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Students adrift: An examination of school disengagement among clinically referred children and youth

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Education

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Abstract

School disengagement is a significant problem experienced by many students and may be an indicator of or resultant from underlying difficulties. Indeed, the first onset of mental health difficulties typically occurs during childhood and adolescence. Utilizing large clinically referred samples of elementary and secondary school students at intake into community and inpatient mental health service agencies across the Province of Ontario, Canada, school disengagement was explored as associated with physical and mental health as well as peer and familial relationships, other and self-directed harm, and service intensity need. Age and sex differences were explored across studies to inform the development and implementation of targeted prevention and intervention programs for promoting school engagement and circumventing life-long consequences across the lifespan.

Findings from the first paper indicated that physical and mental health distress were associated with school disengagement, while individual and relational strengths were associated with school engagement among clinically referred elementary and secondary students. Distinct predictive profiles of school disengagement were revealed for school-age children (ages 4 to 11 years) and youth (ages 12 to 18 years). Results from the second paper indicated that school disengagement was strongly associated with other- and self-directed harm among clinically referred elementary and secondary students. Notably, male youth were more likely to be at risk for harm to others, while female youth were more likely to be at risk for harm to self. Findings from the third paper indicated that students who are disengaged in school are two to four times more likely in odds to require high-intensity as compared to low-intensity services at intake into clinical services.

Although service intensity need tended to decrease across development, this relationship was more stable for male students as compared to female students.

Taken together, findings across the three papers highlight the necessity for early identification of student distress and provision of timely access to intervention. Further, the requirement of service integration across sectors working directly with students and their families is underlined. When school engagement problems are identified early, both immediate and long-term consequences, such as the manifestation of acute distress requiring crisis supports, can be prevented.

Keywords: School disengagement; Mental health; Peer relationships; Family relationships; Harm to self; Harm to others; Service need intensity; Reason for referral; interRAI

Lay Summary

The emergence of mental health challenges among children and adolescents is well-known. Notably, young people faced with ongoing mental health distress often experience difficulties across many domains of their lives including poor self-care, interpersonal difficulties, and negative school outcomes such as poor achievement, disengagement in school, and school dropout. Specifically, school disengagement, which has been associated with many unfavorable outcomes, may be representative of underlying emotional or behavioural problems. Utilizing large samples of clinically referred elementary and secondary school students, school disengagement was explored as associated with: 1) physical and mental health concerns as well as relational and individual strengths, 2) other-directed and self-directed harm, and 3) service intensity needs and reason for referral. As expected, students who faced health adversity were found to be at a greater risk for school engagement problems as compared to healthy students. Notably, students who pose the greatest risk to themselves (i.e., risk for self-harm) and those around them (i.e., risk for other-direct harm) were found to be experiencing significant problems with engaging in their learning. In contrast, strong relationships with peers and family members were found to be associated with school engagement for all students. Further, 1 in 4 students were found to be at heightened risk for school disengagement and to require high-intensity services at intake into clinical services. Findings confirm the need for early identification of student distress to reduce the likelihood of consequential life-course detriments. Further, findings highlight the demand for providing timely access to intervention for students in an accessible and applicable manner. Given that the education system has been identified as the main point of entry into mental health services for students, school staff are uniquely positioned to identify and

support struggling students. Implications of the findings are explored within the context of the school setting as well as across service sectors working directly with students and their families.

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Table of Contents

Abstract.....	ii
Lay Summary.....	iv
Acknowledgments.....	vi
List of Tables.....	x
List of Figures.....	xi
Chapter 1.....	1
1.1 Introduction.....	1
1.1.1 Background.....	1
1.1.2 Specific Aims of this Dissertation.....	3
1.2 Literature Review.....	4
1.2.1 Theoretical Perspective.....	4
1.2.2 School Engagement.....	6
1.2.3 School Disengagement Outcomes.....	11
1.3 Measuring School Disengagement.....	15
1.4 Summary.....	17
1.5 References.....	18
Chapter 2.....	25
2 <<Investigating health adversity and school engagement among clinically referred children and youth using the interRAI Child and Youth Mental Health Assessment>>.....	25
2.1 Introduction.....	26
2.1.1 Current Study.....	29
2.2 Methods.....	30
2.2.1 Participants.....	30
2.2.2 Procedure and Ethical Considerations.....	32
2.2.3 Measures.....	33
2.3 Results.....	37
2.3.1 Bivariate Analyses.....	37
2.3.2 Multivariate Analyses.....	39
2.4 Discussion.....	42
2.5 Summary.....	49
2.5.1 Clinical Implications.....	50
2.5.2 Limitations.....	50
2.5.3 Future Directions for Research.....	51
2.6 References.....	52
Chapter 3.....	61
3 <<Harm to others and self: An investigation of the risk for interpersonal and self-directed violence as associated with risk for school disengagement>>.....	61
3.1 Introduction.....	62
3.1.1 Emotion Regulation.....	63
3.1.2 Other-Directed Harm.....	65
3.1.3 Self-Directed Harm.....	65
3.1.4 Current Study.....	67

