Developmental Trajectories from Childhood Sexual Abuse to Depressive Symptoms among Adolescent Youth Involved in Child Protection Services

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Contribution of Authors and Collaborators

This dissertation relied on archival data from the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study. The principal investigator of the MAP Longitudinal Study, Dr. Christine Wekerle, from McMaster University, facilitated access to the data for the purpose of this dissertation. This dissertation includes two manuscript-style articles prepared by myself in collaboration with my thesis supervisors, Dr. Delphine Collin-Vézina and Dr. Steven Shaw. For both manuscripts, I was responsible for conceptualizing and developing the hypotheses and research questions, verifying the analytical methods, performing the statistical analyses, and writing the dissertation. Dr. Delphine Collin-Vézina and Dr. Steven Shaw helped supervise the project, provide critical feedback, and helped shape the research, analysis, and dissertation. Furthermore, my committee members, Dr. Rachel Langevin and Dr. Caroline Temcheff, helped support and guide me throughout the process. In addition, Dr. Zhou Biru, affiliated with McGill University, Dr. Lise Milne, affiliated with University of Regina, and Mr. Emmanuel Sohe, assisted in data cleaning, validating the analytic calculations, and interpreting the results.

Lastly, Study 1 was submitted to the editor of *Child Abuse and Neglect* for review and was returned with favorable comments. The manuscript will be submitted for publication to *Child Abuse and Neglect*. In addition, Study 2 was submitted for publication to *Child Abuse Review*.

Contribution to Original Knowledge

I hereby attest that all the elements of this dissertation are original scholarships and are distinct contributions to knowledge. Any published or unpublished scholarships, ideas, or practices are fully acknowledged and abide by the standard referencing format from the 7th edition American Psychological Association (APA) Manual. Retrieved from https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/reference_list_basic_rules.html

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Dedication

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General Abstract

Childhood sexual abuse (CSA) contributes to depression in various populations and this link has been established using robust longitudinal studies. However, limited studies have examined this link using person-centered approaches, such as with cluster analysis, and longitudinally, with respect to youth who are involved in Child Protection Services (CPS). This is important because victims of CSA do not all experience or respond to CSA in the same way, especially so among youth involved in CPS who report greater co-occurring abuse and neglect, are more likely to have experienced severe CSA, and are less likely to recover from depressive symptoms. Thus, this dissertation included two studies that built upon each other using data from the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study.

Study 1 explored profiles of 560 Canadian youth involved in the Ontario child welfare system based on their depressive symptoms, CSA characteristics, and co-occurring abuse and neglect histories. Cluster analysis identified two group clusters. The majority of youth in the first group reported none to minimal CSA, co-occurring abuse and neglect, and depressive symptoms. The majority of the second group were female, reported moderate to severe CSA, co-occurring abuse and neglect, and clinical depressive symptoms. It was also found that youth who reported severe CSA were five times more likely to report clinical depressive symptoms compared to youth who did not report CSA, while controlling for gender and co-occurring abuse. The results highlight the importance of screening for abuse history and severity when treating depression, especially among sexually abused youth involved in CPS.

Study 2 examined longitudinal trajectories of depressive symptoms over 18-months among 135 sexually abused youth involved in CPS. Contrary to expectations, depressive symptoms significantly reduced over time. Furthermore, the changes in depressive symptoms

varied by CSA severity. Specifically, it was found that reductions of depressive symptoms were significantly associated with CSA severity over time. These findings highlight the value of screening for CSA history and severity when developing targeted interventions for depressive symptoms throughout CPS involvement. As a whole, the findings from this dissertation offer unique evidence that not only should CSA be considered, but its severity and histories of other forms of abuse and neglect are also key factors for mental health screening practices among youth involved in CPS. Future longitudinal research is needed to better understand these findings across youth involved in the child welfare system and help CPS develop effective and sustainable targeted interventions that best meet the needs of its youth.

Keywords: Childhood sexual abuse, CSA, depressive symptoms, child protection services, child welfare, longitudinal studies, cluster analysis

Résumé

L’agression sexuelle vécue durant l’enfance contribue à la dépression dans diverses populations et ce lien a été établi à l'aide d'études longitudinale robustes. Cependant, peu d’entre elles ont examiné ce lien en utilisant des approches centrées sur la personne, telles que l'analyse de typologies, et des suivis dans le temps auprès des jeunes qui sont impliqués dans les services de protection de l'enfance. Ceci est important car ces jeunes sont plus susceptibles d’avoir vécu des agressions sexuelles sévères et plusieurs autres formes de violence et de maltraitante concomitantes et, par conséquent, de présenter des symptômes de dépression qui perdurent dans le temps. Ainsi, cette thèse comporte deux études qui apporteront un éclairage à ces questions, en s’appuyant sur les données de l'étude *Maltreatment and Adolescent Pathways* (MAP) Longitudinal Study.

La première étude a exploré les profils de 560 jeunes Canadiens impliqués dans les services d’aide à l’enfance de l'Ontario en fonction des symptômes dépressifs, des caractéristiques de l’agression sexuelle et des antécédents d'abus et de négligence concomitants. L'analyse typologique a identifié deux groupes. La majorité des jeunes du premier groupe a déclaré n'avoir vécu aucune agression sexuelle, peu d’abus et de négligence concomitants et des taux plus faibles de symptômes dépressifs. La majorité du deuxième groupe était des adolescentes, ont rapporté une agression sexuelle modérée à sévère, des taux importants de violence et de négligence concomitantes et des symptômes dépressifs de niveau clinique. Il a également été constaté que les jeunes qui ont déclaré avoir vécu une agression sexuelle sévère étaient cinq fois plus susceptibles de rapporter des symptômes dépressifs cliniques que les jeunes qui n'en avaient pas vécu, tout en contrôlant pour le genre et les antécédents de violence concomitante. Les résultats soulignent l'importance du dépistage des antécédents et de la sévérité

des expériences de violence lors du traitement de la dépression, en particulier chez les jeunes impliqués en protection de la jeunesse.

La deuxième étude a examiné les trajectoires longitudinales des symptômes dépressifs sur une période de 18 mois chez 135 jeunes victimes d'abus sexuels impliqués en protection de la jeunesse. Contrairement aux hypothèses émises, les symptômes dépressifs ont considérablement diminué avec le temps. De plus, les changements dans les symptômes dépressifs variaient selon la gravité de l'agression sexuelle rapportée lors du premier temps de mesure. Plus précisément, il a été constaté que la réduction des symptômes dépressifs était significativement plus prononcée pour les jeunes rapportant des abus moins sévères. Ces résultats mettent en évidence la valeur du dépistage des antécédents et de la gravité de l'agression sexuelle lors de l'élaboration d'interventions ciblées pour les symptômes dépressifs tout au long des services en protection de l'enfance. Dans l'ensemble, les résultats de cette thèse offrent une preuve unique que non seulement l'agression sexuelle devrait être prise en compte pour traiter la dépression, mais que sa gravité et les antécédents d'autres formes de violence et de négligence sont également des facteurs clés pour les interventions en santé mentale chez les jeunes impliqués en protection de la jeunesse. De futures recherches longitudinales qui dépassent le 18 mois couvert par cette recherche sont nécessaires pour élaborer des interventions ciblées, efficaces et durables qui répondent le mieux aux besoins de ces jeunes.

Mots clés: Agression sexuelle vécue durant l'enfance, dépression, services de protection de l'enfance, sociétés d'aide à l'enfance, étude longitudinale, analyse typologique

Developmental Trajectories from Childhood Sexual Abuse to Depressive Symptoms among Adolescent Youth Involved in Child Protection Services

Childhood sexual abuse (CSA) is an important social issue and is a substantial risk factor for depression in childhood, adolescence, and adulthood (Collin-Vézina et al., 2013; Hillberg et al., 2011; Putnam, 2003). Research is only beginning to assess other sources of risk on depression, including the characteristics and type of CSA, such as the frequency and severity, co-occurring abuse and neglect, and comorbid psychiatric conditions in various populations (Amado et al., 2015; Trickett et al., 2011). However, there is limited literature that looks specifically at this relationship using person-centered approaches, such as cluster analysis, and in longitudinal studies with respect to youth who are involved in Child Protection Services (CPS). This is important for several reasons.

First, there is significant variability in CSA outcomes as not all sexually abused youth perceive or respond to CSA in the same way (McCrae et al., 2006; Trickett et al., 2001). For example, research has consistently documented that CSA characteristics, such as the developmental period in which the abuse occurs, the duration of the abuse, who the perpetrator is, and the use of physical force or threats, influence depression outcomes (Dube et al., 2005; Pérez-Fuentes et al., 2013; Zink et al., 2008). Thus, studies that rely only on variable-centered analyses (e.g., regression) to assess the impact of CSA on depression, do not always capture the range of CSA experiences and characteristics that might be interrelated (Lyons & Romano, 2019).

Second, sexually abused youth involved in the child welfare system report greater co-occurring abuse and neglect, are more likely to have experienced severe CSA, and are less likely to recover from depressive symptoms compared to the general population and compared to youth

who have experienced other abuse (Fallon et al., 2015; Garland, 1996; Guibord et al., 2011; Mennen et al., 2010). Not only are these youth more vulnerable given the heterogeneity of their abuse experiences, CPS also suffer from systemic challenges, such as high turnover rates among child welfare workers, that make it increasingly difficult to develop effective and sustainable interventions (Bruskas, 2008; Kemp et al., 2009; Strolin et al., 2007). Thus, longitudinal research is also warranted to inform the identification of and response to depression among sexually abused youth served by CPS.

The current dissertation contributes to child welfare research by addressing these gaps in the literature and by providing information about the typologies and characteristics of CSA on depressive symptoms among CPS youth through two distinct studies. Together, both studies provide evidence that, not only does the presence, but also the severity of CSA contribute to depressive symptoms among adolescent youth involved in CPS.

General Literature Review

CSA Prevalence and Incidence

CSA is defined as coercive or unwanted sexual acts occurring between a child and a perpetrator (Putnam, 2003). Research on CSA is in its infancy and to date, much of the research on CSA emanates from studies conducted in the United States (Collin-Vézina et al., 2010). The prevalence rate of CSA around the world indicates that around one in five women (18-20%) and one in 12 men (6-9%) report suffering some form of sexual abuse before the age of 18 (Pereda et al., 2009; Stoltenborgh et al., 2011). Regarding Canadian populations, researchers found similar prevalence rates of CSA in Ontario, where 22.1% of females and 8.3% of males endured CSA in their lifetime (MacMillan et al., 2013). However, Statistics Canada (2014) indicated that in 2012, the incidence rate of CSA reported to authorities was only 2.05 per 1000 children and youth

under 18 across Canada (i.e., 0.21%; Cotter & Beaupré, 2014). Prevalence rates vary and may be an underestimate of actual CSA incidences due to a reluctance to report and discuss abuse (Collin-Vézina et al., 2010). These results suggest that the actual number of children who experience CSA is likely much higher due to under-reporting (Smith et al., 2000). This is consistent with greater rates of CSA emanating from self-reports rather than from official report inquiries, such as those based on data from CPS and the police (Collin-Vézina et al., 2010). In fact, Statistics Canada (2014) found that more than 9 in 10 victims of CSA did not report the abuse to either police or CPS before they turned 15. Underreporting and delaying disclosure may be due to personal factors such as fear of repercussions from the abuser, victim blaming, self-blame, or fear of re-living the experience (Sciolla et al., 2011). CSA is a complex phenomenon with significant variations in experiences that not only delays disclosure, but often contributes to more severe trauma-related dysfunction compared to other types of childhood maltreatment (Finkelhor & Browne, 1985; Sciolla et al., 2011). The heterogeneity of CSA experiences, the nature and timing of CSA, as well as personal factors, increase the risk of developing severe psychological consequences later on.

Psychological Outcomes of CSA

CSA is associated with many short- and long-term psychological consequences, including depression, suicide, posttraumatic stress disorder (PTSD), increased revictimization, affective instability, and substance abuse (Brodsky et al., 2008; Hillberg et al., 2011; Putnam, 2003). In fact, both victims of CSA and physical abuse account for more than half of all individuals who receive mental health counselling or therapy in the United States (Cohen & Miller, 1998; Wurtele & Kenny, 2010). In addition, CSA can also lead to a wide range of developmental problems such as learning and social difficulties in school (Amédée et al., 2019).

Originally, most research examined psychological consequences and long-term outcomes of CSA through retrospective reports among adult populations (Higgins & McCabe, 2001; Putnam, 2003). However, studies have now included samples from various populations and developmental periods to demonstrate the detrimental effects of CSA on psychological outcomes across the lifespan (Collin-Vézina et al., 2013; Fergusson et al., 1996; Trickett et al., 2011). For example, CSA occurring in earlier adolescence compared to adulthood has been linked to greater externalizing problems and peer victimization (Blanchard-Dallaire & Hébert, 2014; Gauthier-Duchesne et al., 2017). In their longitudinal study, Fergusson and colleagues (1996) demonstrated that children with histories of noncontact CSA had significantly lower major depression compared to children reporting intercourse. Using adolescent samples from CPS, Gallitto and colleagues (2017) found increased risk of psychological distress associated with the severity of CSA. Thus, CSA is a substantial risk factor for psychological outcomes across various populations in childhood, adolescence, and adulthood.

CSA and Depression

The most common and well-documented psychological symptom and mental health outcome among victims of CSA is depression (Browne & Finkelhor, 1986; Hillberg et al., 2014; Putnam, 2003). Depression is a leading public health concern with high prevalence rates, morbidity, and mortality (World Health Organization, 2017; Wurtele & Kenny, 2010). Within community-based longitudinal studies, depressive symptoms and mood disorders are associated with CSA (Guibord et al., 2011; Whiffen & Clark, 1997). In addition, sexually abused children present with significantly greater depressive symptoms than comparative non-abused groups (Amado et al., 2015). Longitudinal studies have also begun to examine the role of depressive symptoms on adaptive and maladaptive strategies in response to abuse (Gratz & Roemer, 2004;

Shepherd-McMullen et al., 2015). For example, Chang and colleagues (2018) found that greater emotional regulation difficulties were associated with more severe depressive symptoms among sexually abused adolescent girls. These results have implications for clinical settings as they inform our understanding of treatment interventions for depression over time.

Variations in Characteristics of CSA

Given the variability of CSA outcomes, researchers have also begun examining specific CSA characteristics that may contribute to depressive symptoms. Studies suggest that more invasive CSA (i.e., use of physical force or violence), more frequent CSA, longer duration of CSA, and intrafamilial CSA are the most harmful characteristics (Hulme & Agrawal, 2004; Pérez-Fuentes et al., 2013; Putnam, 2003; Zink et al., 2008). For example, women with more severe CSA histories report longer-term depressive symptoms compared to less severe forms of abuse (Sciolla et al., 2011). In a longitudinal study by Trickett and colleagues (2001), girls with CSA had significantly higher depressive symptoms and other comorbid psychiatric problems than non-abused comparative groups; especially if they were victims of intrafamilial CSA and if they endured a longer duration of abuse. There is also a growing body of literature that is starting to include other sources of risk, such as co-occurring abuse and neglect experiences, in order to help clarify the contribution of CSA on psychopathology. In fact, CSA often occurs in the presence of other types of abuse and neglect (i.e., polyvictimization), comorbid psychological disorders, and other adverse experiences (e.g., parental separation/divorce and household substance abuse; Dong et al., 2003; Finkelhor et al., 2007). In adult retrospective reports of childhood abuse, the combinations of abuse were more traumatic and were associated with greater distress compared to any single form of abuse only (Higgins & McCabe, 2001). Furthermore, the risk of emotional problems and other mental health issues increase as the

number of adverse childhood events experience increase (Anda et al., 2006). In essence, multiple adverse experiences place a greater demand on an individual's coping resources which may explain later psychological dysfunction (Finkelhor et al., 2007).

