] *p-values reported for differences between MDD, BPI and BPII groups.*
[b] *Possible Score (0-4) out of antipathy, neglect, psychological and physical abuse.*
[c] *Post-hoc testing reveals difference is between BPI and BPII groups.*

Table 5

*Summary of comorbidity among antipathy, neglect and psychological abuse **

Type of Childhood Adversity [a]	Antipathy	Neglect	Psychological Abuse
	% (n/48)	% (n/41)	% (n/49)
Antipathy	–	61% (25/41)	71.4% (35/49)
Neglect	52.1% (25/48)	–	42.9% (21/49)
Psychological Abuse	72.9% (35/48)	51.2% (21/41)	–

[a] *Experienced from either mother or father.*

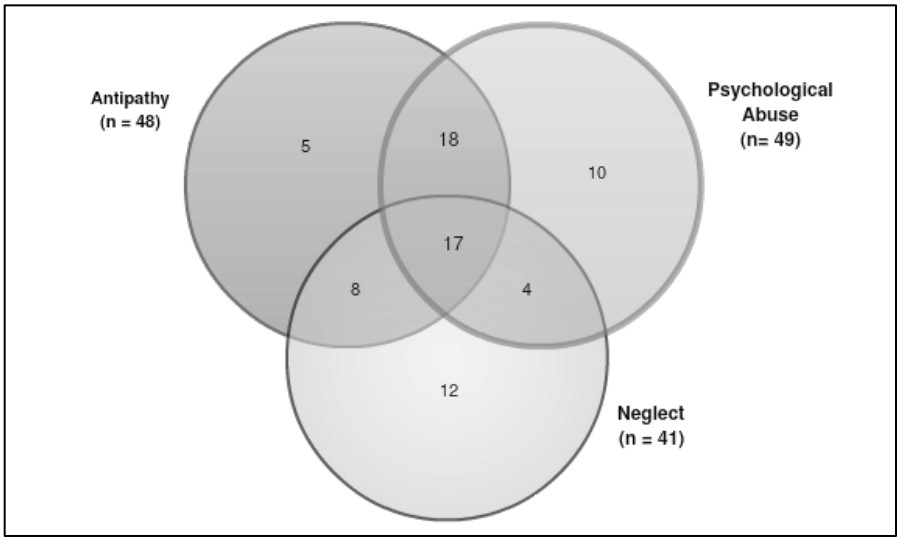
Table 6

*Summary of comorbidity between neglect from mother and from father**

Type of Childhood Adversity	Neglect from father	Neglect from mother
	% (n/37)	% (n/13)
Neglect from father	–	69.2% (9/13)
Neglect from Mother	24.3% (9/37)	–

Figure 1

*Overlap of Childhood Adversity Types**



**Only childhood adversity types with high (r > 0.5) correlations shown*

Table 7

Prevalence of Attachment Style

Type of Attachment Style	Mood Disorders (n = 191) Mean, SD	Major Depressive Disorder (n = 71) Mean, SD	Bipolar Disorder Type I and II (n = 120) Mean, SD	Bipolar Disorder Type I (n = 68) Mean, SD	Bipolar Disorder Type II (n = 52) Mean, SD	*p*-value [a]
Anxious (1-7)	4.0 (1.2)	4.0 (1.1)	4.0 (1.3)	3.7 (1.3)	4.5 (1.3)	**.002**[b]
Avoidant (1-7)	3.8 (1.4)	4.0 (1.4)	3.7 (1.4)	3.4 (1.5)	4.0 (1.2)	**.019**[c]

[a] *p-values reported for differences between MDD, BPI and BPII groups.*
[b] *post-hoc testing reveals difference is between BPI and BPII groups.*
[c] *post-hoc testing reveals difference is between BPII and MDD, and BPII and BPI groups.*

Table 8

Effect of Childhood Adversity Types on Anxious Attachment Style

	Model 1[a]		Model 2[b]	
Main effect	β	*p*-value	β	*p*-value
Parental Loss	0.05	.549	0.05	.530
Mood disorder diagnosis			0.12	.175
Antipathy				
Mother	0.22	**.003**	0.21	**.004**
Mood disorder diagnosis			0.09	.237
Father	0.15	. **046**	0.16	**.034**
Mood disorder diagnosis				
Neglect				
Mother	0.09	.218	0.10	.199
Mood disorder diagnosis			0.11	.149
Father	0.14	.072	0.14	.0 61
Mood disorder diagnosis			0.10	.186
Psychological abuse				
Mother	0.22	**.003**	0.22	**.004**
Mood disorder diagnosis			0.10	.186
Father	0.09	.263	0.10	.213
Mood disorder diagnosis			0.11	.181
Physical abuse				
Mother severity	0.18	.247	0.17	.276
Mood disorder diagnosis			0.11	.948
Father severity	0.05	.741	0.05	.715
Mood disorder diagnosis			0.14	.352
Role reversal	0.18	**.036**	0.18	**.041**
Mood disorder diagnosis			0.13	.133
Sexual abuse				
Screening	0.01	.871	0.01	.915
Mood disorder diagnosis			0.09	.296
Severity of 1st experience	-0.11	.471	-0.11	.410
Mood disorder diagnosis			0.07	.601
Severity of 2nd experience	-0.57	**.043**	-0.58	.054
Mood disorder diagnosis			0.10	.742

[a] *Adjusted for age and sex.*
[b] *Adjusted for age, sex and Mood Disorder Diagnosis.*

Table 9

Effect of Childhood Adversity Types on Avoidant Attachment Style

	Model 1[a]		Model 2[b]	
Main effect	β	*p*-value	β	*p*-value
Parental Loss	0.21	**.013**	0.21	**.013**
Mood disorder diagnosis			0.07	.441
Antipathy				
Mother	0.33	**.000**	0.33	**.000**
Mood disorder diagnosis			0.00	.967
Father	0.20	**.010**	0.20	**.009**
Mood disorder diagnosis			0.05	.698
Neglect				
Mother	0.26	**.001**	0.26	**.001**
Mood disorder diagnosis			0.04	.633
Father	0.22	**.004**	0.22	**.004**
Mood disorder diagnosis			0.05	.558
Psychological abuse				
Mother	0.31	**.000**	0.31	**.000**
Mood disorder diagnosis			-0.00	.970
Father	0.18	**.020**	0.18	**.019**
Mood disorder diagnosis			0.24	.764
Physical abuse				
Mother severity	-0.28	.072	-0.24	.112
Mood disorder diagnosis			0.17	.287
Father severity	0.08	.595	0.09	.577
Mood disorder diagnosis			0.12	.439
Role reversal	0.18	**.036**	0.18	**.041**
Mood disorder diagnosis			0.68	.427
Sexual abuse				
Screening	0.03	.662	0.03	.667
Mood disorder diagnosis			0.01	.913
Severity of 1st experience	-0.05	.700	-0.05	.712
Mood disorder diagnosis			0.12	.397
Severity of 2nd experience	-0.52	.106	-0.55	.093
Mood disorder diagnosis			0.34	.305

[a] *Adjusted for age and sex.*
[b] *Adjusted for age, sex and Mood Disorder Diagnosis.*

Discussion

Main Findings in Context of Previous Literature

Sociodemographic Description of Sample

Our mood disorder sample is typical in terms of sociodemographic characteristics compared to other mood disorder populations studied (Morris Van der Gucht, Lancaster & Bentall, 2010; Mula et al., 2016). One third of subjects were married or in a common law relationship, one third were widowed, divorced or separated, and the final third were never married. About 40% of the sample lived alone and about 40% lived with their partner, of which 25% also lived with their children. In comparison, 36% of subjects lived alone in a study by Morris, Van der Gucht, Lancaster and Bentall (2010) examining adult attachment styles in 107 outpatients with bipolar I disorder.

Most of the subjects in our study had at least some post-secondary education, and about 40% held executive or administrative jobs. This is also comparable to other studies examining attachment in mood disorders (Mula et al., 2016; Marazziti et al., 2007). For example, 75% of a clinical sample examined by McIntyre and colleagues (2012) had at least some post-secondary education. The three groups in the sample (MDD, BPI and BPII) were similar in terms of sociodemographic variables, with the exception of age, as shown in Table 1. The bipolar type II group was almost 10 years younger than the MDD group, and therefore, age was controlled for in the analytic models.