3.2 Method	67
3.2.1 Participants.....	67
3.2.2 Procedure & Ethical Considerations.....	68
3.2.3 Measures	70
3.3 Results.....	72
3.3.1 Harm to Others.....	72
3.3.2 Harm to Self.....	73
3.3.3 Sex Differences.....	73
3.4 Discussion.....	74
3.4.1 Harm to Others.....	76
3.4.2 Harm to Self.....	77
3.4.3 Sex Differences.....	78
3.5 Summary.....	79
3.5.1 Implications for School Psychology.....	80
3.5.2 Limitations and Future Directions for Research.....	80
3.6 References.....	82
Chapter 4.....	91
4 << School disengagement and mental health service intensity need among clinically referred students utilizing the interRAI Child and Youth Mental Health Assessment Instrument>>.....	91
4.1 Introduction.....	92
4.1.1 Mental Health & School Problems	93
4.1.2 Estimated Value of Services.....	94
4.1.3 Service Utilization	95
4.1.4 Current Study.....	96
4.2 Methods.....	97
4.2.1 Participants.....	97
4.2.2 Procedure & Ethical Considerations.....	98
4.2.3 Measures	99
4.3 Results.....	101
4.3.1 School Disengagement and Service Intensity Need	101
4.3.2 Reason for Referral and School Disengagement	105
4.4 Discussion.....	107
4.5 Summary.....	112
4.5.1 Limitations.....	113
4.5.2 Clinical Implications & Future Directions.....	113
4.6 References.....	115
Chapter 5.....	123
5 Discussion and Conclusions	123
5.1 Unique Contribution of Each Paper.....	124
5.2 Implications for Education and Clinical Practice	131
5.3 Future Directions	135
References.....	138
Curriculum Vitae	145

List of Tables

Table 1. Examples of School Engagement and Disengagement in Classroom Setting	8
Table 2. Mapping interRAI’s School Disengagement Scale (SDeS) onto the Multifactor Construct of School Disengagement	16
Table 3. Chapter 2: Participant Characteristics for the Child and Youth Samples	31
Table 4. Chapter 2: Frequencies for Item Clusters for the Total, Children, and Youth Samples	32
Table 5. Chapter 2: Regression Analysis: School Disengagement Among Children 4 to 11 Years Old	40
Table 6. Chapter 2: Regression Analysis: School Disengagement Among Children 12 to 18 Years Old	41
Table 7. Chapter 3: Demographic Information for the Children and Youth Samples	69
Table 8. Chapter 3: Chi-Square Comparison Between Harm to Others and Harm to Self with School Disengagement for Children and Youth	74
Table 9. Chapter 3: Sex Differences for Each of the Examined Risk Behaviours using Chi-Square Analyses for Children and Youth	75
Table 10. Chapter 4: Demographic Information by Age Group	98
Table 11. Chapter 4: Chi-Square Comparison of Service Intensity Need and Risk for School Disengagement by Sex and Age	102
Table 12. Chapter 4: Chi-Square Comparison for School Disengagement and Reason for Referral	106

List of Figures

Figure 1. Continuum of school refusal behaviours as described by Kearney (2008)	13
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Chapter 1

1.1 Introduction

1.1.1 Background

Education is critical for the growth and development of individuals and society. Education is mandatory for all Canadian children and youth until the age of 18 years old in the Provinces of Manitoba, Ontario, and New Brunswick and until the age of 16 years old in all other Provinces and Territories. Compulsory schooling provides students with opportunities for the development of critical academic, social, and employment skills important for later contributions in the workforce. Not surprisingly, pathways for educational success among students have been examined by researchers for many decades (e.g., Casillas et al., 2012; Duncan et al., 2007; Ecker-Lyster & Niileksela, 2016; Hattie, 2008; Rumberger & Lim, 2008; Skinner, Wellborn, & Connell, 1990; Vogt, Jordan, & Tharp, 1987). Educational success has been measured in the extant literature as the combination of “academic performance, educational aspiration, dropout rates, and college enrollment rates” (Wang & Peck, 2013). Student engagement in education (i.e., active participation through interest, curiosity, and motivation for learning) is necessary to promote a student’s realization of educational success (Wang & Eccles, 2012). Indeed, students who are disengaged in education tend to demonstrate poorer academics and a lack of educational goals (e.g., Archambault, Janosz, Fallu, & Pagani, 2009; Martin, 2007). Disengaged students are also at significantly greater risk for dropping out of school and consequently failing to enroll in post-secondary education (Archambault et al., 2009; Kearney, 2008). Despite the existing literature on education and learning among students across grade levels, researchers tend to investigate singular factors that promote and inhibit educational success in isolation among community samples of students rather than in conjunction with other