Despite these findings, the majority of those studies rely on variable-centered linear analyses, such as regression and correlations, to study relationships between CSA characteristics and depressive symptoms. They focus on central tendencies that may be more difficult to interpret by potential inter-correlations among CSA characteristic variables (Hulme & Agrawal, 2004). A solution that may help capture the diversity of CSA experiences include adopting a person-centered approach to analyses, such as using cluster analysis or latent profile analysis, to classify individuals into profiles and examine characteristics of abuse and associated depressive symptoms (McCrae et al., 2006). This is important as not all CSA survivors have similar abuse experiences or respond to CSA in the same way. In one longitudinal study, sexually abused girls in severe profiles (e.g., experienced incest) continued to show the greatest psychological distress relative to other severity profiles over time (Trickett et al., 2001). However, only seven CSA studies to date have generated profiles based on CSA characteristics, the majority among adult CSA survivors (Bennett et al., 2000; Hulme & Agrawal, 2004; Lyons & Romano, 2019; Watson & Halford, 2010). In addition, only three studies have included children and only two of which have included children from CPS (Gallitto et al., 2017; McCrae et al., 2006). Given the limited person-centered studies on CSA and depression, research is needed in order to understand how the timing and characteristics of CSA, as well as how co-occurring abuse and neglect experiences impact mental health among child and adolescent populations. In addition, there is an especially large gap in knowledge regarding this link within child welfare populations.

Child Protection Services

The child welfare system consists of government agencies that are responsible for the intervention and response to cases of suspected child abuse and neglect (i.e., Child Protection Services; Fallon et al., 2020). For example, there are 50 designated child welfare agencies in Ontario, Canada, where on a monthly average, 12,000 children and adolescents are in care (Ontario Association of Children's Aid Societies; OACAS, 2015). The top five reasons for children and families becoming involved in the child welfare system are request for assistance, child exposure to partner violence, a caregiver with a mental health problem, physical force and/or child maltreatment, and inadequate supervision (OACAS, 2015). In 97% of investigations children remain in the home. In the 3% of investigations where children are taken from their homes, these children are most likely to have experienced severe abuse and are categorized by the following: crown ward status, in which the parental rights of the youth have been legally severed, the youth was removed from their family, and the government becomes their legal guardian; society ward, in which there is a parental rights sharing agreement where the youth has also been placed in CPS custody but only for a specific period of time; interim care, in which the youth has been temporarily removed from the home and placed in CPS care, but custody remains with the parents; and voluntary care, in which CPS have become involved with the family but the youth resides at home and the custody remains with the parents (Gallitto et al., 2017). Overall, this represents 36% of investigations for child abuse and neglect that are substantiated annually in Canada, including 34% of cases that are due to neglect, 20% for physical abuse, 9% for emotional abuse, and 3% for sexual abuse (National Clearinghouse on Family Violence, 2008). In the United States, approximately 17% of the children investigated by CPS were found to be victims of childhood maltreatment, including children who suffered neglect (74.9%), physical

abuse (18.3%), sexual abuse (8.6%), psychological abuse (5.7%), medical neglect (2.2%), and other maltreatment (7.1%; Child Welfare Information Gateway, 2019).

Youth who are involved in CPS have significant behavioral and emotional problems who require additional services to address mental health needs compared to the general population (Berger et al., 2009). Sexually abused youth involved in CPS are particularly vulnerable as they report more severe mental health problems than non-abused youth and are referred for mental health services more often than other reported abuses (Garland et al., 1996, McCrae et al., 2006; Mennen et al., 2010). Furthermore, these youth are not only more likely to be exposed to multiple adverse experiences prior to their involvement in CPS, but they are also at-risk for further abuse within the child welfare system (Burge, 2007). In fact, the National Coalition of Child Protection Reform reported that CSA is considerably higher in CPS than in the general population (Baker et al., 2006). They suggest that this is due to greater peer-to-peer opportunities in which CSA may take place in group care settings. In addition, youth are also at risk for CSA by caretakers in foster and group care settings. This may be due given CSA abusers are often acquaintances or family members (Katz et al., 2020). CPS also suffer from systemic challenges, such as recruiting and retaining foster parents and high turnover rates among child welfare workers (Strolin et al., 2007). Thus, very little is known regarding CSA recovery and related depressive symptoms and the types of interventions implemented throughout CPS involvement.

CSA and depression in CPS. Within the general population, adult and child literature reliably indicate that CSA is related to depression and may vary according to the characteristics of the abuse, the accumulative adverse events experienced (i.e., co-occurring abuse and neglect experiences), and comorbid mental health issues (e.g., anxiety; Fergusson et al., 2013; Tanaka et al., 2011, Zlotnick et al., 2001). However, there is limited knowledge with respect to this link in

the child welfare context and researchers have rarely controlled for or included other sources of risks and characteristics of CSA on depression (McPhie et al., 2014; Putnam, 2003). This is important as abuse types often co-occur or change over time (Lau et al., 2005). CPS need to be aware of multiple factors that place the youth at risk for developing depression in order to design mental health services that are tailored to meet the youth's needs. This is especially so given that involvement in CPS is significantly related to meeting criteria for a serious emotional disorder later on despite interventions (Farmer et al., 2001). Yet, there are no longitudinal studies that have evaluated this link in the child welfare context. Furthermore, there are only three person-centred studies that have generated profiles on the basis of CSA characteristics in CPS samples: one which used only boys to identify profiles based on adult outcomes (Lyons & Romano, 2019), another identified profiles among adolescents and evaluated the relationship of trauma symptom profiles (e.g., anxiety, anger) to abuse experiences, socio-demographics, and CPS variables (Gallitto et al., 2017); and the last included children under 14 years old to investigate psychological symptoms (McCrae et al., 2006). In all three studies, trauma symptoms were associated with an increased likelihood of belonging to more severe abuse profiles. Thus, given the scarcity of CSA studies among youth involved in CPS, it seems important to investigate how the history and nature of CSA leads to depression outcomes among this vulnerable population.

Theory

Considering the heterogeneity of CSA experiences and systemic challenges encountered by youth involved in CPS, there is a theory that guides the current dissertation to explain the possible mechanisms through which CSA impacts depressive symptoms. The Transactional Model developed by Spaccarelli (1994) proposed that developmental and environmental factors may moderate the relation between sexual abuse and the victim's responses to the abuse, which

would influence the severity of the psychological outcome. Spaccarelli conceptualizes CSA as a stressor involving a series of abuse events that may increase the risk for negative outcomes (Spaccarelli, 1994). This theory is grounded in literature where child development is affected by the relationship between the child and various systems within their environment as well as by the accumulation of adverse experiences associated with abuse, especially when there is a lack or support from their social environment (Bronfenbrenner, 1979; Gómez, 2019; Lyons & Romano, 2019). In fact, family connectedness and perceived support were the strongest protective factors among youth with a history of CSA among all considered variables (Eisenberg et al., 2007; Spaccarelli & Kim, 1995). However, the majority of youth involved in CPS are placed out-of-home, are legally separated from their families (i.e., crown wards), and are less likely to engage in the necessary services to curb later psychiatric disorders (Guibord et al., 2011; OACAS, 2015). These, compounded by personal predispositions sequalae to severe CSA, such as distortions in their coping resources and emotional orientation to the world (Collin-Vézina et al., 2013; Finkelhor et al., 2007), may exacerbate depressive outcomes.

There is a definite need to conduct CSA research in CPS that is developmentally sensitive to help develop and improve mental health resources and supports in the wider social environment. Consistent with Spaccarelli's Transactional Model, sexually abused youth involved in CPS are confronted with a myriad of environmental factors that interact (i.e., transactions) with personal factors (i.e., coping resources), that determine negative outcomes. Therefore, it is hypothesized that the Transactional Model informs CSA research among CPS-involved youth as they are more likely to experience severe and multiple abuse experiences that place a greater demand on their coping resources and they tend to lack support and resources from their family

and wider social environment to effectively cope with and effectively respond to their abuse experiences and associated stressors that determine later depressive outcomes.

Contribution and Purpose

The current dissertation contributes to child welfare literature by addressing these gaps in knowledge and by providing a comprehensive examination of CSA and depressive symptoms among CPS-involved adolescents through two distinct studies. Together, both studies provide evidence that, not only does the presence, but the severity of CSA contributes to depressive symptoms among youth involved in CPS. The primary objective of Study 1 was to identify groups among a sample of 13- to 19-year-old youth served by CPS based on abuse histories and depressive symptoms. Given previous person-centered studies with adults and younger children (Hulme & Agrawal, 2004; Lyons & Romano, 2019), Study 1 hypothesized that at least two groups would be identified, each reflecting different types of abuse (e.g., CSA, co-occurring abuse and neglect), severity of abuse (i.e., defined by frequency of abuse), and depressive symptoms. Participant demographic information, such as age, gender, ethnicity, and CPS placement status (i.e., interim care, society ward, crown ward, community family/voluntary care), were also included in the analysis in order to help inform potential confound variables to be examined for the analyses in the second part of the study. Furthermore, these variables may provide additional information that could help earlier identify youth who require specific intervention. The second objective of Study 1 was to test the relationship between CSA and depressive symptoms and control for potential factors that emerge in the clustered groups. It was hypothesized that age, gender, ethnicity, CPS placement status, co-occurring abuse and neglect experiences, and anxiety, would be controlled, consistent with studies within the general population and in studies that have used the same dataset (McPhie et al., 2014; Zlotnick, et al.,

2001). Thus, it was hypothesized that less severe CSA would be associated with less severe depressive symptoms regardless of other factors. The overarching goal of this initial study was to help improve mental health screening practices by using person-centered and variable-centered approaches to identify potential factors that increase the risk for depression among sexually abused youth involved in CPS.

Study 2 examined depressive symptoms longitudinally among sexually abused youth involved in CPS and assessed whether changes of depressive symptoms varied by CSA severity. Consistent with longitudinal research in various populations, it was hypothesized that depressive symptoms would also increase over time among sexually abused youth involved in CPS (Boney-McVoy & Finkelhor, 1996; Putnam, 2003, Trickett et al., 2011). The second objective of Study 2 was to determine whether CSA severity predicted the variation of change in depressive symptoms over time among sexually abused youth. Thus, it was expected that CSA severity would be positively associated with depressive symptoms over time (Gallitto et al., 2017). The purpose of Study 2 was to add to pre-existing longitudinal literature and our understanding of the evolution of depressive symptoms over time among sexually abused youth. Furthermore, this study was unique as it contributes to the gap in literature regarding how the severity of CSA contributes to depressive symptoms specifically throughout CPS involvement. A longitudinal approach would help CPS develop effective and sustainable targeted interventions for these youth given their abuse histories and depressive symptoms over time. The final chapter of this dissertation includes a general discussion and consolidation of the findings from both studies and discusses the theoretical, political, and clinical implications of these findings for youth involved in CPS.

General Method

Maltreatment and Adolescent Pathways (MAP) Longitudinal Study

This dissertation used data from the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study[1], a three-year longitudinal epidemiological study that collected data from youth involved in three densely populated urban child welfare agencies conducting child protection investigations in Ontario, Canada. The original study involved a battery of self-report questionnaires to be completed every six-months for three years (i.e., initial, six-month, one-year, 1.5-year, 2-year, 2.5-year, 3-year) with the project starting in 2002 and running until 2010. The youth were involved in CPS for six months or longer and they were assigned caseworkers with mandated visits every 90 days (McPhie et al., 2014). The questionnaires encompassed measures on health and wellbeing (e.g., friendship, dating, physical health), psychological wellbeing, selected resiliency factors, and maltreatment history (e.g., CSA, physical abuse, psychological abuse, and physical and emotional neglect). The child welfare agencies and relevant university research ethics boards provided all the ethic approvals for the original MAP Longitudinal Study (Wekerle, 2007). Furthermore, given the nature of some of the critical item questions included in the questionnaire as well as the vulnerability of the population, several items to measure potential reactivity or distress to the research study were included.

[1] MAP (Maltreatment and Adolescent Pathways) Longitudinal Study principal investigator: Christine Wekerle; co-investigators: M. Boyle, D. Goodman, B. Leslie, E. Leung, H. MacMillan, B. Moody, N. Trocmé, R. Waechter, and A-M. Wall; collaborators: Child Welfare League of Canada, First Nations Child and Family Caring Society of Canada, Ontario Association of Children's Aid Societies. The MAP study is funded by the Canadian Institutes of Health Research (CIHR; No. VGH63212; NO. 74547), Institute of Gender and Health (IGH), the Provincial Centre of Excellence in Child and Youth Mental Health at the Children's Hospital of Eastern Ontario (No. 341), and the Ontario Ministry of Children and Youth Services (No. 124).

MAP Participants

Youth were initially recruited based on draws from a random numbers table from lists that were refreshed every six months on all active caseloads within Ontarian CPS. The participant list was provided to designated CPS staff members who were serving as liaison for the MAP Longitudinal Study. Youth in the list were then screened based on predetermined exclusion criteria. The exclusion criteria comprised of youth who had been involved with CPS for less than six months, those with severe developmental delays, those who were detained or placed in secure custody, those who presented with severe psychiatric concerns, those who were not in active contact with CPS, and those who refused to participate in the study (Wekerle et al., 2007). Of the 1910 referred youth, 1350 were not eligible to be involved in the original study. Thus, the original MAP Longitudinal Study yielded 561 youth between the ages of 13 and 19 years (M = 15.8, 53.6% females) who completed initial testing. With regards to their CPS placement, most of the youth were identified as crown wards (60.9%), meaning they had been placed out-of-home and were legally separated from their parents. Out-of-home youth included those who were living with foster parents (44%); followed by group home care (24.7%), and other (e.g., kinship care, adoptive care; 20%; Gallitto et al., 2017). Those individuals received additional support services and financial support whereas youth residing in group homes (i.e., interim care) received additional support from the group home staff. Furthermore, in-home youth were also assigned a family caseworker and additional specialty services.

Of the ethnic groups represented in the original study, the most common was Caucasian (30.5%), followed by dual- or multiple-ethnicity (27.2%), and Black (26.8%). Youth who participated in the MAP Longitudinal Study received 28$ for their participation and were offered refreshments. Those who were aged 16 and older provided their own consent while youth under

the age of 16 were required to have their legal guardians provide consent. For more information regarding the MAP research project, see McPhie et al. (2014).

Dissertation Subsamples

The current dissertation used subsamples from the larger MAP Longitudinal Study. Participants included in the sample did not differ significantly with regards to demographic information (e.g., age, gender) or type of maltreatment from those excluded. While the MAP Longitudinal Study included data at several time points for 3 years (i.e., initial, six-month, one-year, 1.5-year, 2-year, 2.5-year, 3-year), Study 1 used data at the initial testing time point only, due to the sample size, the distribution of the dataset, as well as the missing data. In Study 1, one participant was removed from analyses given they were missing all data on each of the variables of interest at every time point. Thus, our sample in Study 1 consisted of 560 adolescent youth between the ages of 13 and 19 years (M = 15.8, SD = 1.1; 46.4% males) who completed the initial testing.

In Study 2, participants included youth who reported a history of CSA, defined as those who endorsed Low, Moderate, and Severe CSA on the Childhood Trauma Questionnaire (CTQ-SF; Bernstein et al., 1994), youth who completed items related to the number of symptoms of depression endorsed in clinical- and non-clinical ranges on the Brief Symptoms Index (BSI; Derogatis, 1975), and youth who participated in the study at the initial time point (N = 135, 71.9% female). Although the larger MAP Longitudinal Study obtained information up to three years post-initial time point, the attrition rate for the current variables of interest exceeded 64% after the 24-month time point and so those time points were dropped. Thus, Study 2 included participants at the initial time point, at 6-months, and at 18-months. Of the 135 youth who participated in the study at the initial time point, 31% (N = 42) did not participate at 6-months

and 55.6% (*N* = 74) could not be sampled at 18-months, resulting in 61 participants who remained at the last time point. See Study 1 and Study 2 for full descriptive and demographic information of participants.

Measures

MAP lab-developed pilot instruments. Demographic and descriptive information was obtained with the use of lab-developed questionnaires that were provided to youth at each of the three time points (i.e., initial testing, 6-month, 18-month). Variables used for the purpose of the current dissertation included the participant's age, gender (i.e., male or female), cultural ethnicity (i.e., Black, White, South Asian/Filipino, Latin-American, Native, South East Asian, Arab, Arab/West Asian, Chinese, dual or multiple-ethnicity, and other), and CPS placement status: interim/temporary care, society ward (i.e., parental rights sharing agreement), crown ward (i.e., parental rights legally terminated), and community family/voluntary care.