Clinical Severity of Sample

When examining the clinical severity of the sample, we found that the three mood disorder groups differed in their number of psychiatric hospitalizations, but not in their number of comorbid conditions or suicide attempts. The bipolar type I group had the highest number of hospitalizations compared to both the major depression and bipolar type II groups. About 45% of the sample did not have any psychiatric comorbidities, and the mean number of psychiatric comorbidities was 1.8, which did not differ between the diagnostic groups. The mean number of suicide attempts in the sample was 0.7, which also did not differ between the mood groups. Finally, we examined the ages of: (1) symptom onset, (2) first sought help from a mental health care professional and (3) first psychiatric consultation. We found that on average, subjects experienced an onset of psychiatric symptoms around age 20 years. There was a difference between the groups in the age at which subjects first sought help, and the age of their first psychiatric consultation, with the bipolar type II group seeking help about 6 years earlier than the major depression group.

When considering the overall clinical severity of our sample in relation to other outpatient mood disorders populations, we can conclude that our sample is similar overall, notwithstanding some differences (Jolfaei et al., 2016; Hooshmand et al., 2018; Kirshnan 2005; Dell'Osso et al., 2015; Kessler et al., 2005; Merikangas 2014). It is likely that the MDD group in our sample is more severe than other MDD populations studied, since we are a specialized tertiary-care clinic and would likely receive MDD cases that are more difficult to treat (refer to Methods).

Objective 1: Prevalence and Severity of Childhood Adversity in Sample

Childhood adversity was quite common in our sample. The mean number childhood adversities experienced was about 2, and about 65% of the sample experienced at least one form of childhood adversity. Approximately 10% of the sample experienced at least 5 out of the total of

11 types of childhood adversity assessed. Just over half (58%) of subjects suffered from physical abuse, one-third (32%) suffered from sexual abuse, about a quarter experienced marked psychological abuse, antipathy, neglect, and parental death or separation (27%, 26%, 22% and 26%, respectively), and 16% experienced marked role reversal. These prevalence rates are consistent with previous findings (Brown et al., 2005; Garno et al., 2005; Leverich et al., 2002). Given the strong link between childhood adversity and mood disorders (Widom, DuMont & Czaja, 2007; Tanskanen et al., 2004; Green et al., 2010; Raposo, Mackenzie, Henriksen & Afifi, 2013), it is not surprising that we found such a high prevalence of childhood adversity in the sample.

There were no differences between MDD, BP type I and BP type II subjects in the prevalence or severities of the different forms of childhood adversity, with the exception of the severity of maternal physical abuse, which was higher in the BPII group than the BPI. The majority of the previous literature did not examine the 3 mood groups together with a diversity of childhood adversities, therefore there are few studies to compare ours with. The similarity in prevalence of childhood adversity types, severity and perpetrator of abuse among the mood disorder groups suggests that childhood adversity in general, and not specific forms of childhood adversity may influence the development of a mood disorder.

Objective 2: Prevalence of Insecure Attachment Styles in Sample

Scores for anxious and avoidant attachment styles could range from 1 – 7 with higher scores indicating greater insecure attachment. The mean attachment score in our sample was 4.0 for anxious attachment and 3.8 for avoidant attachment. These results differed slightly from scores reported in other studies. For example, a study by Marazziti and colleagues (2007) which also used the ECR to assess attachment styles in a tertiary-care outpatient mood and anxiety clinic found that subjects with major depression, bipolar type I and type II had a mean anxious attachment score

of 4.3, and a mean avoidant attachment score of 2.8, 3.2 and 3.1 respectively. The difference in avoidant attachment scores between this study and our own may be explained by the notable difference in marital status - around 80% of subjects in Marazziti's study were married compared to 40% in our sample. Nevertheless, despite the lower prevalence of avoidant attachment in their sample, avoidance still emerged as a significant predictor of worse clinical outcomes in mood, suggesting that it is strongly associated to mood disorders.

Another study by Wongpakaran & Wongpakaran (2012) comparing the mean anxious and avoidant ECR scores between psychiatric outpatients and healthy controls found that the outpatient group scored 3.7 for anxious attachment and 3.5 for avoidant attachment compared to 3.0 and 2.9 in healthy controls. In a study comparing attachment in depressed patients to healthy controls recruited from advertisements to hospital employees the depressed group was found to have greater insecure attachment than healthy controls (Myhr et al., 2004). However, attachment style in the study was assessed using the Revised Adult Attachment Scale (RAAS) which does not specifically measure anxious and avoidant attachment, and so scores on these dimensions could not be compared to our sample. Overall, the level of insecure attachment present in our sample was similar to other mood disorder clinical samples.

The prevalence of insecure attachment differed between the three diagnostic groups, with the BPII group scoring higher than the BPI group (4.5 vs. 3.7) on anxious attachment, and both the BPII and MDD groups (who had the same mean score) scoring higher than the BPI group (4.0 vs. 3.4) on avoidant attachment. Subjects with bipolar type II and major depression scored higher than subjects with bipolar type I on both anxious and avoidant attachment, suggesting that people with bipolar type II or major depression may be more vulnerable to insecure attachment than people with bipolar type I. Stated alternatively, bipolar type I may be protective for insecure

attachment. Studies reporting on the difference in attachment style among diagnostic groups have been conflicting. For example, Kokcu and colleagues (2010) found greater levels of insecure attachment (they did not assess anxious or avoidant specifically) in the bipolar type I group than the bipolar type II group, which is contrary to what we found in our sample. However, their results should be interpreted with caution as their bipolar type I group was much larger in comparison to their bipolar type II group (BPI = 36 versus BPII = 8).

Marazziti and colleagues (2007), whose study is described above, also found no significant difference between the mood disorder groups, in contrast to our finding. Yet, considering their small sample sizes (BPI = 31, BPII = 31, MDD = 22), it is possible that this finding is also a question of insufficient power. Consistent with our finding is a study by Fonagy et al. (1996) which assessed attachment styles in a group of inpatients and found that subjects with bipolar disorder were more likely to have an insecure attachment style than those with major depression. However, this study did not assess bipolar type I and type II separately.

Subjects with bipolar type II scored higher (but not significantly) than subjects with major depression (4.5 vs. 4.0) on anxious attachment, and they had the same score on avoidant attachment, suggesting that people with bipolar type II and major depression may have a similar vulnerability towards insecure attachment. In the literature, bipolar type II has only recently been examined separately from bipolar type I, and a surprising number of studies have emerged suggesting that bipolar type II is more similar to major depression, if not slightly worse off in terms of clinical severity indicators such as comorbid anxiety and personality disorders, episodicity and age of onset (Dell'Osso et al., 2015; Thaipisuttikul et al., 2014). Our finding that bipolar type II and major depression have similar levels of insecure attachment supports of this emerging body of literature.

Objective 3A: Associations Between Childhood Adversity and Attachment Style

We found an association between childhood adversity and attachment style in our sample. This was expected, as there is strong evidence for the association between childhood adversity and insecure attachment, and several reports demonstrating that insecure attachment explains the association the relationship between early adversity and depressive symptoms (Parker et al., 1995, Hill et al., 2001, Bifulco et al., 2001, 2003, 2006). More recently, Corcoran and McNulty (2018) found childhood adversity was associated with both anxious and avoidant attachment, and to depressive symptoms, in a university sample of 190 adults. As well, the association between childhood adversity and increased depressive symptoms was partially explained by anxious attachment with one's close friends and by avoidant attachment with one's mother.

There were several limitations to Corcoran and McNulty's (2018) study. First, the authors used the Adverse Childhood Experiences (ACE) questionnaire to measure childhood adversity, which uses a single dichotomous statement to assess 10 forms of childhood adversity. This does not provide as a robust measure of marked adversity experienced compared to other questionnaires (such as the CECA-Q). Second, the source population used were university students, which limits the generalizability of the study to populations. Finally, the study only measured depressive symptoms (using self-report scales such as the Depression anxiety and stress scales (DASS-21)) which can only suggest, but not confirm, a similar association in mood disorders. Nevertheless, the authors reported that childhood adversity was associated with more severe depressive symptoms, partially explained by both anxious and avoidant attachment, which is consistent with previous literature. To our knowledge, our study is the first to demonstrate the same association between childhood adversity and insecure attachment in a mood disorder population.

In our sample, we found antipathy, role reversal and maternal psychological abuse were associated with both anxious and avoidant attachment, while neglect, parental loss and paternal psychological abuse were associated only with avoidant attachment. As expected, the forms of childhood abuse implicated are forms typically experienced through repeated interactions between the child and parent that can hinder the formation of a secure bonds, leading to the development of insecure attachment. However, the types of childhood adversity associated with insecure attachment in previous studies differed from those found in our study. For example, in a prospective community-based study by Widom and colleagues (2014) examining attachment style in subjects with documented maltreatment in the form of physical abuse and neglect, both forms of adversity were found to be associated with anxious attachment style, but neither form was associated with avoidant attachment. This is contrary to previous reports, which have found physical abuse to be associated only with avoidant attachment (Muller et al., 2008; McLewin & Muller, 2006), and one report which found physical abuse was associated with both anxious and avoidant attachment (Unger & Luca, 2014). However, these studies were conducted in general population samples and not psychiatric clinical samples, suggesting that there may be differences the effects of childhood adversity in clinical and non-clinical samples.