known complex system influences (e.g., De Witte, Cabus, Thyssen, Groot, & van den Brink, 2013; Fredricks, Blumenfeld, & Paris, 2004).

There is a significant lack of research investigating school disengagement alongside indicators of wellbeing and symptoms of mental health concerns particularly among large samples of clinical populations of students (e.g., Fredricks et al., 2004; Kearney & Albano, 2004). Additionally, other and self-directed harm are a serious problem and common reason for referral to mental health services among children and youth; however, research investigating the associations between other and self-directed harm and school disengagement among clinical samples of elementary, middle, and secondary school students is sorely lacking. Moreover, to my knowledge, no studies have examined the service intensity need for clinically referred students experiencing school disengagement. As noted, much of the research to date on school disengagement has focused on community samples of students. Examining school disengagement in treatment-seeking children and youth provides an opportunity to determine whether the same predictors contribute similarly to these vulnerable students compared to community samples. Treatment-seeking students often struggle with substantial emotional and behavioural regulation, attention and concentration, as well as learning difficulties. Furthermore, approximately half of treatment-seeking students have been exposed to poly-victimization (Stewart, Toohey & Lapshina, 2020). Determining the needs of treatment-seeking children and youth as related to school disengagement can have implications for interventions to support increased academic achievement, improve graduation rates, and promote enrollment in post-secondary education. Indeed, proper treatment and supports can improve outcomes to circumvent lifelong socioeconomic barriers, especially if school disengagement is caught early and students are provided with adequate care planning and treatment. To date, there have been no large-scale

studies among *clinically referred* elementary and secondary school students to examine the prevalence of school disengagement as associated with student distress. Expanding on existing research while utilizing a recently validated tool for identifying students at risk for school disengagement, this dissertation investigated school disengagement as associated with mental health, other and self-directed harm, and service intensity need among high-risk clinically referred students.

1.1.2 Specific Aims of this Dissertation

This dissertation contributes to the existing literature by utilizing large clinically referred samples of students across elementary and secondary school to explore: 1) health adversity and relational skills as associated with school disengagement, 2) the relationships between school disengagement and each other-directed and self-directed harm, and 3) school disengagement as associated with service intensity needs and reason for referral. All data utilized in this dissertation were collected by trained assessors across mental health service agencies in the Province of Ontario, Canada using the interRAI Child and Youth Mental Health Assessment (ChYMH; Stewart et al., 2015). This dissertation consists of five chapters: a general introduction, three papers to be published in peer-reviewed journals, and an overall conclusion. Chapter 1 provides a theoretical perspective for conceptualizing school dis/engagement, a definition of school dis/engagement, a review of the literature on school engagement and educational outcomes, and introduces a new method of measurement for identifying school disengagement among clinically referred students. Further, Chapter 1 specifies the overall objectives of this dissertation.

Chapter 2 is the first of the three publishable papers and is titled, Investigating health adversity and school engagement among clinically referred children and youth using the interRAI Child and Youth Mental Health Assessment. The main objective of this study was to

determine the concurrent influence of physical and mental health distress alongside individual and relational strengths as related to school engagement among clinically referred elementary and secondary school students. Chapter 3 is the second paper and is titled, Harm to others and self: An investigation of the risk for interpersonal and self-directed violence as associated with risk for school disengagement. The objectives of this study were to: 1) examine school disengagement as associated with other-directed harm among a large clinical sample of students, 2) examine school disengagement as associated with self-directed harm among a large clinical sample of students, and 3) investigate sex and age based differences for the revealed associations. Chapter 4 is the third paper and is titled, School disengagement and mental health service intensity need among clinically referred student. The main objective of this study was to provide a first look at the relationship between school disengagement and service intensity need among clinically referred students. Further, this study also offers an important contribution to the existing literature as it explored the relationship between reason for referral and school disengagement as well as service intensity need to support triaging for mental health services. This dissertation concludes with Chapter 5, whereby an overall discussion of the findings as well as unique contributions provided by each paper, implications for classroom teachers and school support staff (i.e., social workers, counsellors, psychologists), and recommendations for future research.