CSA, co-occurring abuse, neglect, and abuse severity. The Childhood Trauma Questionnaire short-form (CTQ-SF; Bernstein et al., 1994, 2003) was used to assess the history and severity of CSA and co-occurring abuse and neglect. The CTQ short-form is a 28-item self-report questionnaire designed to screen the histories of childhood maltreatment and neglect and are rated on a 5-point Likert scale with responses ranging from *Never True* to *Very Often True*. The CTQ-SF assesses five clinical scales: physical, sexual, and emotional abuse, and physical and emotional neglect. The CTQ-SF includes a threshold or cut score for measuring severity of abuse (e.g., items that meet minimum required frequency for severe abuse). There are four different levels of severity set for each type of trauma based on data from a randomly selected (i.e., nonclinical) samples (Bernstein et al., 1994): None (or Minimal), Low (to Moderate), Moderate (to Severe), and Severe (to Extreme).

Depressive symptoms. The Brief Symptoms Inventory (BSI; Derogatis, 1975, 1993) was used to assess depressive symptoms in the MAP Longitudinal Study. The BSI is a 53-item self-report questionnaire rated on a 5-point Likert scale of distress ranging from 0 (*not at all*) to 4 (*extremely*). The BSI consists of nine symptom dimensions: somatization , obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobia anxiety, paranoid ideation, and psychoticism. Four additional items that do not subsume under any dimension include poor appetite, trouble falling asleep, thoughts of death or dying, and feelings of guilt. The BSI has been shown to possess high internal consistency ($\alpha = .98$; McPhie et al., 2014).

General Statistical Analyses

Missing Data

Preliminary analyses indicated only two variables (i.e., age and gender) had complete data. The percentages of missing data on each measure for the entire sample from the MAP Longitudinal Study at the initial time point were as follows: CTQ (4.1%) and BSI (7.5%). By the 6-month follow up, the total percentages of missing data on each measure compared to initial were as follows: CTQ (30%) and BSI (28.9%). By the 18-month follow up, the total percentages of missing data compared to initial on each measure for these participants were as follows: CTQ (55.9%) and BSI (46.4%). Overtime, attrition rates indicated that 69% of youth ($N = 94$) and 44.4% of youth ($N = 61$) remained in the study by the 6- and18-month follow-ups, respectively.

A missing value analysis was used to check the pattern of missing data across each of the time points. A Little's MCAR Test indicated that the data were not missing at random (MNAR; χ^2 (3557) = 3869.16, $p < .001$). Therefore, missing data were addressed with Multiple Imputation (MI) methods. MI methods are robust to the violation of the normality assumptions commonly found in longitudinal studies (Kline et al., 2017). Furthermore, this method is consistent in child

welfare studies using the MAP Longitudinal dataset (Milne & Collin-Vézina, 2014). Due to the sample size and to avoid introducing bias in the analysis, missing values were not dropped. The multiple imputation was set at five imputations with minimum and maximum value constraints entered for all of the variables to ensure they aligned with the original values. This is an appropriate number of imputations given the rate of missing information and the number of participants (Schafer & Graham, 2002). Variables with no missing data (i.e., age and gender of the respondents) were only used as predictors while all other variables were used as predictors and missing values were imputed.

Design

Study 1. To test the primary hypothesis, a cluster analysis was conducted in order to identify profile groups of youth based on depressive symptoms, co-occurring abuse and neglect experiences, and CSA severity (i.e., frequency of CSA) at the initial testing point (e.g., Time 1 data). Cluster analysis is used to form groups from a sample of individuals and organize them based on quantities of multivariate information. They are also a cost-effective strategy in the health care system as they can assist in identifying groups of patients according to their level of function in various domains and help match community mental health services to the specific needs of each group (Hodges & Wotring, 2000). Furthermore, cluster analysis has been used to identify groups of people at risk of developing certain conditions and at risk of poor outcomes (Clatworthy et al., 2010).

The cluster analysis used in the current study was based on the Hierarchical cluster analysis, which uses an algorithm that classifies similar objects into groups called clusters. The endpoint is a set of clusters, where each cluster is distinct from each other cluster, and the objects within each cluster are broadly similar to each other. The clustering algorithm used was the

between-groups linkage agglomerative method which sequentially merged similar clusters from bottom to top while adopting a squared Euclidean distance interval. This method was chosen given it produces homogeneous clusters and has been shown to be a robust and valid clustering method (Bennett et al., 2000; Milligan & Cooper, 1987). Clustering was set to two to four clusters based on the recommended number in the literature given our sample (Clatworthy et al., 2010). Based on examining the length of clusters in the dendrogram, two prominent clusters were identified. Furthermore, crosstabulations and Pearson's Chi Square Tests were performed to better identify youth that were in the clusters.

To test the second hypothesis, a logistic regression analysis was carried out using SPSS version 21.0. A logistic regression was chosen given it best suit the distribution of the data as well as considering the homogeneity of the variables (i.e., multicollinearity), and is consistently used in social and behavioral research (Fallon et al., 2017). Logistic regression was used to predict the outcome variable of depressive symptoms. A two-step analysis procedure was used with the first predictor being CSA. The model was then run with a set of our control predictors, including age, gender, ethnicity, CPS placement status, anxiety, and co-occurring abuse and neglect experiences. These control variables were entered in the second model to determine whether the effect of CSA on depressive symptoms changed.

Study 2. To test the primary hypothesis, Hierarchical Linear Modeling (HLM) via a Mixed Model Analysis was carried out using SPSS version 21.0 to estimate the overall trajectory of clinical depressive symptoms and evaluate individual differences across the three time points among youth who reported low, moderate, and severe CSA. To conduct the individual growth models and individual growth curves via HLM, depressive symptoms were set as the dependent variable and both linear and quadratic time components were set as predictors. To test the second

hypothesis, a Mixed Model Analysis was also used to test whether the severity of CSA at the initial testing (i.e.., Time 1 data) would account for the variation of change in depressive symptoms over time. This was done by setting depressive symptoms as the dependent variable and incorporating the predictor (i.e., CSA severity) into the level two model. To avoid multicollinearity, the linear and quadratic components were then dropped for an orthogonal coding scheme, which incorporates two uncorrelated components.

There are advantages of using HLM over repeated tests (e.g., ANOVA) for small, unbalanced, longitudinal data with multiple missing data points (Krueger & Tian, 2004). Although small samples may yield reduced variability estimates that may not generalize to the population, when conducted longitudinally, small-sample studies can provide rich information about specific populations (Muth et al., 2016). Thus, HLM was the preferred method for this particular dataset and population.

Study 1: Characteristics and Profiles of Childhood Sexual Abuse, Depressive Symptoms, and Abuse Histories of Adolescent Youth Involved in Child Protection Services

Submitted to *Child Abuse and Neglect*

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Abstract

There is an increased recognition that a number of precursors and characteristics of childhood sexual abuse (CSA) contribute to depression. However, there have been limited empirical attempts to examine this link among youth who are involved in Child Protection Services (CPS). This population is important to study because sexually abused youth involved in CPS are at greater risk in developing mood disorders and are less likely to recover from depressive symptoms. Using data at the initial testing point from the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study, cluster analysis was used to identify two profiles of 560 youth (13-19 years) involved in CPS based on their depressive symptoms, CSA, and co-occurring abuse and neglect experiences. Youth who reported none to low CSA (78%, n = 376) were clustered into the group depicting minimal co-occurring abuses and depressive symptoms while youth who reported moderate to severe CSA (22%, n = 102) were clustered into the group depicting greater co-occurring abuse and neglect experiences and clinical depressive symptoms. Furthermore, logistic regressions revealed that more severe CSA was associated with more severe depressive symptoms regardless of gender and co-occurring abuse and neglect experiences. The findings highlight the diversity of CSA profiles including co-occurring abuse and neglect histories, and depressive symptoms among youth involved in CPS. Implications for mental health screening practices in the child welfare system are discussed.

Keywords: Childhood sexual abuse, depression, child protection services, child welfare, cluster analysis

Characteristics and Profiles of Childhood Sexual Abuse, Depressive Symptoms, and Abuse Histories of Adolescent Youth Involved in Child Protection Services

Childhood sexual abuse (CSA) is a complex phenomenon that has been widely studied in various populations and the severity of CSA is linked to depression (Hart & Rubia, 2012; Hébert et al., 2006; Putnam, 2003). However, there are limited studies that have attempted to delineate CSA severity and its impact on depression by examining the profiles of youth involved in Child Protection Services (CPS; Lyons & Romano, 2019). This is important as children in the child welfare system experience a myriad of diverse abuse experiences and a variability of health and psychological outcomes that make a specific standardized intervention especially challenging to develop (Bruskas, 2008; Hillberg et al., 2011). Thus, a better understanding of the profiles of sexually abused youth and the severity of CSA on depressive symptoms can help CPS better identify those most in need for treatment and improve specialized interventions.

Literature Review

CSA is defined as coercive or unwanted sexual acts occurring between a child and a perpetrator and is associated with many short-and long-term psychological consequences, such as depression, substance use, suicide, and anxiety (Brodsky et al., 2008; Putnam, 2003). The most common and well-documented psychological symptom and mental health outcome among victims of CSA is depression (Browne & Finkelhor, 1986; Hillberg et al., 2014). Depression is a leading public health concern with high prevalence rates, morbidity, and mortality (World Health Organization, 2017; Wurtele & Kenny, 2010). Longitudinal studies have consistently documented that depressive symptoms and mood disorders are associated with CSA (Guibord et al., 2011; Putnam, 2003; Whiffen & Clark, 1997). In fact, sexually abused children present with significantly greater depressive symptoms than comparative non-abused groups and this relation

is influenced by a host of CSA characteristics, such as the type of abuse (e.g., involving penetration), the age of abuse, the severity (i.e., frequency), the duration, and the number of perpetrators (Amado et al., 2015; Putnam, 2003; Trickett et al., 2001). Furthermore, the characteristics of CSA increase the likelihood of later severe forms of adult psychopathology (Putnam, 2003).

Yet, the majority of CSA studies have adopted a variable-centred approach, such as using correlations and regressions, and have examined the impact of CSA characteristics in isolation without considering how the characteristics might be interrelated (Daigneault et al., 2017; Fergusson et al., 1996; Lyons & Romano, 2019). To date, only seven studies have generated profiles based on CSA characteristics (Lyons & Romano, 2019; Watson & Halford, 2010) and only two included youth in CPS (Gallitto et al., 2017; McCrae et al., 2006). For example, McCrae and colleagues (2006) found that depressive symptoms were associated with severe CSA profiles of children involved in CPS. This is consistent in longitudinal studies as well where sexually abused girls continue to show the greatest depression difficulties relative to other severity profiles over time (Trickett et al., 2001). Given the, albeit, limited person-centered studies on children and the heterogeneity of CSA experiences, future research is needed to classify CSA into profiles based on the type and severity of abuse to better screen for mental health.

There is also a growing body of literature that is starting to include other sources of risk, such as co-occurring abuse and neglect experiences, in order to help clarify the contribution of CSA on psychopathology (Rodgers et al., 2004). In fact, Dong and colleagues concluded that CSA often occurred in the presence of other types of abuse (i.e., polyvictimization), comorbid psychological disorders, and other adverse experiences (e.g., parental separation and divorce and

household substance abuse; Dong et al., 2003). In adult retrospective reports of childhood abuse, the combinations of abuse were more traumatic and were associated with greater distress compared to any single form of abuse only (Higgins & McCabe, 2001). Person-centred studies have also examined how CSA characteristics and profiles are associated with other forms of abuse and neglect that contribute to poor psychosocial symptomology (Hulme & Agrawal, 2004). Although these studies have examined these relationships and profiles in various populations, there is limited research that have included youth involved in CPS.

The child welfare system consists of agencies that are responsible for the intervention and response to cases of suspected child abuse and neglect (i.e., Child Protection Services; Ontario Association of Children's Aid Societies; OACAS, 2015). Youth who are involved in CPS have significant behavioral and emotional problems who require additional services to address mental health needs compared to the general population (Berger et al., 2009). Specifically, sexually abused children within CPS report more severe mental health problems than non-abused children and have a higher need for mental health services regardless of placement or abuse type (Mennen et al., 2010). Furthermore, these youth are not only more likely to be exposed to multiple adverse experiences prior to their involvement in CPS, but they are also at-risk for secondary abuse within the child welfare system (Burge, 2007). These include increased risks of revictimization from peers, foster siblings, and increased likelihood of dating violence in sexually abused adolescents (Auslander et al., 2018)

Research studies have only recently begun to examine profiles of sexually abused youth based on trauma-related symptomatology and co-occurring abuse experiences in a variety of populations, including adult CSA survivors (Au et al., 2013), community-based samples (Ayer et al., 2011), youth involved in the juvenile criminal system (Vaughn et al., 2007), and more

recently, youth involved in CPS (Gallitto et al., 2017). Person-centered studies have shown significant differences among profile clusters for depression among children and adults who experienced diverse CSA and co-occurring abuse experiences that vary by CPS placement (e.g., in-home versus out-of-home placement) and gender (Gallitto et al., 2017; Hulme & Agrawal, 2004; Lyons & Romano, 2019). However, there is limited knowledge with respect to depression profile memberships of adolescents involved in CPS who have experienced diverse levels of CSA severity and other forms of abuse and neglect experiences.

This is important as sexually abused youth involved in CPS require long-term therapeutic follow-up and they are less likely to recover from depressive symptoms associated with the abuse (Fallon et al., 2015; Guibord et al., 2011). In addition to the heterogeneity of abuse experiences, CPS also suffer from systemic challenges, such as recruiting and retaining foster parents and high turnover rates among CPS workers, which increases the difficulty to provide adequate care to these youth (Bruskas, 2008). Thus, research is needed in order to help CPS earlier identify groups of sexually abused youth who require specialized interventions given their abuse histories and depressive symptoms.

Research Objectives and Hypotheses

The primary objective of the study was to identify groups among a sample of 13- to 19-year-old youth served by CPS based on abuse histories and depressive symptoms reported at the initial time point. Studies have recently begun to predict profile membership of individuals reporting CSA based on the severity of their trauma-related symptoms and co-occurring abuse and neglect experiences, such as with latent profile analysis (Gallitto et al., 2017; Lyons & Romano, 2019). Similarly, the current study conducted a cluster analysis and restricted the cluster indicators to depressive symptoms, CSA severity (as defined by frequency of abuse), and

co-occurring abuse and neglect experiences measured at the initial testing point (i.e., Time 1 data). Participant information such as age, gender, ethnicity, and CPS placement were also included in the analysis in order to help inform potential confound variables to be examined for the analyses in the second part of the study. Furthermore, these variables may provide additional information that could help earlier identify youth who require specific intervention. Given previous person-centered studies with adults and younger children (Hulme & Agrawal, 2004; Lyons & Romano, 2019), it was expected that at least two groups would be identified, each reflecting different types of abuse, severity of abuse, and depressive symptoms.

The second objective of the study was to test the relationship between CSA and depressive symptoms among youth involved in CPS and control for potential factors that emerge in the clustered groups. It was hypothesized that age, gender, ethnicity, CPS placement status (i.e., interim care, society ward, crown ward, community family/voluntary care), co-occurring abuse and neglect experiences, and anxiety, would be controlled, consistent with studies that have used the same dataset (McPhie et al., 2014). In fact, CSA is related to depression regardless of other factors such as gender, ethnicity, age, co-occurring abuse and anxiety, and the severity of CSA contributes to the psychological outcome (Zlotnick et al., 2001). Furthermore, CPS status (e.g., society ward status compared to crown ward status) has been shown to contribute to psychological outcomes but has not been included in samples of sexually abused youth served by CPS (Newton et al., 2000). Researchers have rarely controlled for all these factors in the child welfare context, especially so among sexually abused youth (Gauthier-Duchesne et al., 2017). Thus, the current paper provides evidence of the heterogeneity of CSA experiences and supports that the severity of CSA significantly predicts the severity of depressive symptoms among youth

involved in CPS. Dissemination of the findings can help inform screening practices and improve targeted interventions in CPS.