In our sample, the forms of childhood adversity that were associated with insecure attachment we found to be significant for both maternal and paternal perpetrators of the abuse, with the exception of psychological abuse which was only significant when perpetrated by the mother. This might suggest that the experience of abuse is related to insecure attachment style irrespective of whether it is perpetrated by mothers or fathers. Unfortunately, there are few studies looking at the associations between specific types of child adversity perpetrated by mother or father and adult attachment style to be able to make comparisons to our finding.

Interestingly, in our sample childhood adversity is more commonly associated with avoidant attachment than anxious attachment. In contrast, Widom and colleagues (2014) found that only anxious attachment, and not avoidant attachment, mediated the association between childhood adversity and depression in general populations. Our finding should be replicated in order to determine if clinical populations have a different vulnerability to insecure attachment than general populations.

Objective 3B: Effect of Mood Disorder Type on Associations Between Childhood Adversity and Attachment Style

Our findings show that childhood adversity, specifically in in the forms of parental antipathy, neglect and psychological abuse, is a strong predictor of attachment style. However, we did not detect that an effect of our 3-level mood disorder diagnosis on this association, as it was not significant in either the avoidant or anxious attachment models. This negative finding should be replicated in other clinical samples to determine if the association between childhood adversity and attachment style consistently occurs independently of mood diagnosis.

To our knowledge, no other studies have assessed the effect of psychiatric diagnosis on the association between childhood adversity and attachment style. Given the evidence demonstrating that attachment style may mediate the relationship between early adversity and adult psychiatric symptoms (Parker et al., 1995, Hill et al., 2001, Bifulco et al., 2001, 2003, 2006), it is likely that the association between childhood adversity and attachment style is formed prior to the onset of the mood disorder and may impact the type, onset, course or prognosis of the disorder. However, this hypothesis requires further investigation in mood disorder populations.

Proposed Mechanisms of Action

Childhood adversity and attachment style. According to attachment theory (Bowlby, 1982), it is hypothesized that a negative pattern of interactions between an emotionally maltreating parent and his/her child will perpetuate a set of negative beliefs and expectations about the self and the others that provide the basis for insecure attachment and contribute to the development of later psychiatric symptoms.

Antipathy/Psychological abuse and insecure attachment (anxious and avoidant). Antipathy and psychological abuse as defined by the CECA include experiences such as being picked on unfairly by the parent, being deprived of basic needs, or being shamed in front of others. These behaviors seem quite intentional on the part of the parent, and can be very upsetting to experience, especially if other siblings in the same household do not experience the same type of parenting. Such deliberate treatment by parents can establish underlying schemas of rejection, unworthiness and low self-value. As adults, individuals who have experienced such adversity may grow up feeling deserving of abuse within relationships and may become sensitive to partner behaviors that could be interpreted as rejection – such as accepting undeserved criticism or blame or inability to set interpersonal limits.

Role reversal and insecure attachment (anxious and avoidant). Children who experience role reversal are given responsibilities beyond their developmental level. Therefore, it is plausible that the inappropriate burden will cause the individual to feel overwhelmed and anxious in relationships. Anxiety arises because individuals do not have the maturity, guidance or support to conduct their role as caregiver. A parentified child might also underestimate another's ability to support them in times of need and therefore might also find it difficult to rely on or be vulnerable with others leading to avoidant attachment.

Neglect and avoidant attachment. Similarly, children who have been physically and emotionally neglected by their parents might also develop underlying schemas of rejection, unworthiness and low self-value. Furthermore, they are generally forced to care for themselves which might foster a sense of independence and self-efficacy and an expectation that others would not be available to meet their needs, making it difficult for them to rely on others or be vulnerable with their romantic partners.

Parental loss and avoidant attachment. Children who experience loss or separation from a parent in childhood might associate being close to someone with emotional pain because there is a high expectation of losing that person, and so they may pre-emptively remain emotionally distant from their partners in order to avoid future pain.

Strengths

One of the strengths of our study was the use of a structured diagnostic instrument (SCID) to assess psychiatric disorders. The SCID is a well-validated and widely-used structured diagnostic interview that ensures accurate and standardized psychiatric diagnoses. Furthermore, the accuracy of the information collected through the interview was confirmed by reviewing subjects' medical charts and verifying information with their treating physician when necessary.

Another strength of our study was the use of the childhood adversity measure (the CECA-Q3) which has two major advantages over other childhood adversity questionnaires: first, it assesses eleven forms of adversity, such as role reversal and antipathy, that have been less examined, and second, it assesses antipathy, neglect and psychological abuse separately for mother and father. In addition, because it is a self-report questionnaire that was given to subjects to take home and fill out in privacy with unlimited time, we believe subjects were likely to be accurate in their reporting.

A third strength of our study was that we only interviewed subjects when they were in a euthymic mood state. This reduces possible biases in over- or under-reporting due to a current depression or hypomania.

A final strength of our study was that we examined bipolar type I and type II groups separately, and that our bipolar type II group sample size was larger or comparable to previous studies. Bipolar type II is often under-examined or underrepresented in clinical studies due to the tendency for researchers to misclassify bipolar type II (i.e., hypomania can easily be missed if a structured interview is not used) or not to separate bipolar type I from type II, as well as the tendency for people with bipolar type II not to be followed in specialized clinics.

Limitations

One of the limitations of our study is that childhood adversity was assessed retrospectively, and therefore reports of experiences and events are less reliable than if they were collected prospectively. Also, attachment style was assessed using the ECR which examines attachment in romantic relationships. While there is evidence that attachment in close relationships is similar to general attachment styles (Fraley, 2016), the study by Corcoran and McNulty (2018) suggests that insecure attachment styles in specific relationships may better explain the relationship between childhood adversity and mood, and therefore should be assessed.

Another limitation is that we did not examine the interaction between the gender of the perpetrator of abuse and gender of the subject. Finally, because this study was done in a specialized tertiary-care clinic, the results can only be generalized to similar clinics and not to other populations.

Clinical Implications

This study provides further support for the consideration of attachment style and the presence of specific forms of childhood adversity in clinical settings when issues such as treatment non-adherence arise. Bringing patients' awareness to their own attachment style, and exploring the etiology of the individual's insecure attachment, especially in relation to possible psychological abuse and antipathy, and to a lesser extent neglect and role reversal, can help the patient have a better understanding of their own relational capacities and areas for improvement in his/her interpersonal domains.

Furthermore, attachment style can be targeted and modified through therapy (Degnan, Seymour-Hyde, Harris & Barry, 2014), which makes it an essential construct for clinicians to be aware of. However, because attachment style is an interactive process, it is important that clinicians also be aware of their own attachment style and how it may affect their patient's attachment style, considering that the clinician-patient relationship should be a model of secure attachment.

There is evidence that attachment style may impact the way in which individuals use mental health services, as demonstrated by a cross-sectional community-based study of 5000 individuals (Meng, Arcy & Adams, 2015). Both avoidant and anxious attachment were linked to greater use of a wide range of mental health care services than individuals with secure attachment. Therefore, designing interventions that target attachment style may reduce the burden of mood disorder treatment on the health care system.

Future Research

Since this study is one of the first to examine the association between specific forms of adversity and attachment style in mood disorder populations, replication of our findings should be encouraged in clinical psychiatric samples. Next steps in research on childhood adversity and

attachment in mood disorders should aim to refine the aspects of childhood adversity that yield insecure attachment and vulnerability to mood disorders. Protective factors, such as social support, early intervention and coping styles should also be incorporated into conceptual models in order to further delineate the association. Interactions between gender of perpetrator and gender of victim of abuse should also be examined to determine if gender impacts the vulnerability towards insecure attachment posed by early adversity.

References

Agid, O., Shapira, B., Zislin, J., Ritsner, M., Hanin, B., Murad, H.,…Lerer, B. (1999). Environment and vulnerability to major psychiatric illness: A case control study of early parental loss in major depression, bipolar disorder and schizophrenia. *Molecular Psychiatry*, 4(2), 163-172.

Alciati, A. (2012). Different Types of Childhood Adverse Experiences and Mood Disorders. *Clinical, Research and Treatment Approaches to Affective Disorders*. doi:10.5772/33568

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders: DSM-5™ (5th ed.). Arlington, VA: American Psychiatric Publishing, Inc

Beautrais, A., Joyce, P., Mulder, R., Fergusson, D., Deavoll, B., & Nightingale, S. (1996). Prevalence and comorbidity of mental disorders in persons making serious suicide attempts: a case-control study. *American Journal of Psychiatry,153*(8), 1009-1014. doi:10.1176/ajp.153.8.1009

Bernet, C. Z., & Stein, M. B. (1999). Relationship of childhood maltreatment to the onset and course of major depression in adulthood. *Depression and Anxiety,9*(4), 169-174. doi:10.1002/(sici)1520-6394(1999)9:43.3.co;2-u

Beck Institute. (2015) What is CBT | Beck Institute [Internet]. [cited 25 April 2017]. Available from: http://www.beckinstitute.org/q-n-a/

Benvenuti, A., Rucci, P., Calugi, S., Cassano, G., Miniati, M., & Frank, E. (2010). Relationship of residual mood and panic-agoraphobic spectrum phenomenology to quality of life and functional impairment in patients with major depression. *International Clinical Psychopharmacology*, 25(2), 68-74.

Bowlby, J. (May 01, 1977). The making and breaking of affectional bonds. II. Some principles of psychotherapy. The fiftieth Maudsley Lecture. *The British Journal of Psychiatry, 130,* 5, 421-431.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relation- ships* (pp. 46-76). New York: Guilford.

Briere, J., & Elliott, D. M. (2003). Prevalence and psychological sequelae of self-reported childhood physical and sexual abuse in a general population sample of men and women. *Child Abuse and Neglect*, 27, 1205-1222.

Brown, G. R., McBride, L., Bauer, M. S., & Williford, W. O. (2005). Impact of childhood abuse on the course of bipolar disorder: A replication study in U.S. veterans. Journal of Affective Disorders, 89(1-3), 57-67. doi:10.1016/j.jad.2005.06.012.

Corcoran, M., & Mcnulty, M. (2018). Examining the role of attachment in the relationship between childhood adversity, psychological distress and subjective well-being. *Child Abuse & Neglect,76*, 297-309. doi:10.1016/j.chiabu.2017.11.012

Colman, I., Kingsbury, M., Garad, Y., Zeng, Y., Naicker, K., Patten, S., . . . Thompson, A. H. (2015). Consistency in adult reporting of adverse childhood experiences. *Psychological Medicine,46*(03), 543-549. doi:10.1017/s0033291715002032

Dannehl, K., Rief, W., & Euteneuer, F. (2017). Childhood adversity and cognitive functioning in patients with major depression. *Child Abuse & Neglect,70*, 247-254. doi:10.1016/j.chiabu.2017.06.013

Dell'Osso, B., Holtzman, J. N., Goffin, K. C., Portillo, N., Hooshmand, F., Miller, S., . . . Ketter, T. A. (2015). American tertiary clinic-referred bipolar II disorder compared to bipolar I disorder: More severe in multiple ways, but less severe in a few other ways. *Journal of Affective Disorders,188*, 257-262. doi:10.1016/j.jad.2015.09.001

Degnan, A., Seymour-Hyde, A., Harris, A., & Berry, K. (2014). The Role of Therapist Attachment in Alliance and Outcome: A Systematic Literature Review. *Clinical Psychology & Psychotherapy,23*(1), 47-65. doi:10.1002/cpp.1937

Dube, S. R., Anda, R. F., Whitfield, C. L., Brown, D. W., Felitti, V. J., Dong, M., & Giles, W. H. (2005). Long-term consequences of childhood sexual abuse by gender of victim. *American Journal of Preventive Medicine*, 28, 430-438.

Dubowitz, H., & Bennett, S. (2007). Physical abuse and neglect of children. *The Lancet,369*(9576), 1891-1899. doi:10.1016/s0140-6736(07)60856-3

Fekih-Romdhane, F., Homri, W., Mrabet, A., & Labbane, R. (2016). Factors predicting functioning in type 1 bipolar patients during remission period. *Pan African Medical Journal* . doi:10.11604/pamj.2016.25.66.8532

Ferreras, J. (2016, September 02). Depression, Anxiety Cost Canadian Economy Almost $50 Billion Per Year: Study. Retrieved April 10, 2018, from http://www.huffingtonpost.ca/2016/09/01/depression-anxiety-canadian-economy_n_11825770.html

Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Mattoon, G., . . . Gerber, A. (1996). The relation of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting and Clinical Psychology, 64*(1), 22-31. doi:10.1037/0022-006X.64.1.22

Fraley, R. C., Niedenthal, P. M., Marks, M. J., Brumbaugh, C. C., & Vicary, A. (2006). Adult attachment and the perception of emotional expressions: Probing the hyperactivating strategies underlying anxious attachment. *Journal of Personality, 74*, 1163-1190.

Frojd, S., Ranta, K., Kaltiala-Heino, R., & Marttunen, M. (2011). Associations of social phobia and general anxiety with alcohol and drug use in a community sample of adolescents. *Alcohol and Alcoholism*, 46(2), 192-199.

Ghanbari Jolfaei, A., Ghadamgahi, P., Ahmadzad-Asl, M., & Shabani, A. (2016). Demographic and Diagnostic Features of 3147 Inpatients With Mood Disorders in Iran. *Iranian Journal of Psychiatry and Behavioral Sciences*, *10*(3), e2298. http://doi.org/10.17795/ijpbs-2298

Gladstone, G. L., Parker, G. B., Mitchell, P. B., Malhi, G. S., Wilhelm, K., & Austin, M. (2004). Implications of Childhood Trauma for Depressed Women: An Analysis of Pathways From Childhood Sexual Abuse to Deliberate Self-Harm and Revictimization. *American Journal of Psychiatry,161*(8), 1417-1425. doi:10.1176/appi.ajp.161.8.1417

Goodman, G.S., Ghetti, S., Quas, J.A., Edelstein, R.S., Alexander, K.W., Redlich, A.D., Cordon, I.M. & Jones, D.P. (2003). A prospective study of memory for child sexual abuse: new findings relevant to the repressed-memory controversy. *Psychological Science*, Vol.14, pp. 113-118, EISSN: 1467-9280.

Grande, I., Berk, M., Birmaher, B., & Vieta, E. (2016). Bipolar disorder: defining symptoms and comorbidities – Authors reply. *The Lancet,388*(10047), 869-870. doi:10.1016/s0140-6736(16)30966-7

Green JG, McLaughlin KA, Berglund PA, et al. Childhood Adversities and Adult Psychiatric Disorders in the National Comorbidity Survey Replication Associations With First Onset of *DSM-IV* Disorders. *Arch Gen Psychiatry.* 2010;67(2):113–123. doi:10.1001/archgenpsychiatry.2009.186

Harrison, L. & Harrington, R. (2001). Adolescent bereavement experiences: prevalence, association with depressive symptoms, and use of services. *Journal of Adolescence*, Vol. 24, No. 2, pp.159–169, ISSN: 0140-1971.

Hill, E. M., Young, J. P., & Nord, J. L. (1994). Childhood adversity, attachment security, and adult relationships: A preliminary study. *Ethology and Sociobiology,15*(5-6), 323-338. doi:10.1016/0162-3095(94)90006-x

Hooshmand, F., Do, D., Shah, S., Gershon, A., Park, D. Y., Kim, H., . . . Miller, S. (2018). Differential prevalence and demographic and clinical correlates of antidepressant use in American bipolar I versus bipolar II disorder patients. *Journal of Affective Disorders,234*, 74-79. doi:10.1016/j.jad.2018.02.091

Institute of Medicine and National Research Council of the National Academies. (2013). New directions in child abuse and neglect research. Retrieved from http://www.iom.edu/~/media/Files/Report%20Files/2013/Child-Abuse-and-Neglect/childabuseneglect-rb2.pdf.

Isometsä, E. (2014). Suicidal Behaviour in Mood Disorders—Who, When, and Why? *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, *59*(3), 120–130.

Jacobs, J.R. & Bovasso, G.B. (2009). Re-Examining the Long-Term Effects of Experiencing Parental Death in Childhood on Adult Psychopathology. *The Journal of Nervous and Mental Disease*, Vol. 197, No. 1, pp. 24-27, ISSN: 1539-736X.

Kessing, L. V., Vradi, E., & Andersen, P. K. (2015). Life expectancy in bipolar disorder. *Bipolar Disorders*,17(5), 543-548. doi:10.1111/bdi.12296

Kessler, R. C., Berglund, P. A., Demler, O., Jin, R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). *Archives of General Psychiatry*, 62(6), 593-602 doi:10.1001/archpsyc.62.6.593.