Method

Data Source

This paper used data from the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study, a three-year longitudinal epidemiological study that collected data from youth involved in three large urban child welfare agencies in Ontario, Canada. The original MAP study involved a battery of self-report questionnaires completed every six-months for three years (i.e., initial, six-month, one-year, 1.5-year, 2-year, 2.5-year, 3-year) with the project starting in 2002 and running until 2010. The youth were receiving CPS for six months or longer and they were assigned caseworkers with mandated visits every 90 days (McPhie et al., 2014). The child welfare agencies and relevant university Research Ethics Boards provided all the ethic approvals for the original MAP Longitudinal Study.

Participants

While the MAP Longitudinal Study included data at several time points for 3 years, the current study used data at the initial time point (i.e., Time 1 data where the youth entered the study and completed the initial questionnaires). Time 1 data was selected given the distribution of the data as well as considering the attrition rate of youth over time. The initial recruitment yielded 561 youth who completed the initial testing. In our sample, one participant was removed from analyses given they were missing all data on each of the variables of interest at every time point. Thus, our sample consisted of 560 adolescent youth between the ages of 13 and 19 years (M = 15.8, SD = 1.1; 46.4% males) who completed the initial testing (see Table 1).

Of the ethnic groups represented in the study, the most common was White (30.5%), followed by dual- or multiple-ethnicity (27.2%), and Black (26.8%). Participants included in the sample did not differ significantly with regards to age, gender, or type of maltreatment from those excluded. With regards to their placement status, most of the youth were identified as crown wards (60.9%), meaning they had been placed out-of-home and were legally separated from their parents; followed by society ward status, meaning they had also been removed from home and placed in CPS care but for only a specified period of time (i.e., parent-CPS sharing rights, 14.5%): interim/temporary care status (6.4%), in which youth were temporarily removed from the home and placed in CPS care, but custody remained with the parents; and community family/voluntary care (18.2%), in which CPS were involved with the family, however, custody and care remained with the parents. Out-of-home youth received additional support services and financial support whereas youth residing in group homes received additional support from the group home staff.

In terms of abuse experiences, 25.2% of youth reported CSA (N = 135), 59.3% reported emotional abuse (N = 306), 49.6% reported physical abuse (N = 267), 85.5% reported emotional neglect (N = 453), and 95.7% reported physical neglect (N = 488) as indicated by the CTQ. In terms of psychological symptoms, 15.4% reported depressive symptoms in the clinical range (N = 80) as indicated by the BSI (see Table 2).

Measures

CSA and severity. The Childhood Trauma Questionnaire short-form (CTQ-SF; Bernstein et al., 1994, 2003) was used to assess the perceived history and severity of CSA. The CTQ short-form is a 28-item self-report questionnaire rated on a 5-point Likert scale with responses ranging from *Never True* to *Very Often True*. The CTQ-SF assesses five clinical

scales: physical, sexual, and emotional abuse, and physical and emotional neglect. The CTQ-SF includes a threshold or cut score for measuring severity of abuse (i.e., items that meet minimum required perceived frequency of abuse). There are four different levels of severity set for each type of trauma based on data from a randomly selected sample: None (or Minimal), Low (to Moderate), Moderate (to Severe), and Severe (to Extreme; Bernstein et al., 1994). Studies using the MAP longitudinal study dataset have reported test-retest reliability in the moderate range (r = .52 to .70), and high internal validity (r = .68 to .92; Wekerle et al., 2009). The current study demonstrated good internal consistency (α = .869).

Depressive symptoms. The Brief Symptoms Inventory (BSI; Derogatis, 1975, 1993) was used to assess depressive symptoms in the MAP Longitudinal Study. The BSI is a 53-item self-report questionnaire rated on a 5-point Likert scale of distress ranging from 0 (*not at all*) to 4 (*extremely*). The BSI consists of nine symptom dimensions: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobia anxiety, paranoid ideation, and psychoticism. Four additional items that do not subsume under any dimension include poor appetite, trouble falling asleep, thoughts of death or dying, and feelings of guilt. Using our sample, the BSI demonstrated excellent internal consistency (α = .980).

Results

Cluster Analysis

To test the primary hypothesis, a hierarchical cluster analysis was conducted to classify youth into groups according to their depressive symptoms, co-occurring abuse and neglect experiences, and CSA. The clustering algorithm used was the between-groups linkage agglomerative method which sequentially merged similar clusters from bottom to top while adopting a squared Euclidean distance interval. Clustering was set to two to four clusters based

on the recommended number in the literature given our sample size (Clatworthy et al., 2010). Based on examining the length of clusters in the dendrogram, two prominent clusters were selected. The sections below present the descriptive results of the dichotomous cluster. Furthermore, crosstabulations and Pearson's Chi Square Tests were performed to better interpret the clusters. Last, a Little's MCAR Test indicated that the data were not missing at random (MNAR; χ^2 (3557) = 3869.16, p < .001). Therefore, missing data were addressed with Multiple Imputation (MI) methods. The multiple imputation was set at five imputations with minimum and maximum value constraints entered for all of the variables to ensure they aligned with the original values. This method has been shown to provide the most appropriate unbiased estimates under data missing not at random (MNAR) assumptions in longitudinal studies (Kline et al., 2017). Furthermore, this method is used in child welfare studies using this dataset.

***Descriptive analysis*.** Examination of the two-cluster solution revealed that the youth were classified according to the type and severity of abuse they experienced, the severity of depressive symptoms they reported, their CPS status, and their gender. In total, 376 (67.1%) youth were classified into Cluster 1 and 105 (18.8%) were classified into Cluster 2 based on the original data. Pooled results based on the five imputations also followed similar patterns with the majority of respondents (N = 434) classified into the first cluster and 126 youth in the second cluster. Youth who reported clinical depressive symptoms, moderate to extreme CSA, and co-occurring abuse and neglect experiences were classified into Cluster 2 while the rest of the youth were classified into Cluster 1 (see Table 3).

CSA and depressive symptoms. Table 4 presents the cross tabulations of clustered groups according to abuse type and depressive symptoms. The Pearson's Chi-square Test revealed a significant relationship between depressive symptoms and the clustered group, χ^2 (1, N = 481) =

32.122, $p < .001$. More precisely, 89% of youth who reported no clinical depressive symptoms ($N = 336$) were classified into Cluster 1 (see Table 5). In terms of CSA, all youth who reported moderate to severe CSA ($N = 102$) were classified into Cluster 2 while all youth who reported no CSA ($N = 336$) and 87% of youth who reported low CSA ($N = 20$) were classified into Cluster 1 (see Table 5). The Pearson's Chi-square Test also revealed that CSA was significantly associated with the clustered group, χ^2 (3, $N = 481$) = 465.713, $p < .001$. The results were consistent across the pooled data.

Co-occurring abuse and neglect. In terms of co-occurring abuse and neglect experiences, Cluster 2 consisted of 86% of youth who reported emotional abuse ($N = 90$); 86% reported physical abuse ($N = 89$); 85% reported emotional neglect ($N = 89$), and 97% reported physical neglect ($N = 101$). Pearson's Chi-square Test revealed that emotional abuse, physical abuse, and emotional neglect were significantly associated with the clustered group, $p < .001$. However, physical neglect was not associated with the clustered group, χ^2 (2, $N = 475$) = 1.718, $p = .633$. Of note, all youth who reported no CSA were classified into Cluster 1 while all youth who reported low and moderate CSA were classified into Cluster 2, exclusively.

Other factors. Crosstabulations and Pearson's Chi-square Tests were conducted between gender, ethnicity, CPS status, and the clustered groups to identify additional information that could help with identifying specific youth at-risk and who may require specific intervention (see Table 6). The Pearson's Chi-Square Test also showed that gender was significantly associated with the clustered group across all imputations, χ^2 (1, $N = 481$) = 23.814, $p < .001$. Specifically, there were similar numbers of male (48%) and female (52%) youth in Cluster 1 while the majority of youth in Cluster 2 were female (75%). The results were consistent across the pooled imputations. With regards to CPS status, the results revealed that 23.5% of crown wards were in

Cluster 2 while 76.5% were in Cluster 1. Furthermore, the majority of youth in Cluster 2 reported having crown ward status. The results indicated that CPS status was not significantly associated with the clustered groups in the original data (p = .073). However, imputation 1, 3, 4, and 5, indicated significant relationships. No significant relationships were indicated between ethnicity and the clustered groups (p = .630).

Predictor Analysis

To test the second hypothesis, a logistic regression analysis was carried out using SPSS version 21.0. A logistic regression was chosen given it best suit the distribution of the data and is consistently found in social and behavioral research (Fallon et al., 2017). Logistic regression was used to predict the outcome variable of depressive symptoms (i.e., clinical and non-clinical depressive symptoms). A two-step analysis procedure was used with the first predictor being CSA. A second regression analysis was then run with a set of control predictors, including age, gender, ethnicity, CPS status, anxiety, and co-occurring abuse and neglect experiences. These control variables were entered in the second model to determine whether the effect of CSA on depressive symptoms changed.

Table 7 indicates the association and the extent of the association between a history of CSA and depressive symptoms regardless of age, gender, ethnicity, CPS status and anxiety. The results showed that CSA significantly predicted depressive symptoms across all imputations. The logistics model for the original data and across the five imputations were significant. The original data model, $\chi^2(3) = 36.503$, $p < .001$, explained 12.1% (Nagelkerke R^2) of the variance in depressive symptoms and correctly classified 84.6% of cases. The original data results demonstrated that respondents who experienced low, moderate, and severe CSA were three times (OR = 2.93, $p < .001$), more than four times (OR = 4.64, $p <.001$), and more than five times (OR

= 5.37, $p < .001$), more likely to report depressive symptoms respectively compared to respondents who did not report CSA. The pooled results data across the five imputations showed similar findings as respondents who experienced low, moderate and severe CSA were three, four, and five times more likely to report depressive symptoms respectively compared to respondents who did not report CSA. Furthermore, adding co-occurring abuse and demographic characteristics to the model still indicated statistical significance, $\chi^2(20) = 496.98$, $p < .001$, explained 24.6% (Nagelkerke R^2) of the variance in depressive symptoms, and correctly classified 85.2% of cases.

Discussion

The current paper had two objectives, the first was to identify groups of sexually abused youth involved in CPS and examine the relationship between CSA severity, co-occurring abuse and neglect experiences, depressive symptoms, demographic and CPS characteristics within group memberships. Based on previous person-centered studies with adults and younger children (Hulme & Agrawal, 2004; Lyons & Romano, 2019), it was expected that at least two groups of adolescent youth would be identified, each reflecting different types and severity of abuse and depressive symptoms.

The current results were consistent with our expectations in that two distinct groups of youth were identified. The first group predominantly consisted of youth who reported none to low CSA (78%) followed by the second group characterized by moderate to severe CSA (22%). Furthermore, the majority of the second group consisted of youth who reported clinical depressive symptoms and severe co-occurring abuse and emotional neglect compared to non-clinical depressive symptoms and to youth who did not report co-occurring abuse or emotional neglect. This is consistent with latent profile research that found that adolescents who reported

more severe CSA were at increased risk of belonging to severe trauma symptom profiles compared to minimal or moderate trauma symptoms profiles (Gallitto et al., 2017). Consistently, McCrae and colleagues (2006) used age as a profile indicator to examine abuse characteristics among children in CPS. These researchers found that depressive symptoms were associated with severe CSA and family problems among 8- to 11-year-olds (McCrae et al., 2006). The current findings indeed indicated that CSA, co-occurring abuse and emotional neglect, and depressive symptoms all significantly predicted group membership.

These findings may be explained due to the fact that CSA often occurs in the presence of other types of abuse, comorbid psychological disorders, and other adverse experiences (e.g., out-of-home care, parental separation/divorce and household substance abuse) that may contribute to psychological outcomes (Dong et al., 2003; Keil & Price, 2006). In fact, it is reported that the combinations of abuse are more traumatic and are associated with greater distress compared to any single form of abuse only (Higgins & McCabe, 2001). Of note, the current results indicated that CSA was the only form of abuse where youth who reported moderate to severe levels were identified in the second group exclusively, suggesting that there may be evidence that more severe CSA differs from other forms of abuse and neglect experiences. There is contrasting research that have indicated that CSA often contributes to more severe trauma-related dysfunction compared to other types of abuse due to the nature and timing of the abuse as well as personal factors such as delayed disclosure, self-blame, fears of re-living the experience, feelings of betrayal, societal stigmatization, fears of repercussion, and early traumatic sexualization (Finkelhor & Brown, 1985; Sciolla et al., 2011). However, there are no studies that have disentangled the effects of CSA from other forms of abuse and neglect on depressive symptoms

among adolescent youth served by CPS. Therefore, examining this link was a driving incentive in the second part of our study.

The results of the current study also demonstrated that demographic variables, such as gender and CPS status, were significant predictors of group membership. Specifically, females (75%) were more likely to be classified into Cluster 2 compared to males and youth were more likely to report being crown wards (66%), followed by being society wards (16%), then residing in community family/voluntary care (10%), and then residing in interim care (8%), in Cluster 2. These findings suggest that females and youth who report crown ward status are at an increased likelihood of being classified in groups reporting moderate to severe CSA, co-occurring abuse and neglect experiences, and clinical depressive symptoms. This is consistent with research on sexually abused youth involved in CPS where CPS status and gender were found to be significant predictors of severe trauma symptom profile memberships (Gallitto et al., 2017). Furthermore, female adolescents and adults report significantly more depressive symptoms following CSA compared to their male counterparts and they have a greater likelihood of being classified in severe profiles (Au et al., 2015; McPhie et al., 2014; Stoltenborgh et al., 2011; Vaughn et al., 2007). Although these studies suggest the odds to be greater for females, Rhodes and colleagues (2011) revealed the opposite. The researchers found associations between CSA and suicidal thoughts and related depressive behaviors were stronger for males when adjusting for possible confounders. Furthermore, it is not clear as to how these factors generalize to CPS samples. Therefore, additional research is needed to investigate these demographic characteristics and determine their influence in the vulnerability to depressive symptoms among sexually abused youth in CPS.

The second objective of the study was to examine the role of CSA on depressive symptoms while considering the significant factors that predicted group membership in our cluster analysis, including co-occurring abuse and neglect experiences, gender, and CPS status. Consistent with previous research that have used the MAP longitudinal study dataset, age, ethnicity and anxiety were also accounted for (McPhie et al., 2014). We expected to find CSA significantly predicted depressive symptoms regardless of age, gender, ethnicity, CPS status, anxiety, co-occurring abuse and neglect experiences.

The results of the logistic regressions were consistent with the hypotheses where youth who reported low, moderate, and severe CSA were three, four, and five times, respectively, more likely to report clinical depressive symptoms compared to youth who did not report CSA. Furthermore, this association remained significant when adding demographic characteristics (e.g., age, gender, ethnicity, CPS status), anxiety, and co-occurring abuse and neglect experiences to the model. These findings are consistent with previous researchers that have used samples from the general population where they found, after statistical adjustments for covariates spanning socio-demographic, family functioning and child factors, that CSA was still associated with increased rates of depressive symptoms (Fergusson et al., 2013). This is also supported in meta-analyses that have reported sexually abused children have a greater probability of developing a depressive disorder compared to non-abused groups, CSA-related depressive disorder outcomes differ for females and for males, and more severe abuse (i.e., abuse involving penetration, longer duration of abuse) is linked to higher rates of depressive disorders compared to less severe abuse (i.e., abuse with no contact, shorter duration of abuse; Amado et al., 2015; Stoltenborgh et al., 2011).

Although many studies have examined this link in various populations, the current study is the only one that has examined this link among adolescents served by CPS while controlling for all other factors. In fact, Fallon and colleagues (2017) conducted a similar study to determine the clinical presentation of children (0 – 15 years) with a history of sexual abuse in CPS. The researchers concluded that male victims displayed a range of concerning mental health and behavioral difficulties, were subjected to previous forms of abuse, and were more likely transferred to ongoing services for their emotional harm than girls (Fallon et al., 2017). Furthermore, child welfare research reports that youth who are exposed to more severe abuse are less likely to recover from associated symptoms and require earlier support and intervention (Domhardt et al., 2015). This may be explained by a combination of complex abuse histories, and familial and systemic factors that add to the increased difficulty to provide adequate care to these youth (Bruskas, 2008). Thus, the current results can inform screening procedures in this vulnerable population according to their reported abuse histories and depressive symptoms and help guide the development of tailored interventions.

The current paper provides several suggestions for future research in the area of CSA and mental health. First, the classification for abuse and depressive symptoms in the current study relied on self-reports of a retrospective nature. Although these measures are commonly used in the literature, there is room for particular bias that results in withholding information, specifically so in male participants (Stoltenborgh et al., 2011). Thus, future researchers should obtain information from other informants, such as case workers and primary caregivers. Second, the participants who participated in the MAP Longitudinal Study were youth recruited from child welfare agencies in Ontario (i.e., OACAS.) Thus, the degree to which the findings generalize to other agencies outside of Ontario is unknown. Furthermore, given the small sample size of youth

who reported CSA, future studies should recruit youth across other provinces to increase subject variability and generalizability to CPS populations. Third, given the secondary analysis was correlational, a causal-effect relationship as to whether the depressive symptoms were sequalae to CSA and CSA severity cannot be made.

Conclusion

The current study used the MAP Longitudinal Study sample of youth served by the CPS system to identify groups of sexually abused youth, examine the relationship between the severity of CSA, co-occurring abuse and neglect experiences, depressive symptoms, demographic, and CPS characteristics with group membership, and then examine the role of CSA severity on depressive symptoms while controlling for confounding variables. The results that emerged between groups of abused adolescent youth and associated depressive symptoms are unique as they have not been adequately studied in child welfare literature and they have implications for policy and clinical practice. The fact that CSA predicts depressive symptoms among youth involved in CPS regardless of other factors and that the severity of the abuse is linked to a greater likelihood of psychological distress highlights the importance of obtaining all the information related to the youth's abuse history. The success of the child welfare agency's response to a youth who has been sexually abused is contingent on the efficiency to screen for groups of youth who are at-risk for developing clinical depression. Hence, future researchers are encouraged to replicate these types of mixed studies using variable- and person-centred approaches in order to help guide the development of interventions that better suit the needs of youth served by CPS.

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Appendix A

Tables and Figures

Table 1

Frequency for Participant's Gender and Cultural Ethnicity

Variable	*N*	Percent (%)
Gender		
Female	300	53.6
Male	260	46.4
Total	560	100.0
Cultural Ethnicity		
Arab/West Asian	3	1.3
Black	145	26.8
Chinese	9	1.7
South Asian/Filipino	4	0.7
Latin-American	18	3.2
Native	8	1.5
South East Asian	4	0.7
White	165	30.5
Dual or multiple ethnicity	147	26.3
Other	31	5.7
Missing	19	3.4
Total	560	100.0

Table 2

Descriptive Statistics for Age, CSA, Co-occurring Abuse and Neglect Experiences, and Clinical Depressive and Anxiety Symptoms

Variable	*M*	*SD*	Range	Frequency (%)
Age (years)	15.83	1.044	13 - 19	-
CTQ				
Sexual Abuse	7.07	4.61	5 – 25	25.2
Physical Abuse	9.63	5.51	5 – 25	49.6
Emotional Abuse	11.26	5.74	5 – 25	59.3
Physical Neglect	12.39	2.69	5 – 20	95.7
Emotional Neglect	15.03	4.33	5 – 25	85.5
BSI – Clinical				
Depression	5.06	6.12	0 – 24	15.4
Anxiety	3.96	5.08	0 – 24	8.5

Note. Clinical = depressive and anxiety symptoms above clinical cut off score of 12.

Table 3

Descriptive Analysis of Cluster Analysis: Average Linkage (Between Groups)

Imputation Data			Frequency	Percent	Valid Percent	Cumulative Percent
Original	Valid	1	376	67.1	78.2	78.2
		2	105	18.8	21.8	100.0
		Total	481	85.9	100.0	
	Missing	System	79	14.1		
	Total		560	100.0		
Pooled	Valid	1	433.8			
		2	126.2			
		Total	560			

Note. 1 = Cluster group 1; 2 = Cluster group 2

Table 4

Cross Tabulation Between CSA, Clinical Depressive Symptoms, Non-Clinical Depressive Symptoms, and the Clustered Groups of the Pooled Data

Variable			Average Linkage (Between Groups)		Total
			1	2	
CTQ	CSA	Count	376	105	481
		% within CSA	78.2%	21.8%	100.0%
BSI	Depressive Symptoms	Count	390	85.4	475.4
		% within Non-Clinical	82.0%	18.0%	100.0%
		Count	43.8	40.8	84.6
		% within Clinical	51.8%	48.2%	100.0%

Note. CSA = childhood sexual abuse; Clinical = depressive symptoms above clinical cut-off score of 12; Non-Clinical = depressive symptoms below 12.

Table 5

Cross Tabulation Between CSA Severity and the Clustered Groups of the Pooled Data

Variable			Average Linkage (Between Groups)		Total
			1	2	
CSA	None	Count	411.8	0	411.8
		% within CSA	100.0%	0.0%	100.0%
	Low	Count	22	7	29
		% within CSA	75.9%	24.1%	100.0%
	Moderate	Count	0	54	54
		% within CSA	0.0%	100.0%	100.0%
	Severe	Count	0	65.2	65.2
		% within CSA	0.0%	100.0%	100.0%

Table 6

Cross Tabulation Between Gender, CPS Status, and the Clustered Groups of the Pooled Data

Variable			Average Linkage (Between Groups)		Total
			1	2	
Gender	Female	Count	209.2	90.8	300
		% within Gender	69.7%	30.3%	100.0%
	Male	Count	224.6	35.4	260
		% within Gender	86.4	13.6	100.0%
CPS Status	Interim Care/ Temp Care	Count	25	11	36
		% within CPS Status	69.4%	30.6%	100.0%
	Society Ward	Count	61.2	19.8	81
		% within CPS Status	75.6%	24.4%	100.0%
	Crown Ward	Count	258.2	82.8	341
		% within CPS Status	75.7%	24.3%	100.0%
	Community Family/ Voluntary Care	Count	89.4	12.6	102
		% within CPS Status	87.6%	12.4%	100.0%

Table 7

Binary Logistic Regression of CSA on Depressive Symptoms

Imputation Number		*B*	*S.E.*	Wald	df	Sig.	Exp(B)	Relative Efficiency
Original	No CSA			36.924	3	.000		-
	Low CSA	1.075	.500	4.621	1	.032	2.930	-
	Moderate CSA	1.534	.362	18.006	1	.000	4.639	-
	Severe CSA	1.681	.320	27.560	1	.000	5.371	-
	Constant	-2.228	.175	161.261	1	.000	.108	-
Pooled	Low CSA	.992	.493	-	-	.044	2.698	.990
	Moderate CSA	1.447	.347	-	-	.000	4.249	.992
	Severe CSA	1.625	.318	-	-	.000	5.076	.990
	Constant	-2.259	.179	-	-	.000	.105	.976

Note. Original indicates the logistic regression of the data before multiple imputation was conducted. Pooled data is the regression analysis of the pooled estimates of the imputed data.

Bridging Manuscript

Study 1 identified groups of sexually abused youth, examined the relationship between the severity of CSA, co-occurring abuse and neglect experiences, depressive symptoms, demographic, and CPS characteristics with group membership, and then examined the role of CSA severity on depressive symptoms while controlling for confounding variables among a sample of youth served by the CPS system. The results revealed two distinct profiles of youth reporting depressive symptoms, characterized by different severity levels of CSA, co-occurring abuse, and neglect experiences. The first profile consisted of youth who reported none or low CSA, minimal co-occurring abuse and neglect experiences, and non-clinical depressive symptoms. The second profile consisted of youth who reported moderate and severe CSA, co-occurring abuse and neglect experiences, and clinical depressive symptoms. They were also more likely to be female and report crown ward status (i.e., the youth's parental rights were legally terminated and they were permanently removed from their homes and placed in CPS care). Study 1 also found that, regardless of other abuse and neglect experiences, CSA and CSA severity were associated with depressive symptoms. Specifically, youth who reported more severe CSA were up to five times more likely to report clinical depressive symptoms compared to youth who did not report CSA. Thus, this study supports the heterogeneity of experiences and detrimental outcomes of severe CSA on depression and also discusses the challenges for the child welfare system to provide adequate care to its youth. However, there is a large gap in knowledge regarding the actual impact of CSA and its severity on depressive symptoms over time throughout CPS involvement, as this link has never been studied longitudinally among this population.

Therefore, Study 2 will assess individual differences of depressive symptoms longitudinally among sexually abused adolescent youth across three different time points and will assess whether these longitudinal changes in depressive symptoms vary according to CSA severity throughout CPS involvement. A longitudinal approach is necessary as it provides a foundation in understanding the trajectories of depression among sexually abused youth throughout CPS involvement and can help CPS agencies better develop effective and sustainable targeted interventions.

Study 2: Longitudinal Trajectories of Depressive Symptoms Among Sexually Abused Adolescent Youth Involved in Child Protection Services

Submitted to *Child Abuse Review*

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Abstract

Childhood sexual abuse (CSA) contributes to depression over time in several populations. However, changes in depressive symptoms have not been studied longitudinally with respect to sexually abused youth who are involved in Child Protection Services (CPS). Furthermore, whether depressive symptoms vary as a function of the severity of the abuse over time is unclear in child welfare literature. This is important because CPS lack effective interventions that target depressive symptoms among this vulnerable population. Hierarchical Linear Modeling (HLM) was applied to the Maltreatment Adolescent Pathways (MAP) Longitudinal Study data to examine differences in depressive symptoms among 135 sexually abused youth (M = 16.01, 71.9% female) at three time points over one-and-a-half years. It was hypothesized that clinical depressive symptoms would increase over time and would vary according to CSA severity. Contrary to the hypothesis, the results revealed a negative linear trajectory (β. = -3.62, SE = 1.086, $p < .001$), indicating that depressive symptoms significantly reduced over time across all three time points. However, HLM results also showed that CSA was significantly associated with depressive symptoms over time (β = 0.19, SE = 0.057, $p < .001$) where less severe CSA was significantly associated with less severe depressive symptoms. Dissemination of the results are important in informing mental health screening practices and individualized interventions for sexually abused youth served by CPS. Implications for abuse history screening and treatment of depressive symptoms among this vulnerable population are discussed.

Keywords: Childhood sexual abuse, depression, longitudinal studies, CSA severity, child protection services, child welfare

Longitudinal Trajectories of Depressive Symptoms Among Sexually Abused Adolescent Youth Involved in Child Protection Services

Childhood sexual abuse (CSA) is a substantial risk factor in the development of depression in childhood, adolescence, and adulthood (Brodsky et al., 2008; Collin-Vézina et al., 2013; Hillberg et al., 2011; Putnam, 2003). The probability of developing depressive symptoms is significantly greater for children who experience more severe forms of CSA (Amado et al., 2015; Trickett et al., 2011). However, there is a lack of knowledge regarding the trajectories of depressive symptoms and their relation to CSA severity among adolescent youth served by Child Protection Services (CPS). This is important as sexually abused youth in CPS have higher rates of depression compared to youth from the general population and require long-term mental health services compared to other types of abuse and neglect (Garland et al., 1996; Mennen et al., 2010). Interventions for depression are also especially challenging to develop for these youth given the heterogeneity of their abuse experiences as well as the scarcity of longitudinal CSA research in the CPS context (Garland et al., 2001; McCrae et al., 2006; White et al., 2009). Thus, this paper examined longitudinal trajectories of depressive symptoms among sexually abused youth served by CPS to help better understand the types of specialized interventions they require.

Literature Review

CSA is defined by the World Health Organization (WHO) as the involvement of a child in sexual activity that they do not fully comprehend, are unable to give informed consent to, or for which they are not developmentally prepared and cannot give consent (WHO, 1999). CSA is a substantial risk factor in the development of a host of negative consequences in childhood, adolescence, and adulthood, including depression, suicide, posttraumatic stress disorder (PTSD), increased revictimization, affective instability, and substance abuse (Brodsky et al., 2008;

Hillberg et al., 2011). Of these psychological symptoms and mental health outcomes, the most common and well-documented among adolescents reporting CSA is depression (Browne & Finkelhor, 1986; Hillberg et al., 2011; Putnam, 2003). Depression is a leading public health concern with high prevalence rates, morbidity, and mortality (WHO, 2017; Wurtele & Kenny, 2010). Longitudinal studies consistently document that depressive symptoms and mood disorders are associated with CSA (Guibord et al., 2011; Putnam, 2003; Whiffen & Clark, 1997). For instance, sexually abused children present with significantly greater depressive symptoms than comparative non-abused groups when controlling for gender and the relationship is moderated by a host of CSA characteristics (Amado et al., 2015). Characteristics of CSA associated with severe forms of psychopathology include the age of abuse, severity (i.e., frequency), duration, and type of abuse (i.e., use of physical force or violence), and the number of perpetrators (Putnam, 2003). For example, girls reporting CSA had significantly higher depressive symptoms and other comorbid psychiatric problems than non-abused comparative groups; especially if they were victims of intrafamilial CSA and if they endured a longer duration of abuse (Trickett et al., 2001, 2011). This is consistent with longitudinal findings reporting children with histories of noncontact CSA had significantly lower major depression compared to children reporting intercourse later on (Fergusson et al., 1996). Furthermore, depression is highest among adolescents who have experienced severe CSA as it also often occurs alongside other forms of abuse (Pérez-Fuentes et al., 2013).

Longitudinal studies have also examined the role of depressive symptoms on adaptive and maladaptive strategies in response to abuse (Gratz & Roemer, 2004; Shepherd-McMullen et al., 2015). Chang and colleagues (2018) found that greater emotional regulation difficulties were associated with more severe depressive symptoms among sexually abused adolescent girls.

These results have implications for clinical settings as they inform our understanding of treatment interventions for depression over time among community-based samples. However, there is a substantial lack of knowledge regarding depressive symptom trajectories among sexually abused youth involved in CPS (Baker et al., 2006). This is especially so in Canadian CPS given the lack of longitudinal research and, unlike the United States, there is no system for monitoring data after youth leave the service (Grant et al., 2012).

The child welfare system consists of agencies that are responsible for the intervention and response to cases of suspected child abuse and neglect (i.e., Child Protection Services; Ontario Association of Children's Aid Societies; OACAS, 2015). Findings have consistently documented that youth who are involved in the CPS system have significant behavioral and emotional problems who require additional services to address mental health needs compared to the general population (Berger et al., 2009). Furthermore, abused children within the CPS system report more severe mental health problems than non-abused children and have a higher need for mental health services regardless of placement or abuse type (Mennen et al., 2010). In particular, sexually abused youth involved in CPS are at greater risk in developing mood disorders and require long-term therapeutic follow-up compared to the general population (Fallon et al., 2015; Guibord et al., 2011, White et al., 2009). CPS research has only recently begun to include the characteristics of CSA, such as the severity of abuse, in predicting profiles and psychological outcomes over time (Gallitto et al., 2017). For example, Waechter and colleagues (2019) found that adolescents who reported more severe abuse reported higher scores on distress questions from pre- to post-assessment and were at an increased likelihood of belonging to both severe and moderate trauma symptom profiles. Studying this population longitudinally is important as CPS youth are not only more likely to be exposed to multiple adverse experiences prior to CPS

involvement, but there are also risk factors associated with returning to and remaining in the child welfare system (Burge, 2007; Davidson et al., 2019).