Krishnan, K. R. (2005). Psychiatric and Medical Comorbidities of Bipolar Disorder. *Psychosomatic Medicine,67*(1), 1-8. doi:10.1097/01.psy.0000151489.36347.18

KÖKÇÜ, F., & Kesebir, S. (2010). The relationship between attachment style, and temperament, personality and bipolar symptoms:A controlled study on bipolar patients and their children. Turk Psikiyatri Dergisi, 21(4), 309-18.

Lauber, C., & Bowen, J. (2010). Low mood and unemployment: when affective disorders are intertwined with the workplace--a UK perspective. International Review of Psychiatry, 22(2), 173-82.

Leverich, G. S., Altshuler, L. L., Frye, M. A., Suppes, T., Keck, P. E., Mcelroy, S. L., . . . Post, R. M. (2003). Factors Associated With Suicide Attempts in 648 Patients With Bipolar Disorder in the Stanley Foundation Bipolar Network. *The Journal of Clinical Psychiatry,64*(5), 506-515. doi:10.4088/jcp.v64n0503

Low, N. C., Dugas, E., O'Loughlin, E., Rodriguez, D., Contreras, G., Chaiton, M., & O'Loughlin, J. (2012). Common stressful life events and difficulties are associated with mental health symptoms and substance use in young adolescents. *BMC Psychiatry*, *12*, 116. http://doi.org/10.1186/1471-244X-12-116

MacMillan, H.L., Fleming, J.E., Trocme, N., Boyle, M.H., Wong, M., Racine, Y.A., Beardslee, W.R. & Offord, D.R.(1997). Prevalence of child physical and sexual abuse in the community. *JAMA* , Vol.275, pp.131–135, ISSN: 0098-7484.

Marazziti, D., Dell'Osso, B., Dell'Osso, M., Consoli, G., Debbio, A., Mungai, F., . . . Dell'Osso, L. (2007). Romantic Attachment in Patients with Mood and Anxiety Disorders. *CNS Spectrums, 12*(10), 751-756. doi:10.1017/S1092852900015431

Making the case for investing in mental health in Canada. (2013). Ottawa, Ont.: Mental Health Commission of Canada.

Mazzone, L., Ducci, F., Scoto, M., Passaniti, E., D'Arrigo, V., & Vitiello, B. (2007). The role of anxiety symptoms in school performance in a community sample of children and adolescents. *BMC Public Health*, *7*, 347.

McElroy, S. (2004). Diagnosing and treating comorbid (complicated) bipolar disorder. *The Journal of Clinical Psychiatry ,65(15)*, 35-44.

McDonald, K. C., Bulloch, A. G. M., Duffy, A., Bresee, L., Williams, J. V. A., Lavorato, D. H., & Patten, S. B. (2015). Prevalence of Bipolar I and II Disorder in Canada. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, *60*(3), 151–156.

McIntyre, R. S., Soczynska, J. K., Liauw, S. S., Woldeyohannes, H. O., Brietzke, E., Nathanson, J., . . . Kennedy, S. H. (2012). The Association between Childhood Adversity and Components of Metabolic Syndrome in Adults with Mood Disorders: Results from the International Mood Disorders Collaborative Project. *The International Journal of Psychiatry in Medicine,43*(2), 165-177. doi:10.2190/pm.43.2.e

McLaughlin, K. A. (2016). Future Directions in Childhood Adversity and Youth Psychopathology. *Journal of Clinical Child and Adolescent Psychology : The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, *45*(3), 361–382. http://doi.org/10.1080/15374416.2015.1110823

Mclaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2012). Childhood Adversities and First Onset of Psychiatric Disorders in a National Sample of US Adolescents. *Archives of General Psychiatry,69*(11), 1151. doi:10.1001/archgenpsychiatry.2011.2277

McLeer, S. V., Callaghan, M., Henry, D., & Wallen, J. (1994). Psychiatric disorders in sexually abused children. Journal of the American Academy of Child and Adolescent Psychiatry, 33(3), 313-319.

Meng, X., D'Arcy, C., & Adams, G. C. (2015). Associations between adult attachment style and mental health care utilization: Findings from a large-scale national survey. *Psychiatry Research,229*(1-2), 454-461. doi:10.1016/j.psychres.2015.05.092

Merikangas, K. R., Jin, R., He, J.-P., Kessler, R. C., Lee, S., Sampson, N. A., … Zarkov, Z. (2011). Prevalence and Correlates of Bipolar Spectrum Disorder in the World Mental Health Survey Initiative. *Archives of General Psychiatry*, *68*(3), 241–251. http://doi.org/10.1001/archgenpsychiatry.2011.12

Merikangas, K. R., & Lamers, F. (2012). The 'true' prevalence of bipolar II disorder. *Current Opinion in Psychiatry,25*(1), 19-23. doi:10.1097/yco.0b013e32834de3de

Mickelson, K. D., Kessler, R. C., & Shaver, P. R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology,73*(5), 1092-1106. doi:10.1037//0022-3514.73.5.1092

Mikulincer, M., & Shaver, P. R. (2016). *Attachment in Adulthood, Second Edition: Structure, Dynamics, and Change*. New York: The Guilford Press.

Mizuno, Y., Hofer, A., Suzuki, T., Frajo-Apor, B., Wartelsteiner, F., Kemmler, G., . . . Uchida, H. (2016). Clinical and biological correlates of resilience in patients with schizophrenia and bipolar disorder: A cross-sectional study. *Schizophrenia Research, 175*(1-3), 148-153. doi:10.1016/j.schres.2016.04.047

Morriss, R. K., van, . G. E., Lancaster, G., & Bentall, R. P. (September 01, 2009). Adult attachment in bipolar 1 disorder. *Psychology and Psychotherapy: Theory, Research and Practice, 82,* 3, 267-277.

Mortensen, P. B., Pedersen, C. B., Melbye, M., Mors, O., & Ewald, H. (2003). Individual and familial risk factors for bipolar affective disorders in Denmark. *Archives of General Psychiatry*, 60(12), 1209-1215.

Mula, M., Danquah-Boateng, D., Cock, H. R., Khan, U., Lozsadi, D. A., & Nirmalananthan, N. (2016). Different attachment styles correlate with mood disorders in adults with epilepsy or migraine. *Epilepsy & Behavior,54*, 110-114. doi:10.1016/j.yebeh.2015.11.023

Mullen, P. E., Martin, J. L., Anderson, J. C., Romans, S. E., & Herbison, G. P. (1996). The longterm impact of the physical, emotional, and sexual abuse of children: A community study. *Child Abuse & Neglect*, 20(1), 7-21.

Negele, A., Kaufhold, J., Kallenbach, L., & Leuzinger-Bohleber, M. (2015). Childhood Trauma and Its Relation to Chronic Depression in Adulthood. *Depression Research and Treatment*, *2015*, 650804. http://doi.org/10.1155/2015/650804

Ng, S. M., & Hou, W. K. (2017). Contentment Duration Mediates the Associations between Anxious Attachment Style and Psychological Distress. *Frontiers in Psychology,08*. doi:10.3389/fpsyg.2017.00258

Raposo, S. M., Mackenzie, C. S., Henriksen, C. A., & Afifi, T. O. (2014). Time Does Not Heal All Wounds: Older Adults Who Experienced Childhood Adversities Have Higher Odds of Mood, Anxiety, and Personality Disorders. *The American Journal of Geriatric Psychiatry,22*(11), 1241-1250. doi:10.1016/j.jagp.2013.04.009

Palmier-Claus, J., Berry, K., Bucci, S., Mansell, W., & Varese, F. (2016). Relationship between childhood adversity and bipolar affective disorder: Systematic review and meta-analysis. *British Journal of Psychiatry, 209*(6), 454-459. doi:10.1192/bjp.bp.115.179655

Pavlickova H, Turnbull OH, Bentall RP. Discrepancies between explicit and implicit self-esteem and their relationship to symptoms of depression and mania. *Psychology and psychotherapy* 2014;87(3):311-23.

Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2005). Stress, Health, and the Life Course: Some Conceptual Perspectives. *Journal of Health and Social Behavior,46*(2), 205-219. doi:10.1177/002214650504600206

Perlis, R. H., Dennehy, E. B., Miklowitz, D. J., Delbello, M. P., Ostacher, M., Calabrese, J. R., . . . Sachs, G. (2009). Retrospective age at onset of bipolar disorder and outcome during two-year follow-up: results from the STEP-BD study. *Bipolar Disorders,11*(4), 391-400. doi:10.1111/j.1399-5618.2009.00686.x

Pickles, A., Aglan, A., Collishaw, S., Messer, J., Rutter, M., & Maughan, B. (2010). Predictors of suicidality across life span: the Isle of Wight study. *Psychological Medicine*, 40(9), 1453-1466.

Putman, S. E. (2009). The monsters in my head: Posttraumatic stress disorder and the child survivor of sexual abuse. *Journal of Counseling & Development*, 87, 80-89. doi: 10.1002/j.1556-6678.2009.tb00552.x.

Raposo, S. M., Mackenzie, C. S., Henriksen, C. A., & Afifi, T. O. (2013). Time does not heal all wounds: Older adults who experienced childhood adversities have higher odds of mood, anxiety, and personality disorders. *American Journal of Geriatric Psychiatry*. pii: S1064-7481(13)00217-0. doi:10.1016/j.jagp.2013.04.009.

Rihmer, Z., & Döme, P. (2016). Major Mood Disorders and Suicidal Behavior. *The International Handbook of Suicide Prevention,*74-92. doi:10.1002/9781118903223.ch4

Saunders, B. E., Villeponteaux, L. A., Lipovsky, J. A., Kilpatrick, D. G., & Veronen, L. J. (1992)Child sexual assault as a risk factor for mental disorders among women: A community survey. Journal of Interpersonal Violence, 7(2), 189-204. doi:10.1177/088626092007002005.

Sheikh, M. A. (2017). Confounding and Statistical Significance of Indirect Effects: Childhood Adversity, Education, Smoking, and Anxious and Depressive Symptomatology. *Frontiers in Psychology*, *8*, 1317. http://doi.org/10.3389/fpsyg.2017.01317

Silverman, A. B., Reinherz, H. Z., & Giaconia, R. M. (1996). The long-term sequelae of child and adolescent abuse: A longitudinal community study. Child Abuse & Neglect, 20(8), 709-723. Statistics Canada. (2013). Health at a Glance: Mental and substance use disorders in Canada. Catalogue number 82-624-X. Ottawa, Ontario.

Stansfeld, S. A., Clark, C., Smuk, M., Power, C., Davidson, T., & Rodgers, B. (2017). Childhood adversity and midlife suicidal ideation. *Psychological Medicine*, *47*(2), 327–340. http://doi.org/10.1017/S0033291716002336

Stoltenborgh, M., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2013). The neglect of child neglect: a meta-analytic review of the prevalence of neglect. *Social Psychiatry and Psychiatric Epidemiology*, *48*(3), 345–355. http://doi.org/10.1007/s00127-012-0549-y

Spatz Widom C, DuMont K, Czaja SJ. A Prospective Investigation of Major Depressive Disorder and Comorbidity in Abused and Neglected Children Grown Up. *Arch Gen Psychiatry.* 2007;64(1):49–56. doi:10.1001/archpsyc.64.1.49

Tanskanen, A., Hintikka, J., Honkalampi, K., Haatainen, K., Koivumaa-Honkanen, H., & Viinamäki, H. (2004). Impact of multiple traumatic experiences on the persistence of depressive symptoms – a population-based study. *Nordic Journal of Psychiatry,58*(6), 459-464. doi:10.1080/08039480410011687

Trocmé, N. (2001). Canadian incidence study of reported child abuse and neglect: final report. Ottawa: Health Canada.

Tunnard, C., Rane, L. J., Wooderson, S. C., Markopoulou, K., Poon, L., Fekadu, A.,…Cleare, A.J. (2014). The impact of childhood adversity on suicidality and clinical course in treatment-resistant depression. Journal of Affective Disorders, 152-154, 122-130. doi:10.1016/j.jad.2013.06.037.

Unger, J. A., & Luca, R. V. (2014). The Relationship Between Childhood Physical Abuse and Adult Attachment Styles. *Journal of Family Violence,29*(3), 223-234. doi:10.1007/s10896-014-9588-3

Van Tuijl LA, De Jong PJ, Sportel BE, De Hullu E, Nauta MH. Implicit and explicit self-esteem and their reciprocal relationship with symptoms of depression and social anxiety. (2013). A longitudinal study in adolescents. *Journal of behavior therapy and experimental psychiatry*, 45(1):113-21.

Weibel, S., Vidal, S., Olié, E., Hasler, R., Torriani, C., Prada, P., . . . Huguelet, P. (2017). Impact of child maltreatment on meaning in life in psychiatric patients. *Psychiatry Research, 251*, 204-211. doi:10.1016/j.psychres.2017.02.026

Whiteford, H. A., Degenhardt, L., Rehm, J., Baxter, A. J., Ferrari, A. J., Erskine, H. E., Charleson, F. J., Norman, R. E., Flaxman, A. D., Johns, N., Burstein, R., Murray, C. J., & Vos, T. (2013). Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *The Lancet*, 382(9904), 1575-1586.

Widom, C. S., Czaja, S. J., Kozakowski, S. S., & Chauhan, P. (2018). Does adult attachment style mediate the relationship between childhood maltreatment and mental and physical health outcomes? *Child Abuse & Neglect,76*, 533-545. doi:10.1016/j.chiabu.2017.05.002

Wongpakaran, T., & Wongpakaran, N. (2012). A Short Version of the Revised "Experience of Close Relationships Questionnaire": Investigating Non-Clinical and Clinical Samples. *Clinical Practice and Epidemiology in Mental Health : CP & EMH*, *8*, 36–42. http://doi.org/10.2174/1745017901208010036

Young, A. H., Rigney, U., Shaw, S., Emmas, C., & Thompson, J. M. (2011). Annual cost of managing bipolar disorder to the UK healthcare system. *Journal of Affective Disorders*,133(3), 450-456. doi:10.1016/j.jad.2011.06.016

Young, E. A., Abelson, J. L., Curtis, G. C., & Nesse, R. M. (1997). Childhood adversity and vulnerability to mood and anxiety disorders. *Depression and Anxiety,5*(2), 66-72. doi:10.1002/(sici)1520-6394(1997)5:2<66:aid-da2>3.3.co;2-x

Young, J. C., & Widom, C. S. (2014). Long-term effects of child abuse and neglect on emotion processing in adulthood. *Child Abuse & Neglect,38*(8), 1369-1381. doi:10.1016/j.chiabu.2014.03.008

Yurica, C. L., & Di Tomassio, R. A. (2005). Cognitive Distortions. In *Encyclopedia of Cognitive Behavioural Therapy*. doi:10.1007/b99240

Appendix A

Summary of correlations among Childhood Adversity types

Type of Childhood Adversity	Maternal Antipathy		Maternal Neglect		Maternal Psychological Abuse	
	R	*p*-value	R	*p*-value	R	*p*-value
Maternal Antipathy	1		0.66	**.000**	0.78	**.000**
Maternal Neglect			1		0.53	**.000**
Maternal Psychological Abuse					1	

Type of Childhood Adversity	Paternal Antipathy		Paternal Neglect		Paternal Psychological Abuse	
	R	*p*-value	R	*p*-value	R	*p*-value
Paternal Antipathy	1		0.70	**.000**	0.74	**.000**
Paternal Neglect			1		0.40	**.000**
Paternal Psychological Abuse					1	

Type of Childhood Adversity	Paternal Antipathy		Paternal Neglect		Paternal Psychological Abuse	
	R	*p*-value	R	*p*-value	R	*p*-value
Maternal Antipathy	0.37	**.000**	0.37	**.000**	0.25	**.001**
Maternal Neglect	0.45	**.000**	0.64	**.000**	0.27	**.000**
Maternal Psychological Abuse	0.37	**.000**	0.27	**.000**	0.45	**.000**

Appendix B

Childhood Experiences of Care & Abuse – Questionnaire (CECA-Q)

ID:

FAMILY RELATIONSHIPS IN CHILDHOOD

CECA-Q3[1]

This questionnaire concerns aspects of childhood. We are equally interested in people with TYPICAL OR ATYPICAL experience. Please fill in all of the following questions about yourself. Please fill in the entire circle on the answer sheet.