For example, CSA is associated with re-victimization even within the CPS system (Boney-McVoy & Finkelhor, 1996; Burge, 2007; Courtney et al., 2001). Similarly, sexually abused youth are less likely to be abused by family members and more likely to be abused in CPS settings by foster family members, group home staff, and group care peers (Baker et al., 2006). Another barrier to recovery includes that CSA is difficult to treat as it often occurs in the presence of other types of abuse, comorbid psychological disorders, and other adverse experiences (e.g., parental separation/divorce and household substance abuse; Dong et al., 2003). Furthermore, CPS suffer from systemic challenges, such as recruiting and retaining foster parents and high turnover rates among child welfare workers (Bruskas, 2008; Strolin et al., 2007). Studies have even shown involvement in CPS was significantly related to meeting criteria for a serious emotional disorder later on despite interventions (Farmer et al., 2001). Regardless of CPS intervention, up to 40% of children reunified with their families will re-enter into the child welfare system each year, indicating continued child maltreatment (Davidson et al., 2019; Goering & Shaw, 2017). Lastly, multiple removals and entries into and out of the system are associated with a host of negative outcomes later (McGrath-Lone et al., 2017). Thus, despite the aims of CPS to provide security for these youth, these findings highlight significant concerns regarding the capacity of the child welfare system to provide adequate care to sexually abused youth. This may certainly be due to the lack of child and adolescent research on CSA and its longitudinal impact on depression throughout CPS involvement.

Overall, there is a specific lack of knowledge with regards to the impact of CSA and its severity on depressive symptoms among adolescent youth served by CPS and this relationship

has never been evaluated longitudinally. Therefore, more information is needed with respect to trajectories of depressive symptoms among sexually abused youth throughout CPS involvement in order to help CPS agencies develop effective and sustainable targeted interventions.

In that vein, the primary objective of this paper was to determine whether there were changes in depressive symptoms over time (i.e., assessed initially, at 6-months, and 18-months from onset of longitudinal study) among a sample of 14-to 19-year old sexually abused youth who were involved in CPS. Hierarchical Linear Modeling (HLM) was conducted on the longitudinal data to assess individual differences in depressive symptoms throughout three time points over 18 months. Consistent with longitudinal research in various populations, it was expected that depressive symptoms would increase over time among sexually abused youth involved in CPS (Boney-McVoy & Finkelhor, 1996; Putnam, 2003, Trickett et al., 2011). The second objective of the study was to determine whether CSA severity predicted the variation of change in depressive symptoms over time. Thus, it was expected that CSA severity would be positively associated with depressive symptoms over time.

Method

This paper used data from the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study, a three-year longitudinal epidemiological study that collected data from 561 youth involved in three densely populated urban CPS agencies in Ontario, Canada (i.e., Ontario Association of Children's Aid Societies; Wekerle et al., 2007). The project involved the collection of self-report questionnaires to be completed every six-months for three years (i.e., initial, six-month, one-year, 1.5-year, 2-year, 2.5-year, 3-year) with the project starting in 2002 and running until 2010. The questionnaires encompassed measures on psychological outcomes, selected resiliency factors, and abuse and neglect history. The child welfare agencies and

relevant university Internal Ethics Review Boards provided all the ethic approvals for the original MAP Longitudinal Study.

Participants

The current paper used a subsample from the larger MAP Longitudinal Study. Eligibility criteria included youth who reported a positive history of CSA, defined as those who endorsed Low to Severe CSA on the Childhood Trauma Questionnaire (see CTQ-SF in Measures section), youth who completed items related to the number of symptoms of depression endorsed in clinical- and non-clinical ranges (see Brief Symptoms Index in Measures section), and youth who participated in the study at the initial time point (N = 135, 71.9% female; See Table 1). Although the larger MAP Longitudinal Study obtained information up to three years post-initial time point, the attrition rate for the current variables of interest exceeded 64% after the 24-month time point. The current study collected information from youth who reported low to severe CSA at the initial time point, at 6-months, and at 18-months. Of the 135 youth who participated in the study at the initial time point, 31% did not participate at 6-months (N = 42) and 55.6% could not be sampled at 18-months (N = 74), resulting in 61 participants who remained at our end time point. The participants who remained in the study did not differ from those who dropped out of the research project over time. Thus, multiple imputation (MI) methods were used to address missing data consistent with previous studies using this dataset to correct for data missing not at random (MNAR; McPhie et al., 2014; Milne & Collin-Vézina, 2014). Furthermore, MI methods are robust to the violation of the normality assumptions and large missing data (e.g., half the sample) commonly found in longitudinal studies (Kline et al., 2017).

Of the ethnic groups represented in the current study, the most common was dual- or multiple-ethnicity (30.3%) followed by Black (29.5%) and White (25.8%). Consistent with

previous studies, sexually abused youth included in the sample did not differ significantly from the larger MAP population with regards to age, gender, or ethnicity (McPhie et al., 2014). With regards to CPS placement status, the majority of the youth were identified as crown wards (67.7%), meaning they had been permanently removed from their homes and the parental rights were legally terminated; followed by society ward status, in which the youth had also been removed from home and placed in CPS care but for only a specified period of time and custody was shared between the parents and CPS (14.8%): interim/temporary care status (6.7%), in which youth were temporarily removed from the home and placed in CPS care, but custody remained with the parents; and community family/voluntary care (11.1%), in which CPS have become involved with the family, however, custody and care remained with the parents. Youth who have been legally separated from their parents received additional support services and financial support whereas youth residing in group homes and other care settings received additional support from the care setting's staff. See Table 2 for demographic information.

Measures

***CSA and severity*.** The Childhood Trauma Questionnaire short-form (CTQ-SF; Bernstein et al., 1994, 2003) was used to assess CSA. The CTQ-SF is a 28-item self-report questionnaire rated on a 5-point Likert scale designed to assess the frequency of childhood maltreatment and neglect with responses ranging from *Never True* to *Very Often True*. The CTQ-SF assesses five clinical scales: sexual abuse, physical abuse, emotional abuse, and physical and emotional neglect. The CTQ-SF includes a threshold or cut-off score for measuring severity of abuse (e.g., items that meet minimum required frequency for severe abuse). There are four different levels of severity set for each type of abuse based on data from a randomly selected sample: None, Low, Moderate, and Severe (Bernstein et al., 1994). Using the current subsample of the MAP

Longitudinal Study, the CTQ-SF demonstrated good internal consistency (α = .854). Previous research using the MAP Longitudinal Study have demonstrated good test-retest reliability (*r* = .52 to .70) and acceptable to excellent internal validity (*r* = .68 to .92) compared to other trauma-questionnaires (George & Mallery, 2003; Wekerle et al., 2009).

Depressive symptoms. The Brief Symptoms Inventory (BSI; Derogatis, 1975, 1993) was used to assess for clinical depressive symptoms among sexually abused youth. The BSI is a 53-item self-report questionnaire rated on a 5-point Likert scale of distress ranging from 0 (*not at all*) to 4 (*extremely*). The BSI consists of nine symptom dimensions: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobia anxiety, paranoid ideation, and psychoticism. In the current study, depressive symptoms were measured using the recommended clinical cut-off score to indicate whether the depressive symptoms met clinical levels of distress (Derogatis, 1993). Therefore, scores of 12 or greater indicated clinical depressive symptoms. The BSI demonstrated excellent internal consistency (α = .98) consistent with previous studies (McPhie et al., 2014).

Results

Longitudinal Analyses

To test the primary hypothesis, Hierarchical Linear Modeling (HLM) via a Mixed Model Analysis was carried out using SPSS version 21.0 to estimate the overall trajectory of clinical depressive symptoms and evaluate individual differences across three time points (i.e., initial, 6-months, and 18-months time point) among youth who reported low to severe CSA. HLM was selected given the distribution of the data, the sample size, as well as considering the missing data imputed (Krueger & Tian, 2004).

To conduct the individual growth models and individual growth curves, depressive symptoms were set as the dependent variable and both linear and quadratic time components were set as predictors. The results confirmed that depressive symptoms significantly differed across the three time points. Contrary to the hypothesis however, depressive symptoms significantly reduced over time (see Figure 1). The results also indicated that some youth experienced linear growth trajectories in depressive symptoms while others experienced quadratic growth trajectories. Specifically, in terms of the estimate of fixed effect, the intercept (i.e., the average of depressive symptoms of our sample at the initial time point) was $\beta_0 =$ 8.43 (p < .001, 95% CI [7.28, 9.58]) for the original data. The linear time component showed a significant negative trajectory (β = -3.62, p < .001, 95% CI [-5.76, -1.47]) while the quadratic time component showed a significant positive trajectory (β = 1.15, p = .041, 95% CI [.05, 2.24, SE = .56]). The pooled results for the five imputations also revealed a significant negative linear trajectory (β = -2.82, p = .034, 95% CI [7.06, 9.10]) with an adequate effect given the standard error (See Table 5), indicating there was little variation between subjects. However, the quadratic time component was not significant in the pooled results (p = .090). Similarly, the pooled results for the five imputations revealed that the majority of the youth experienced a decrease in depressive symptoms over time. The individual growth curves also revealed that few youths experienced a significant increase in depressive symptoms over time. The results in the original data showed that 16 (17.4%) youth had an increase in depressive symptoms from the initial time point to 6-months, while 7 (11.5%) youth had an increase in depressive symptoms from initial time point to 18-months (see Table 5).

To test the second hypothesis, HLM via a Mixed Model Analysis was conducted to test whether the severity of CSA reported at the initial time point (i.e., low, moderate, and severe)

would account for the variation of change in depressive symptoms over time. This was done by setting depressive symptoms as the dependent variable and incorporating the predictor (i.e., CSA) into the level two model. To avoid multicollinearity, the linear and quadratic components were dropped for an orthogonal coding scheme, which incorporates two uncorrelated components. The results revealed that the depressive symptoms slope for each youth across the three time points was $\beta_0 = 4.25$ ($p < .001$, 95% CI [2.54, 5.96]). The results also showed a significant positive association between CSA and depressive symptoms over time ($\beta = 0.19$, $p < .001$, 95% CI [.08, .30]). Specifically, less severe CSA reported by youth at the initial time point significantly associated with reduced depressive symptoms over time. The pooled results from the five imputations also followed similar patterns of growth trajectories (See Table 6).

Discussion

The current paper had two objectives. The first objective was to evaluate changes in depressive symptoms over the course of 18-months among youth reporting low, moderate, and severe CSA who were involved in CPS. Positive linear growth trajectories in depressive symptoms from the initial testing time point to 6-months, and from the initial time-point to 18-months were hypothesized. Longitudinal research has previously documented that CSA is related to increased psychological consequences, such as depression, over time among adolescent youth (Putnam, 2003; Trickett et al., 2011). However, there is a lack of knowledge with regards to the fate of youth over time who are involved in the CPS system. This is especially important in Canada as there is a lack of longitudinal research in the CPS context and there is no system for monitoring data after youth leave the services (Grant et al., 2012).

Contrary to the hypothesis, depressive symptoms significantly reduced over time among sexually abused youth. Specifically, compared to testing at the initial time point, depressive

symptoms followed a significant negative trajectory at the 6-month and 18-month time points. The current findings contrast previous longitudinal research using community-based samples. For example, Trickett and colleagues (2011) found that sexually abused females showed adverse consequences across biopsychosocial domains, including depression, compared to a demographically similar comparison group over time. In another study, depression was significantly associated with CSA 15-months after initial testing even when controlling for psychological symptoms (e.g., PTSD) and parent-child relationships measured at initial testing (Boney-McVoy & Finkelhor, 1996). The findings like those above support the hypothesis that CSA contributes to increased symptomology longitudinally among youth from community-based samples. However, this pattern was not supported in the current study among sexually abused adolescent youth involved in CPS.

Several explanations are provided. Firstly, it is possible that the youth received the necessary interventions in order to build resiliency through the youth's support systems or CPS resources. However, this hypothesis cannot be tested using the MAP Longitudinal Study as it did not include information with respect to family system supports or specialized interventions offered within or outside CPS for these youth throughout the three time points. Thus, future research would benefit from examining the role of therapeutic services or other interventions for long-term adaption of these youth. Secondly, the results may also be explained by a potential sleeper effect. A sleeper effect is characterized by an individual who would display symptoms later on when they are confronted with other adverse life experiences or when they go through a subsequent developmental stage (Fallon et al., 2019). In fact, literature indicates many children show recovery from symptoms during the first 12 to 18 months which further complicate identifying which children need services and when (Kendall-Tackett et al., 1993; McCrae 2006).

Thus, this study may provide a starting point for future longitudinal research to include several more waves of testing to examine how depressive symptoms evolve from adolescence to adulthood, for example. Longitudinal research also enables us to better understand the processes, supports, and resources that make a positive difference for youth in and exiting CPS.

Lastly, it is also possible that our sample of sexually abused youth experienced co-occurring abuse and neglect experiences that decreased over time. In fact, co-occurring abuse and neglect experiences have been linked to depressive symptoms among CPS youth (Auslander et al., 2018). Furthermore, CSA often occurs in the presence of other types of abuse and youth involved in CPS generally report high rates of comorbid abuse (Dong et al., 2003; Farmer et al., 2001). Thus, the depressive symptoms may have varied according to co-occurring abuse and neglect experiences. Future research should examine the role of other types of childhood maltreatment experiences to account for variations of depressive symptoms among sexually abused youth in the CPS context.

To provide further information for the changes in depressive symptoms, the second objective of the current study conducted additional longitudinal analyses to test whether changes in depressive symptoms varied by CSA severity over time. Previous research has found that the probability of developing depressive symptoms was significantly greater for children who experienced more severe forms of CSA (i.e., greater frequency; involving penetration) compared to less severe CSA (i.e., no contact; isolated abuse; Amado et al., 2015; Trickett et al., 2011). However, no research studies have tested longitudinal trajectories of depressive symptoms in relation to CSA severity among youth involved in CPS. Hence, we expected to find similar results in that CSA severity would be positively associated with depressive symptoms over time.

The results of the HLM were consistent with our expectations in that CSA severity significantly predicted depressive symptoms and indicated a positive relationship between CSA severity and depressive symptoms over time. These findings complement previous longitudinal studies within community-based samples that document the importance of CSA experiences and how they impact both acute and long-term psychological consequences (Putnam, 2003; Trickett et al., 2001). For example, in their longitudinal study, Fergusson and colleagues (2013) found a positive relationship between depression and CSA severity. This relation is also beginning to gain traction in CPS studies as Gallitto and colleagues (2017) pointed out that CSA significantly predicted severe trauma profiles (e.g., anxiety and depression) and that the trauma symptom profile membership of youth was determined by the severity of the abuse. However, research on CSA and depression in the CPS context is in its infancy and no studies have examined this link longitudinally. In Canada, there are fragmented services across the country in which the services differ as a result of being regulated provincially rather than federally and they do not have a system like the United States to monitor youth in care and follow them after services end to measure depression outcomes (Bounajm et al., 2014; Grant et al., 2012). Thus, this highlights the importance of conducting longitudinal research among sexually abused youth served by CPS.

The results also revealed that there were youth who had an increase in depressive symptoms at 6-months and at 18-months. Although this reflected a minority of our sample, some possibilities are discussed. First, it may be that these individuals did not receive mental health treatment or other services at the time of the disclosure of CSA because their depressive symptoms were not observable (Trickett et al., 2001). It may also be that these particular youth experienced greater co-occurring abuse and neglect experiences (e.g., physical and emotional abuse, and physical and emotional neglect) relative to other youth. This is especially important

given that sexually abused youth who have experienced co-occurring abuse experiences are more reluctant to disclose their abuse (Sciolla et al., 2011). Furthermore, CSA tends to increase re-victimization and there are cases in which sexually abused youth are at-risk of secondary abuse within the CPS system (Boney-McVoy & Finkelhor, 1996; Burge, 2007; Courtney et al., 2001). Specifically, research suggests that adolescent youth are sexually abused more often in CPS settings compared to the general population and the perpetrators are generally a result of youth-on-youth (i.e., group care peer) sexual abuse (Baker et al., 2006). Hence, youth who reported increased depressive symptoms in the current study may have been re-victimized throughout the course of the 18-months without it having been disclosed, despite CPS intervention. Unfortunately, assessing co-occurring abuse and neglect experiences was beyond the scope of the current study. Future longitudinal research would benefit from obtaining additional information regarding CSA and co-occurring abuse histories from other informants, such as CPS case workers and from residential treatment worker reports. Nonetheless, the current findings provide information that can be used to better support sexually abused youth involved in CPS whose depressive symptoms worsened by improving screening practices of abuse histories.