	M	F
Gender:	○	○

Age: _____

Date _____

1. CECA.Q3 includes additional sections of psychological abuse and role reversal

CHILDHOOD ADVERSITY AND ATTACHMENT STYLE IN MOOD DISORDERS

1A. WHO BROUGHT YOU UP BEFORE AGE 17? List the PARENT FIGURES who brought you up in childhood for at least a year or longer. Circle any of those that apply:

Mother figure(s)

- ◯ Birth mother
- ◯ Stepmother
- ◯ Female relative _____
- ◯ Family friend (incl. godparent)
- ◯ Foster mother
- ◯ Adoptive mother
- ◯ Other_____

Father figure(s)

- ◯ Birth father
- ◯ Stepfather
- ◯ Male relative _____
- ◯ Family friend
- ◯ Foster father
- ◯ Adoptive father
- ◯ Other_____

	Yes	No
1B. Were you ever in a children's home or institution prior to age 17?	◯	◯

If yes: What was the total length of time in the children's home?_____years

1C LOSS OF PARENT BEFORE AGE 17

	MOTHER		FATHER	
	Yes	No	Yes	No
Did either parent die before you were age 17?	◯	◯	◯	◯
IF YES: What age were you?	Age_____		Age_____	
	Yes	No	Yes	No
Have you ever been separated from your parent for one year or more before age 17?	◯	◯	◯	◯

IF SEPARATED:

At what age were you first separated?	Age_____	Age_____
How long was this separation?	Years_____	Years_____
What was the reason for separation?	◯ Illness ◯ Work ◯ Divorce/Separation ◯ Never knew parent ◯ Abandoned ◯ Other	◯ Illness ◯ Work ◯ Divorce/Separation ◯ Never knew parent ◯ Abandoned ◯ Other

Please describe your experience _____

2A. AS YOU REMEMBER YOUR MOTHER FIGURE IN YOUR FIRST 17 YEARS:
Please fill in the appropriate answer. If you have more than one mother figure, choose the one you were with longest, or the one you found most difficult to live with. If you had no mother in the household then leave out this section.

WHICH MOTHER FIGURE ARE YOU DESCRIBING BELOW?

- ○ Birth mother
- ○ Step-mother/father's live-in partner
- ○ Other relative e.g. aunty, grandmother
- ○ Other non-relative e.g. foster mother, godmother
- ○ Other (describe)_____

	Yes Definitely		Unsure		No Not at all
1. She was very difficult to please	○	○	○	○	○
2. She was concerned about my worries	○	○	○	○	○
3. She was interested in how I did at school	○	○	○	○	○
4. She made me feel unwanted	○	○	○	○	○
5. She tried to make me feel better when I was upset	○	○	○	○	○
6. She was very critical of me	○	○	○	○	○
7. She would leave me unsupervised before I was 10 years old	○	○	○	○	○
8. She would usually have time to talk to me	○	○	○	○	○
9. At times she made me feel I was a nuisance	○	○	○	○	○
10. She often picked on me unfairly	○	○	○	○	○
11. She was there if I needed her	○	○	○	○	○
12. She was interested in who my friends were	○	○	○	○	○
13. She was concerned about my whereabouts	○	○	○	○	○
14. She cared for me when I was ill	○	○	○	○	○
15. She neglected my basic needs (e.g. food and clothes)	○	○	○	○	○
16. She did not like me as much as my brothers and sisters (Leave blank if no siblings)	○	○	○	○	○

Do you want to add anything else about this person? _____

2B. The following items describe some behaviours that can occur from parents.
Did your mother/mother figure ever act like this towards you?

					How Frequent?			
		Yes	Uncertain	No	Never	Once	Rarely	Often
1	She would tease me	○	○	○	○	○	○	○
2	She made me keep secrets	○	○	○	○	○	○	○
3	She undermined my confidence	○	○	○	○	○	○	○
4	She would confuse me by telling me to do contradictory things	○	○	○	○	○	○	○
5	She played on my fears	○	○	○	○	○	○	○
6	She liked to see me suffer	○	○	○	○	○	○	○
7.	She humiliated me, put me down	○	○	○	○	○	○	○
8.	She would shame me in front of others	○	○	○	○	○	○	○
9	She was very rejecting	○	○	○	○	○	○	○
10	She took away the things I cherished	○	○	○	○	○	○	○
11	She would make me eat things I didn't like until I was sick.	○	○	○	○	○	○	○
12.	She would deliberately deprive me of light, food or company	○	○	○	○	○	○	○
13	She would not let me mix with people I wanted to see	○	○	○	○	○	○	○
14	She would make me feel guilty so I would do what I was told	○	○	○	○	○	○	○
15.	She threatened to hurt the people dear to me to get what she wanted	○	○	○	○	○	○	○
16	She forced me to steal or break the law for her	○	○	○	○	○	○	○
17	She said she wanted me dead	○	○	○	○	○	○	○

If any of these occurred: What age were you when it started? Age _____
If any of these occurred: Is there anymore you want to say about these experiences?

_____

3A. AS YOU REMEMBER YOUR FATHER FIGURE IN YOUR FIRST 17 YEARS:
Please fill in the appropriate answer. If you more than one father figure, choose the one you were with longest, or the one you found most difficult to live with. If you had no father in the household then leave out this section.

WHICH FATHER FIGURE ARE YOU DESCRIBING BELOW?

- ◯ Birth father
- ◯ Step-father/mother's live-in partner
- ◯ Other relative e.g. uncle, grandfather
- ◯ Other non-relative e.g. foster father, adoptive father
- ◯ Other (describe)_____

	Yes Definitely		Unsure		No Not at all
1. He was very difficult to please	◯	◯	◯	◯	◯
2. He was concerned about my worries	◯	◯	◯	◯	◯
3. He was interested in how I did at school	◯	◯	◯	◯	◯
4. He made me feel unwanted	◯	◯	◯	◯	◯
5. He tried to make me feel better when I was upset	◯	◯	◯	◯	◯
6. He was very critical of me	◯	◯	◯	◯	◯
7. He would leave me unsupervised before I was 10 years old	◯	◯	◯	◯	◯
8. He would usually have time to talk to me	◯	◯	◯	◯	◯
9. At times he made me feel I was a nuisance	◯	◯	◯	◯	◯
10. He often picked on me unfairly	◯	◯	◯	◯	◯
11. He was there if I needed him	◯	◯	◯	◯	◯
12. He was interested in who my friends were	◯	◯	◯	◯	◯
13. He was concerned about my whereabouts	◯	◯	◯	◯	◯
14. He cared for me when I was ill	◯	◯	◯	◯	◯
15. He neglected my basic needs (e.g. food and clothes)	◯	◯	◯	◯	◯
16. He did not like me as much as my brothers and sisters (LEAVE BLANK IF NO SIBLINGS)	◯	◯	◯	◯	◯

Do you want to add anything about this person? _____

3B. The following items describe some behaviours that can occur from parents.
Did your father/father figure ever act like this towards you?

					How Frequent?			
		Yes	Uncertain	No	Never	Once	Rarely	Often
1	He would tease me	○	○	○	○	○	○	○
2	He made me keep secrets	○	○	○	○	○	○	○
3	He undermined my confidence	○	○	○	○	○	○	○
4	He would confuse me by telling me to do contradictory things	○	○	○	○	○	○	○
5	He played on my fears	○	○	○	○	○	○	○
6	He liked to see me suffer	○	○	○	○	○	○	○
7	He humiliated me, put me down	○	○	○	○	○	○	○
8	He would shame me in front of others	○	○	○	○	○	○	○
9	He was very rejecting	○	○	○	○	○	○	○
10	He took away the things I cherished	○	○	○	○	○	○	○
11	He would make me eat things I didn't like until I was sick.	○	○	○	○	○	○	○
12.	He would deliberately deprive me of light, food or company	○	○	○	○	○	○	○
13	He would not let me mix with people I wanted to see	○	○	○	○	○	○	○
14	He would make me feel guilty so I would do what I was told	○	○	○	○	○	○	○
15.	He threatened to hurt the people dear to me to get what he wanted	○	○	○	○	○	○	○
16	He forced me to steal or break the law for him	○	○	○	○	○	○	○
17	He said he wanted me dead	○	○	○	○	○	○	○

If any of these occurred: What age were you when it started?_____years old
If any of these occurred: Is there anything else you would like to say about these experiences?

_____

3C. Did you do the following as a child or young person before age 17?

	Yes Definitely		Unsure		No Not at all
1. Did you have a lot of responsibility in the home as a child, more than other children your age?	○	○	○	○	○
2. Were you expected to do a lot of housework, more than other children your age?	○	○	○	○	○
3. Did you have to look after younger siblings, more than other children your age?	○	○	○	○	○
4 Were you responsible for cooking and cleaning the home?	○	○	○	○	○
5 Did you ever miss school because of responsibilities at home?	○	○	○	○	○
6 Did you ever miss out on seeing friends because of responsibilities at home?	○	○	○	○	○
7. Did your parents ever say they couldn't cope with looking after you when you were a child?	○	○	○	○	○
8. Did your parents look to you for help as a child?	○	○	○	○	○
9. Could your parents cope if you hurt yourself or were ill?	○	○	○	○	○
10. Did your parents ever confide their problems in you?	○	○	○	○	○
11. Did your parents rely you for emotional support when you were a child?	○	○	○	○	○
12. Would your parents cry in front of you?	○	○	○	○	○
13 Did you feel concerned and worried about your parents when you were a child?	○	○	○	○	○
14. Did you try to support and care for your parents?	○	○	○	○	○
15 Did you try to make your parents smile or laugh when they were upset?	○	○	○	○	○
16. Did your parents try to make you feel guilty about the sacrifices they had made for you?	○	○	○	○	○
17. Did you ever have to keep secrets for your parents?	○	○	○	○	○

	Mother figure	Father figure	Both	Other
Which parent did you have to provide care for?	○	○	○	○

	Yes	Unsure	No
Did at least one of your parents have emotional or mental health problems?	○	○	○

	Yes	Unsure	No
Did at least one of your parents have disability or physical illness?	○	○	○

4. CLOSE RELATIONSHIPS IN CHILDHOOD

	Yes	No
When you were a child or teenager, were there any ADULTS you could go to with your problems or to discuss your feelings?	○	○

IF YES: Who was that?

○ Mother/ mother figure
○ Father/ father figure
○ Other relative
○ Family friend
○ Teacher, vicar, etc.
○ Other (describe)_____

Do you want to note anything about the relationship(s)? _____

	Yes	No
Were there other children/teenagers your age that you could discuss your problems and feelings with?	○	○

IF YES: Who was that?
(Circle more than one if relevant)

○ Sister
○ Brother
○ Other relative
○ Close friend
○ Other less close friend(s)
○ Other person (describe) _____

Do you want to note anything about the relationship(s)? _____

Who would you describe as the TWO CLOSEST people to you as a child/teenager?
(Circle up to two)

- ◯ Mother/ mother figure
- ◯ Father/ father figure
- ◯ Sister or brother
- ◯ Other relative
- ◯ Family friend (adult)
- ◯ Friend your age
- ◯ Other (describe) _____

Do you want to note anything about the relationship(s)? _____

5. PHYSICAL PUNISHMENT BEFORE AGE 17 BY PARENT FIGURE OR OTHER HOUSEHOLD MEMBER

	Yes	No
When you were a child or teenager were you ever hit repeatedly with an implement (such as a belt or stick) or punched, kicked or burnt by someone in the household?	◯	◯

IF NO THEN SKIP TO 6:

IF 'YES'	MOTHER FIGURE	FATHER FIGURE
How old were you when it began?	Age_____	Age _____
	Yes No	Yes No
Did the hitting happen on more than one occasion?	◯ ◯	◯ ◯
How were you hit?	◯ Belt or stick ◯ Punched/kicked ◯ Hit with hand ◯ Other	◯ Belt or stick ◯ Punched/kicked ◯ Hit with hand ◯ Other
	Yes No	Yes No
Were you ever injured e.g. bruises, black eyes, broken limbs?	◯ ◯	◯ ◯
	Yes No	Yes No
Was this person so angry they seemed out of control?	◯ ◯	◯ ◯

Can you describe these experiences?_____

	Yes	No
Did you experience this from anyone else in the household?	◯	◯

IF YES: DESCRIBE BELOW

6. UNWANTED SEXUAL EXPERIENCES BEFORE AGE 17

	Yes	No	Unsure
When you were a child or teenager did you ever have any unwanted sexual experiences?	◯	◯	◯

	Yes	No	Unsure
Did anyone force you or persuade you to have sexual intercourse against your wishes before age 17?	◯	◯	◯

	Yes	No	Unsure
Can you think of any upsetting sexual experiences before age 17 with a related adult or someone in authority e.g. teacher?	◯	◯	◯

IF NONE THEN SKIP TO END.

IF 'YES' OR 'UNSURE' TO ABOVE THEN COMPLETE THE FOLLOWING ON THE NEXT PAGE

	First experience		Other experience	
How old were you when it began?	Age _____		Age _____	
	Yes	No	Yes	No
Was the other person someone you knew?	○	○	○	○
	Yes	No	Yes	No
Was the other person a relative?	○	○	○	○
Did the other person live in your household?	○	○	○	○
Did this person do it to you on more than one occasion?	○	○	○	○
Did it involve touching private parts of your body?	○	○	○	○
Did it involve touching private parts of the other person's body?	○	○	○	○
Did it involve sexual intercourse?	○	○	○	○

Can you describe these experiences? _____

Thank you for your time!

Thank you for your help with this questionnaire. We realize that it is difficult to give a true picture of your true childhood experience in a questionnaire, so if you have any comments you would like to add, please write them below. Your response will be treated in the strictest confidence.

Any other comments:

Experiences in Close Relationships

The following statements concern how you feel in romantic relationships. We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by selecting the response that indicates how much you agree with it. Choose one of the seven answers on the answer sheet on the next page. Please fill in the entire circle on the answer sheet.

01) I prefer not to show a partner how I feel deep down.
02) I worry about being abandoned.
03) I am very comfortable being close to romantic partners.
04) I worry a lot about my relationships.
05) Just when my partner starts to get close to me I find myself pulling away.
06) I worry that romantic partners won't care about me as much as I care about them.
07) I get uncomfortable when a romantic partner wants to be very close.
08) I worry a fair amount about losing my partner.
09) I don't feel comfortable opening up to romantic partners.
10) I often wish that my partner's feelings for me were as strong as my feelings for him/her.
11) I want to get close to my partner, but I keep pulling back.
12) I often want to merge completely with romantic partners, and this sometimes scares them away.
13) I am nervous when partners get too close to me.
14) I worry about being alone.
15) I feel comfortable sharing my private thoughts and feelings with my partner.
16) My desire to be very close sometimes scares people away.
17) I try to avoid getting too close to my partner.
18) I need a lot of reassurance that I am loved by my partner.
19) I find it relatively easy to get close to my partner.
20) Sometimes I feel that I force my partners to show more feeling, more commitment.
21) I find it difficult to allow myself to depend on romantic partners.

22) I do not often worry about being abandoned.
23) I prefer not to be too close to romantic partners.
24) If I can't get my partner to show interest in me, I get upset or angry.
25) I tell my partner just about everything.
26) I find that my partner(s) don't want to get as close as I would like.
27) I usually discuss my problems and concerns with my partner.
28) When I'm not involved in a relationship, I feel somewhat anxious and insecure.
29) I feel comfortable depending on romantic partners.
30) I get frustrated when my partner is not around as much as I would like.
31) I don't mind asking romantic partners for comfort, advice, or help.
32) I get frustrated if romantic partners are not available when I need them.
33) It helps to turn to my romantic partner in times of need.
34) When romantic partners disapprove of me, I feel really bad about myself.
35) I turn to my partner for many things, including comfort and reassurance.
36) I resent it when my partner spends time away from me.

	Disagree Strongly			Neutral/ Mixed			Agree Strongly
01)	○	○	○	○	○	○	○
02)	○	○	○	○	○	○	○
03)	○	○	○	○	○	○	○
04)	○	○	○	○	○	○	○
05)	○	○	○	○	○	○	○
06)	○	○	○	○	○	○	○
07)	○	○	○	○	○	○	○
08)	○	○	○	○	○	○	○
09)	○	○	○	○	○	○	○
10)	○	○	○	○	○	○	○
11)	○	○	○	○	○	○	○
12)	○	○	○	○	○	○	○
13)	○	○	○	○	○	○	○
14)	○	○	○	○	○	○	○
15)	○	○	○	○	○	○	○
16)	○	○	○	○	○	○	○
17)	○	○	○	○	○	○	○
18)	○	○	○	○	○	○	○
19)	○	○	○	○	○	○	○
20)	○	○	○	○	○	○	○
21)	○	○	○	○	○	○	○

	Disagree Strongly			Neutral/ Mixed			Agree Strongly
22)	○	○	○	○	○	○	○
23)	○	○	○	○	○	○	○
24)	○	○	○	○	○	○	○
25)	○	○	○	○	○	○	○
26)	○	○	○	○	○	○	○
27)	○	○	○	○	○	○	○
28)	○	○	○	○	○	○	○
29)	○	○	○	○	○	○	○
30)	○	○	○	○	○	○	○
31)	○	○	○	○	○	○	○
32)	○	○	○	○	○	○	○
33)	○	○	○	○	○	○	○
34)	○	○	○	○	○	○	○
35)	○	○	○	○	○	○	○
36)	○	○	○	○	○	○	○