Several considerations for forthcoming longitudinal research in the areas of CSA and depressive symptoms are provided. First, it is important to consider the current sample of sexually abused youth was small and there were large attrition rates across the 6- and 18-month time points. Difficulties with retention, attrition rates, maintaining contact with participants and CPS professionals, as well as data and project management are constant barriers of longitudinal studies in CPS (Devaney & Rooney, 2019). However, small sample studies when conducted longitudinally can also provide rich information about specific populations (Muth et al., 2016). Second, although CSA severity was associated with depressive symptoms, the study design was

exclusively correlational, making it impossible to draw inferences as to whether a reduction in CSA severity directly caused a reduction in depressive symptoms. Third, given that co-occurring abuse and neglect experiences have also been shown to influence depressive symptoms, is unknown whether the variation of change within depressive symptoms could have been better accounted for by co-occurring abuse and neglect (Auslander et al., 2018). Finally, little information was available with regards to the types of interventions and services available to and offered to the youth throughout the MAP Longitudinal Study that may have influenced depressive symptoms over time. Future studies would benefit from obtaining information related to interventions and services offered to sexually abused youth, obtaining their abuse histories, and including youth served by CPS agencies across Canadian provinces to examine how different services and abuse histories impact depressive symptoms longitudinally.

Conclusion

The current study used data from the MAP Longitudinal Study and evaluated the individual differences of depressive symptoms among sexually abused youth involved in CPS across three different time points (i.e., initial, 6-months, and 18-months) and assessed whether changes in depressive symptoms varied according to CSA severity. Contrary to the initial hypothesis, depressive symptoms significantly reduced over time. These results may be attributed to mental health resources or interventions offered to youth throughout the longitudinal study. Unfortunately, we were unable to ascertain this. Nonetheless, the current results also revealed findings never examined before. Specifically, severe CSA was associated with increased depressive symptoms over time among sexually abused youth served by CPS. Together, previous longitudinal literature and the current results provide evidence that the severity of CSA is associated with depressive symptoms over time (Trickett et al., 2011).

Furthermore, this paper supports that this relationship is observed within Canadian youth involved in CPS which is important because of their particular vulnerabilities to depression compared to the general population (Fallon et al., 2015; Guibord et al., 2011; White et al., 2009). To bolster a sense of emotional security for sexually abused youth, efforts are needed to effectively identify those at-risk early, to better screen for abuse histories and severity, and to enhance the range of mental health services available to them in a timely fashion. This would also help inform government planners and public policy makers to better monitor depressive symptoms throughout CPS involvement.

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Appendix

Table and Figures

Table 1

Frequency for Participant's Gender, Cultural Ethnicity, and CPS Status

Variable	*N*	Percent (%)
Gender		
Female	97	71.9
Male	38	28.1
Total	135	100.0
Cultural Ethnicity		
Arab/West Asian	2	1.5
Black	39	29.5
Chinese	1	0.8
South Asian/Filipino	2	1.5
Latin-American	6	4.5
Native	1	0.8
South East Asian	1	0.8
White	34	25.8
Dual or multiple ethnicity	40	30.3
Other	6	4.5
Missing	3	2.2
Total	135	100.0
CPS Status		
Interim/Temporary Care	9	6.7
Society Ward	20	14.8
Crown Ward	91	67.4
Community Family/ Voluntary Care	15	11.1
Total	135	100.0

Table 2

Descriptive Statistics for Age and CSA at the Initial Time Point in the Pooled Data

Variable	*M*	*SD*	Range	Percent (%)
Age (years)	16.01	1.007	14 - 19	-
Childhood Sexual Abuse	13.22	5.842	6 - 25	-
Low	-	-	-	19.6
Moderate	-	-	-	36.4
Severe	-	-	-	45.0

Note. CSA represents scores calculated with the CTQ severity threshold.

Table 3

Descriptive Statistics for Depressive Symptoms at Initial-, 6-month, and 18-month Time Points in the Pooled Data

Time Point	Depressive Symptoms	Percent (%)
Initial	Clinical	30.8
	Non-Clinical	69.2
6-Months	Clinical	19.3
	Non-Clinical	80.7
18-months	Clinical	18.4
	Non-Clinical	81.6

Note. Clinical depressive symptoms reflect cut-off values of 12 or higher on the BSI.

Table 4

Hierarchical Linear Modeling for Individual Depressive Symptoms Over Time

Imputation Data	Parameter	Estimate (β)	Standard Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Original	Intercept	8.429	.585	.000	7.276	9.582
	Linear	-3.62	1.086	.001	-5.757	-1.474
	Quadratic	1.15	.555	.041	.049	2.242
Pooled	Intercept	8.082	.520	.000	7.063	9.101
	Linear	-2.823	1.233	.034	-5.409	-.237
	Quadratic	1.098	.608	.090	-.190	2.386

Note. Depressive symptoms were set as the dependent variable. Linear and quadratic time components were set as the predictor variables.

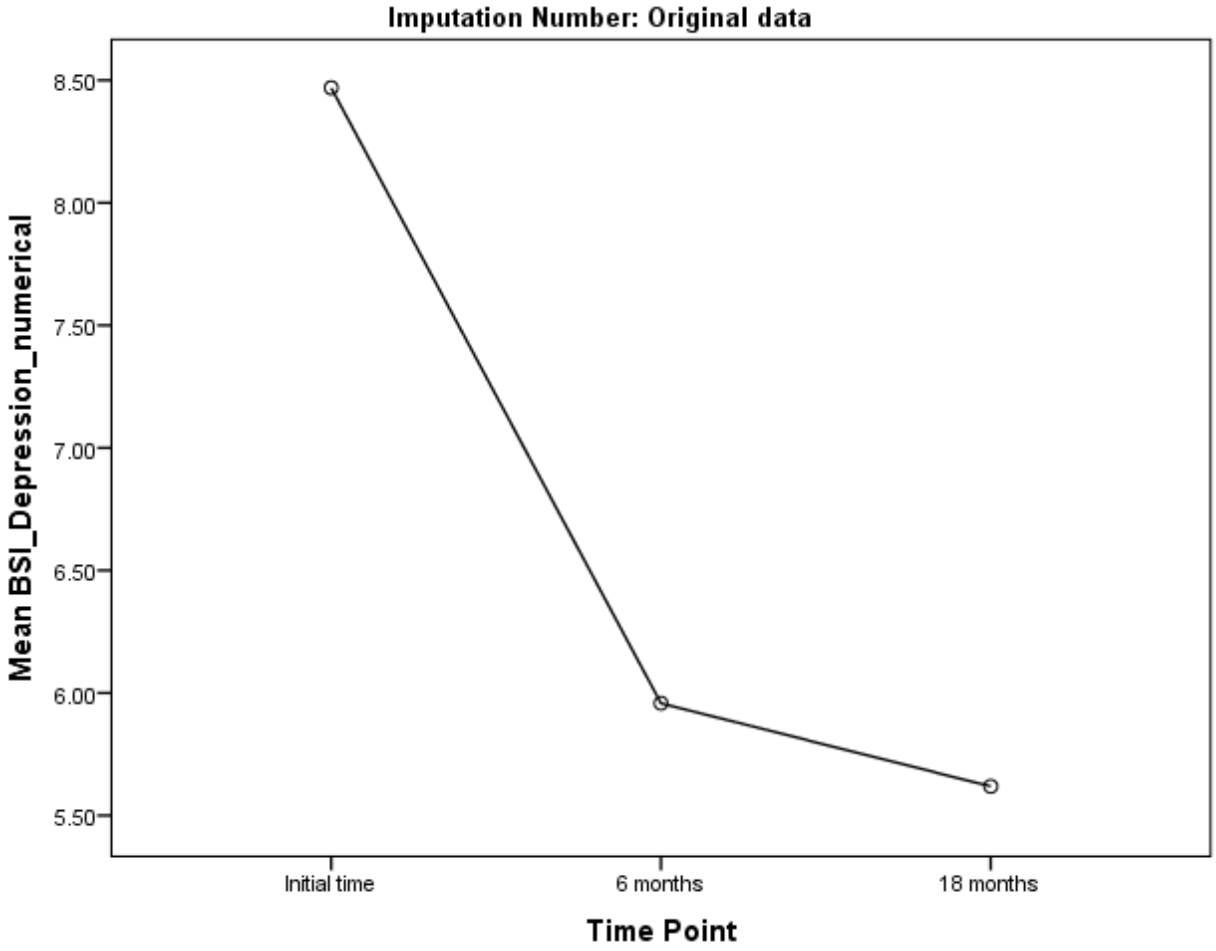

Figure 1. Depressive Symptom Growth Curves in the Group Model of the Original Data

Table 5

Descriptive Statistics of CSA Youth with Increase and No-Increase in Depressive Symptoms from Initial to 6- and 18-Month Time Points

Imputation Data			Initial to 6 Months		Initial to 18 months	
			Frequency	Valid Percent	Frequency	Valid Percent
Original	Valid	No Increase	76	82.6	54	88.5
		Increase	16	17.4	7	11.5
		Total	92	100.0	61	100.0
	Missing	System	44		75	
	Total		136		136	
Pooled	Valid	No Increase	112.6		108	
		Increase	35.6		40.2	
		Total	148.2		148.2	

Table 6

Level 2 Hierarchical Linear Modeling for CSA on Depressive Symptoms Over Time

Imputation Data	Parameter	Estimate (β)	Standard Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Original	Intercept	4.252	.867	.000	2.544	5.961
	Orthogonal Linear	-1.404	.363	.000	-2.125	-.683
	Orthogonal Quadratic	.340	.168	.046	.007	.672
	CSA	.187	.057	.001	.075	.299
Pooled	Intercept	5.467	.877	.000	3.679	7.255
	Orthogonal Linear	-.548	.297	.066	-1.134	.037
	Orthogonal Quadratic	.333	.184	.094	-.065	.730
	CSA	.135	.064	.049	.001	.269

Note. Depressive symptoms were set as the dependent variable. CSA was set as the predictor variable.

General Discussion

The current dissertation contributes to CSA research and the child welfare system by addressing gaps in the literature related to (1) the profiles associated with CSA among adolescent youth involved in CPS; (2) how these profiles differ with respect to the severity of CSA, co-occurring abuse and neglect experiences, and depressive symptoms, while accounting for other abuse and neglect and demographic characteristics; and (3) how CSA impacts depressive symptoms longitudinally. The current dissertation's approach is unique in that it is the first to use a person-centered and variable-centered (i.e., mixed) approach to capture the range of abuse experiences and characteristics among sexually abused youth in CPS reporting depressive symptoms, via cluster analysis and longitudinal modeling. A better understanding of the profiles of sexually abused youth given their abuse histories and depressive symptoms is imperative in improving mental health screening practices in the CPS system. Furthermore, a longitudinal approach also provides a solid foundation in better understanding the trajectories of depression over time throughout CPS involvement and in improving targeted interventions.

The purpose of the two studies was to identify different profiles of sexually abused adolescent youth involved in CPS based on their abuse history, severity, and depressive symptoms; to assess the impact of CSA on depressive symptoms while accounting for other abuse and neglect experiences; to assess individual differences of depressive symptoms longitudinally across three different time points; and to assess whether longitudinal changes in depressive symptoms vary according to CSA severity. Study 1 identified two distinct profiles of youth reporting depressive symptoms, characterized by different severity levels of CSA, co-occurring abuse, and neglect experiences. The largest profile consisted of youth who reported none or low CSA, minimal co-occurring abuse and neglect experiences, and non-clinical

depressive symptoms. The smaller profile consisted of youth who reported moderate and severe CSA, co-occurring abuse and neglect experiences, and clinical depressive symptoms. They were also most likely to be female and report crown ward status (i.e., parental rights legally terminated). These results are consistent with adult person-centered studies which found that severe trauma symptoms (e.g., depression and anger) were associated with an increased likelihood of belonging to severe CSA profiles compared to less severe CSA and co-occurring abuse (Lyons & Romano, 2019; Watson & Halford, 2010). The results also converge with the two existing child and adolescent CPS studies which identified trauma symptom profiles associated with CSA severity, socio-demographics (e.g., gender), and CPS placement status (e.g., crown ward status; Gallitto et al., 2017; McCrae et al., 2006). Depression persists throughout development and school-age children and adolescents are particularly at-risk when they experience more stressful environments (Gotlib et al., 2020). Furthermore, identifying depression earlier and promoting resilience through interventions such as enhancing coping strategies and emotion regulation skills can buffer the effects of depression later on in adolescent survivors of CSA (Chang et al., 2018; Compas et al., 2009). Thus, the current findings complement previous literature and justify the need for child welfare workers to identify and intervene in early adolescence before the youth leave CPS.

Study 1 also found that, regardless of gender, co-occurring abuse and neglect, CPS placement, ethnicity, and anxiety, CSA and CSA severity were associated with depressive symptoms. Specifically, youth who reported more severe CSA were up to five times more likely to report clinical depressive symptoms compared to youth who did not report CSA. This is consistent with previous research in the general population where, even controlling for covariates spanning socio-demographic, family functioning and child factors, CSA was still associated with

depressive symptoms (Fergusson et al., 2013). Furthermore, sexually abused children have a greater probability of developing a depressive disorder compared to non-abused groups and more severe abuse (i.e., abuse involving penetration, longer duration of abuse) is linked to higher rates of depressive disorders compared to less severe abuse (i.e., abuse with no contact, shorter duration of abuse; Amado et al., 2015; Stoltenborgh et al., 2011). Although many studies have examined this link in various populations, the current dissertation is the only one that has examined this link among adolescents served by CPS while controlling for all other factors. This is important because youth involved in CPS who are exposed to more severe abuse are less likely to recover from mental health problems and require earlier support and intervention (Domhardt et al., 2015). These findings highlight that adolescent youth in CPS have significant needs in regard to their mental health especially when they self-report moderate or severe CSA.

In contrast to the initial hypothesis, Study 2 found that depressive symptoms significantly reduced over time. This diverges from previous longitudinal research that have consistently documented poor depression outcomes among victims of CSA compared to non-abused groups over time in non-CPS samples (Fergusson et al., 2013; Trickett et al., 2011). Longitudinal findings like those above support that CSA contributes to increased symptomology, however, they rely predominantly on adult retrospective reports long after the onset of abuse and on community-based samples who do not necessarily have access to the same resources that CPS offer (Bruskas, 2008; Higgins & McCabe, 2001; Putnam, 2003). In other studies, parents of sexually abused preschool children reported an increase in their children's emotional lability, negativity, and lower emotion regulation competencies over one-year follow-ups (Langevin & Hébert, 2016; Séguir-Lemire et al., 2017). The current results also revealed that a minority of our sample reported an increase in depressive symptoms at 6-months and at 18-months. Some

possibilities for these changes include that these youth did not receive mental health treatment or other services at the time of the disclosure of CSA because their depressive symptoms were not observable, that these particular youth experienced greater co-occurring abuse and neglect experiences relative to other youth, or they may have been re-victimized throughout the course of the study without it having been disclosed. This is notably important for future researchers to explore given CSA tends to increase re-victimization and that adolescent youth are sexually abused more often in CPS settings and the perpetrators are generally a result of youth-on-youth (i.e., group care peer) sexual abuse (Baker et al., 2006). Unfortunately, assessing other sources of risk that may have contributed to the increase in depressive symptoms was impossible given the constraints of the HLM analyses with the current dataset. Nonetheless, some findings regarding CSA recovery among children and adolescents suggest improvements and remission of depression among children who are sexually abused following rapid intervention (i.e., after four months of the first follow-up session; Mutavi et al., 2018). However, less was known concerning depression outcomes among sexually abused adolescents involved CPS. Thus, the current dissertation offers encouraging results, namely that depressive symptoms decrease over time among the majority of sexually abused adolescents served by CPS agencies.

This dissertation also found that a reduction of depressive symptoms was associated with CSA severity over time. These findings converge with previous longitudinal studies which have found associations between depressive symptoms and severe CSA (Trickett et al., 2011). However, the current findings are unique as there were no studies that have previously reported a decline in depressive symptoms according to CSA severity among CPS samples. Several explanations for these findings are provided.

First, it is possible that some youth were more resilient. Resilience can be defined as the ability to adapt well and bounce back in the face of significant sources of stress (American Psychological Association; APA, 2017). Promoting resilience in sexually abused youth can be achieved by improving coping and emotion regulation skills (Compas et al., 2009; Fischer et al., 2018), increasing support from the family system and wider social environment (Domhardt et al., 2015), and actively confronting trauma-related issues (Cohen et al., 2004). Thus, it is possible that these youth received the necessary support and interventions in order to build resilience through their support systems or CPS resources. Second, it is possible that sexually abused youth experienced less co-occurring abuse and neglect experiences over time given CPS involvement. Co-occurring abuse and neglect experiences are linked to depressive symptoms among CPS youth and CSA often occurs in the presence of other types of abuse (Auslander et al., 2018; Dong et al., 2003). Thus, the depressive symptoms may have decreased according to less co-occurring abuse and neglect experiences with CPS intervention. Third, the results can be explained by a potential sleeper effect. A sleeper effect is characterized by an individual who would display negative symptoms later on when they are confronted with other adverse life experiences or when they go through a subsequent developmental stage (Fallon et al., 2019). In fact, literature indicates many children show recovery from symptoms during the first 12 to 18 months which further complicates identifying children who need services and when (Kendall-Tackett et al., 1993; McCrae 2006). Thus, future researchers are encouraged to include several more time points to examine longer trajectories of depression and to assess the services that are offered to the youth throughout their CPS involvement. Moreover, future research would benefit in examining the role of other types of childhood abuse and neglect experiences to account for the variations of depressive symptoms over time.

Limitations

The current dissertation provides several suggestions for future research in the area of CSA and depression. First, the classification for abuse and depression in the current study relied on self-reports of a retrospective nature. Although these measures are commonly used in the literature, there is room for particular bias that results in withholding information, specifically so in male participants (Stoltenborgh et al., 2011). Furthermore, information was not obtained from police records or CPS workers. Therefore, the abuse experiences were reflective of the youth's subjective perception and reaction to their trauma that may be different than what was substantiated in the CPS reports. This is important as literature is beginning to examine disclosures and how CSA experiences are consciously conceptualized, especially given that the victim's subjective reactions to abuse differ in terms of gender, the severity of the abuse, and the relationship with the offender (Felson et al., 2019; Wekerle et al., 2001). Thus, future researchers should evaluate CSA thoroughly and research designs need to include multi-informant reports, such as by case workers and primary caregivers.

Second, it is important to consider the current sample of sexually abused youth was small and there were large attrition rates across the 6- and 18-month time points. Difficulties with retention, attrition rates, maintaining contact with participants and professionals, as well as data and project management are constant barriers of longitudinal studies (Devaney & Rooney, 2019). In the final analysis, compared to the initial time point, there was only a small proportion of youth who remained. Hence, this sample may not be representative of all sexually abused youth involved in CPS especially given that there were cases closed when the youth's situation was not deemed compromised any longer by the CPS system. Nonetheless, small sample studies when conducted longitudinally can still provide rich information about specific populations (Muth et

al., 2016). Thus, future efforts must be made to recruit youth from various CPS agencies and minimize attrition.

Third, although less CSA severity was associated with less depressive symptoms over time, the study designs were correlational, making it impossible to draw causal inferences between variables. Specifically, this dissertation could not tease apart the unique contribution of other sources of risk, such as potential family dysfunction or co-occurring abuse and neglect experiences, on reductions of depressive symptoms over time. This is important as co-occurring abuse and neglect, such as emotional abuse, has been shown to mediate the relationship between CSA and revictimization, and other psychological consequences (Auslander et al., 2018). Similarly, aspects of family dysfunction, such as parental divorce, parental competence, substance use, and conjugal violence, have also been shown to account for some of the observed association between CSA and later outcomes (Watson & Halford, 2010; Zephyr et al., 2015). This is especially important to consider in future research given that the current results revealed there was a small sample of sexually abused youth who reported an increase in depressive symptoms over time. Therefore, future research should explore the mediators of the relationship of depressive symptoms with profiles of CSA and assess other sources of risk that may better help understand the profiles of youth whose depressive symptoms did not improve over time. In addition, future studies could benefit from examining the role of genetic factors in long-term outcomes of depression given they have been found to moderate the relationship between CSA and depression in children (Bellani et al., 2012).

Next, while this study included depressive symptoms that can differ in terms of CSA severity and other abuses, it did not have sufficient self-report data on other characteristics of CSA, such as the age of onset of CSA, the duration of CSA, and the number of abusers (Dube et

al., 2005; Pérez-Fuentes et al., 2013). Although other CSA characteristics were collected in the original MAP Longitudinal Study, the variables of interest exceeded the minimum missing data requirements to run the appropriate analyses and there was little concordance in the results between the two trauma questionnaires provided (Milne & Collin-Vézina, 2014; Wekerle et al., 2017). Thus, future research using cluster analysis should include other CSA characteristics and explore whether the profiles are reliable across diverse samples of youth reporting CSA. Furthermore, researchers are encouraged to validate the clusters longitudinally to determine the stability of the profiles and the potentially different trajectories of depression in each given cluster (Hébert et al., 2006).

Finally, little information was available with regards to the types of support and resources offered to the youth throughout the MAP Longitudinal Study that may have influenced depressive symptoms over time. Future studies should consider obtaining information related to therapeutic interventions and services offered to sexually abused youth within and outside CPS to help tease apart the contribution of CSA on depressive symptoms longitudinally.

Theoretical Implications

Consistent with Spaccarelli's Transactional Model, sexually abused youth involved in CPS are confronted with a myriad of environmental factors that interact (i.e., transactions) with personal factors (i.e., coping resources), that determine negative outcomes. Sexually abused youth are particularly at risk for later psychological consequences due to personal factors associated with CSA, such as delayed disclosure, self-blame, feelings of betrayal, societal stigmatization, and early traumatic sexualization (Finkelhor & Brown, 1985; Sciolla et al., 2011). Regarding their environment, sexually abused youth involved in CPS are less likely to recover from depression and CSA given their increased likelihood of revictimization (i.e., CSA and other

forms of maltreatment) within the system, consistent transitions, removals, and entries into and out of the system, a greater likelihood of being severed from their families, as well as systemic challenges suffered by CPS (Baker at el., 2006; Burge, 2007; McGrath-Lone et al., 2017). The current dissertation examined profiles of sexually abused youth based on severity outcomes of CSA, depressive symptoms, and co-occurring abuse and neglect experiences, as well as examined patterns of depressive symptoms over time as they relate to CSA severity. A recurring finding was that profiles of severe CSA was associated with clinical depressive symptoms, crown ward status, and more severe co-occurring abuse and neglect experiences (Gallitto et al., 2017). Furthermore, as documented previously in community-based samples, CSA and its severity were associated with depressive symptoms longitudinally (Trickett et al., 2011). Yet, it was found that depressive symptoms improved over time among sexually abused youth receiving CPS despite the heterogeneity of abuse experiences and severity.

Thus, the Transactional Model may provide a fitting explanation for the impact of depressive symptoms and involvement in the CPS system. Specifically, it is hypothesized that the youth received the necessary interventions in order to build resiliency through their support systems or CPS resources. This is most notable given that perceived support from the environment is one of the best predictors of an abused child's outcome (Spaccarelli & Kim, 1995). However, this hypothesis cannot be tested using the MAP Longitudinal Study as it did not include the necessary information with respect to family system supports or specialized interventions offered throughout CPS involvement. Furthermore, it was not possible to examine all the potential personal factors of youth in the child welfare system to test the Transactional Model. Nonetheless, the results highlight the importance of monitoring abuse histories and depressive symptoms over time among sexually abused youth and increasing supports that

continue promoting positive mental health outcomes. Future studies would also benefit in examining services provided at different level systems, such as the government level, same-level systems, such as community services, and lower-level systems such as foster families (den Dunnen, 2017).

Policy Implications

The child welfare system is guided by two important policies, one is establishing a stable permanent placement for youth and the other is reunifying youth with their families (Davidson et al., 2019). When reunifying the youth with their family is not possible, the parent's rights are legally terminated (i.e., they become crown wards), the youth remain in foster care or are placed with a guardian, or they are adopted. CPS aim to reduce the time youth are in temporary placement or foster care and they attempt to increase the rates of both reunification and adoption (Adoption and Safe Families Act; ASFA, Public Law 105-89, 1997). Despite these policies in place, a significant number of youth return to the system, indicating that there is still abuse present or other issues at home that arise (Davidson et al., 2019). In fact, regardless of CPS intervention, up to 40% of children reunified with their families will re-enter into the child welfare system each year (Davidson et al., 2019; Goering & Shaw, 2017). This has serious repercussions for sexually abused youth because CSA is not well detected in official studies (Fallon et al., 2019), there is disagreement between self-reported CSA and investigated and substantiated cases through police reports (Collin-Vézina et al., 2010), and there is low concordance with case worker reports of abuse (Everson et al., 2008; Wekerle et al., 2001; 2017). In fact, children removed or who are mandated to leave the perpetrator may leave without appropriate safety planning, increasing the risk of revictimization (Campbell et al., 2002). In other studies, sexually abused youth were more likely to be revictimized and delay disclosure if

the perpetrator was a family member and if the interviews were in person compared to self-administered format (Martin et al., 1993; Sciolla et al., 2011). In addition, CSA differentiates itself from other forms of maltreatment given its unique outcomes, such as traumatic sexualization, increase sexual deviancy, societal stigmatization, feelings of betrayal, and increased re-victimization (Finkelhor & Brown, 1985; Wekerle et al., 2017).

These findings emphasize the heterogeneity of CSA experiences and the detrimental outcomes of more severe CSA, as well as the concerns regarding the capacity of the child welfare system to provide adequate care to its youth. Therefore, this dissertation has significant policy implications as it highlights the importance of considering the unique trajectories of depression outcomes among sexually abused youth. Specifically, from a policy standpoint, the child welfare system should invest in resources to earlier identify CSA and sexually abused youth at-risk for severe depression given their abuse histories and severity through self-reported measures and from multiple informants. Furthermore, in Canada, there is no system for monitoring data for youth in and exiting the system (Grant et al., 2012). Thus, a monitoring system should be in place to allow for examining depression changes over time and in providing CPS with a better understanding of the needs of sexually abused youth on a regular basis.

Clinical Implications

Many interventions for trauma and their associated psychological outcomes in children and adults have been established in the literature and have been widely disseminated (Salloum et al., 2016). The most single well-supported and efficacious treatment for CSA is Trauma-Focused Cognitive Behavioral Therapy (TF-CBT; Cohen et al., 2004). Other promising interventions developed have been centered around fostering resilience, cognitive emotion-regulation strategies, and exposure therapy (Domhardt et al., 2015; Garnefski & Vivian, 2016; Hunter,

2006). However, barriers to treatment among youth involved in CPS include time commitment, costs, stigma, and transportation needed for in-office therapy meetings (Salloum et al., 2016). Furthermore, interventions for depression among sexually abused youth, such as TF-CBT, often require a family component to the treatment, yet youth who have experienced severe maltreatment, such as sexual abuse, are often severed from their families (OACAS, 2015). As shown in this dissertation, the majority of youth reported crown ward status, indicating that their parent's rights were legally terminated, which may reduce the effectiveness of most trauma-focused therapies. Nonetheless, this dissertation found that depression improved over time, possibly indicating that the youth received the necessary interventions through other support systems or CPS resources.

In addition, sexually abused youth involved in CPS are more likely to have histories of co-occurring abuse and comorbid psychological conditions, important factors that have been neglected in CPS intervention research (Olafson, 2011). The current findings were consistent with the literature in that profiles of sexually abused youth who reported the most severe abuse were associated with a greater likelihood of reporting other forms of maltreatment and clinical depressive symptoms. Although interventions now exist for sexually abused children and adults, evidence-based interventions are still needed for sexually abused adolescents, especially those reporting co-occurring abuse and neglect experiences (Olafson, 2011). Furthermore, there is limited research that evaluates the efficacy of these interventions among sexually abused adolescents involved with CPS. This is important because adolescence is a pivotal developmental stage and adolescents are particularly at-risk for depression when they experience stressful environments, such as trauma (Gotlib et al., 2020). Thus, intervening in adolescence is

essential as management and reduction of early symptoms are predictors of recovery following violence and trauma (Hahn, et al., 2016).

Future research would benefit in examining evidence-based treatments for depression among sexually abused youth involved in CPS. Barriers to clinical practice in the child welfare system include structural problems with funding and payment plans which directly impacts CPS to adapt to new technologies (Chaffin & Friedrich, 2004). In fact, the rapid increase in child maltreatment reports without sufficient staffing or funding almost led to the collapse of the child welfare system (Edleson, 2004). Other barriers include, the lack of advocacy for new treatments and technologies, the lack of incentives that link rewards to client outcomes; the gap between research and practice communities (e.g., few front line practitioners read peer-reviewed scientific literature); many unsupported or even questionable models that have been adopted by CPS; and therapists may be resistant to research-based interventions (Chaffin & Friedrich, 2004). Overcoming these barriers include a reorganization of finances in the child welfare system, such as changing funding practices by targeting funding of evidence-based practice implementation projects as well as collaborating with community organizations that can aid in providing services to youth in the system, such as school boards and mental health agencies. For example, Ontario Association of Children's Aid Societies (OACAS, 2015) are taking initiatives to develop and enhance the partnerships with community resources so that more supports are available for children and families (den Dunnen, 2017).

General Conclusion

Studies on CSA and depression largely focus on the presence or absence of the abuse without considering characteristics (e.g., severity, chronicity), co-occurring childhood abuse and neglect, and co-occurring psychological symptoms (Edwards, 2018; Sciolla et al., 2011).

Furthermore, CSA significantly contributes to depression in various populations and this link has been established using robust longitudinal studies (Putnam, 2003; Trickett et al., 2011). However, few studies have prospectively examined CSA and its severity in depressive symptoms and symptom trajectories among sexually abused youth. Moreover, this link has never been studied longitudinally among sexually abused youth involved in CPS. Thus, this dissertation contributes to CSA literature by applying a person-centered (e.g., cluster analysis) approach to identify clinically useful profiles of youth reporting CSA and assesses depressive symptoms longitudinally among CPS youth.

Not all CSA survivors have similar abuse experiences or respond to CSA in the same way. Therefore, a better understanding of profiles of youth reporting CSA given their abuse histories and depressive symptoms may help orient treatment for depression in CPS. Future research may want to include other characteristics and types of CSA such as the developmental period in which CSA occurred and the relationship between the perpetrator and the youth (Gómez, 2019). Future studies would also benefit from examining the impact of revictimization and cumulative trauma across the lifespan on depressive symptoms. This is important, as indicated in this dissertation, CSA characteristics alone are not enough to reliably screen a youth's service needs, especially since CSA often occurs in the presence of other forms of abuse and neglect (Finkelhor et al., 2007). Thus, the results of this dissertation indicate the need to consider, in addition to CSA characteristics, a broad range of maltreatment experiences when investigating long-term effects of CSA on depression.

In addition, longitudinal research provides a solid foundation in better understanding trajectories of psychological consequences across childhood, adolescence, and adulthood. Until now, it was unknown how depressive symptoms changed over time among sexually abused

adolescent youth involved in CPS. Hence, this dissertation adds to the very limited literature on how CSA and its severity may influence depressive symptom outcomes among this vulnerable population. Furthermore, future studies are encouraged to validate CSA profiles longitudinally to determine the stability of the profiles, the potentially different trajectories of depression, and to evaluate CSA profiles of youth reporting increased depressive symptoms over time despite CPS intervention. This would better help identify specific clinical needs of youth reporting CSA and enhance targeted interventions that best match their needs.

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