1.2 Literature Review

1.2.1 Theoretical Perspective

A large body of literature has revealed that educational success can be influenced by a variety of factors (e.g., Nakamoto & Schwartz, 2010; Richardson, Abraham, & Bond, 2012; Sirin, 2005). In recent decades, the concept of school engagement has been widely recognized as an important factor for supporting students in reaching their full potential in school (e.g.,

Fredricks et al., 2004; Jimerson, Campos, & Greif, 2003; Rumberger & Rotermund, 2012; Trowler, 2010; Wang & Eccles, 2012). Indeed, research consistently suggests that students who are engaged in their learning and education tend to outperform matched peers who are disengaged in their education (e.g., Fredricks et al., 2004; Trowler, 2010). Early investigations of school engagement tended to rely heavily on behavioural factors such as attendance and participation in classroom and extracurricular activities. However, as research on school engagement progressed, researchers began to incorporate emotional and cognitive components such as enjoyment in education and intellectual curiosity. A review of the literature by Fredricks et al., (2004) advised researchers to view school engagement as a multidimensional construct composed of behaviours, emotions, and cognitions. This dissertation utilized the recommended multidimensional concept of school engagement to investigate independent and simultaneous factors associated with school disengagement among clinically referred students. This approach offers an opportunity to expose a more comprehensive understanding of challenges and protective factors associated with the student experience on the road to success.

Motivation for education, although unique to each student, can be influenced by a multitude of environmental and contextual factors. Self-Determination Theory (SDT), a theory of motivation and personality, can be applied to the relationship between student motivation and educational success. Based on three universal needs (i.e., competence, autonomy, and relatedness), SDT assumes that students are inherently active, intrinsically motivated, and concerned with growing and developing through integrative processes (Deci & Ryan, 2011; Ryan & Deci, 2017). SDT recognizes that individual differences in motivation are present among students. Intrinsic motivation is an individual behaviour that is driven by internal rewards. A student's perceptions, attitudes, and beliefs about school are central to motivation for educational

success. School engagement can be supported and negatively influenced because of prior experience. Intrinsic motivation can be enhanced by events that result in a perceived internal locus of causality, which supports the basic need for autonomy (Ryan & Deci, 2017). Additionally, intrinsic motivation can be enhanced by events that lead to increases in perceived competence, supporting the basic need for competence (Ryan & Deci, 2017). Alternatively, tangible rewards tend to undermine intrinsic motivation. Applying this theory to a student's school engagement, a student's intrinsic motivation for learning and academic achievement can be enhanced when students feel a sense of ownership for their learning and they feel capable of meeting expectations thereby improving their academic self-concept (Findley & Cooper, 1983; Huang, 2011; Marsh & Seaton, 2013). It would not be surprising if students who are disengaged in education lack confidence in their ability to complete academic tasks or feel as though they are continually wronged by teachers for academic failures. Extrinsic motivation, that is behaviour that is driven by external rewards such as grades or approval from others, is associated with a student's intrinsic motivation. Specifically, extrinsic factors such as beliefs and values from others can be internalized to impact a student's intrinsic motivation (Ryan & Deci, 2017). For example, despite a student's inherent motivation to engage in learning, over time those who continually receive negative feedback regarding education are likely to experience diminished intrinsic motivation for learning and thus may experience disengagement in education. It seems that negative educational experiences can have dramatic influences on later academic outcomes. A student's motivation for learning is associated with both individual and external factors which directly affect school engagement.

1.2.2 School Engagement

Definition. School engagement is a multidimensional construct that can be defined as a student's meaningful involvement in his or her education through interest, curiosity, motivation,

and active participation in learning (Fredricks et al., 2004). School engagement has been described to have three components (i.e., behaviours, emotions, and cognitions; Fredricks et al., 2004). Each component of engagement (i.e., behavioural, emotional, and cognitive) has its own scope of positive and negative features representing a range from engagement to disengagement. See Table 1 for examples of school engagement and disengagement as demonstrated by students in a classroom setting. Students may demonstrate overall engagement or disengagement in school; however, it is also possible for students to experience varied engagement profiles. For example, students may experience behavioural engagement, attending school and participating in classroom activities, while simultaneously experiencing cognitive and/or emotional disengagement due to a dislike for school and/or a lack of motivation and interest in learning.

The behavioural dimension of engagement is often defined in the literature as a student's "attendance and participation" in his or her education (Trowler, 2010). At times, behavioural engagement may also include participation in extra-curricular activities such as student government (e.g., Archambault et al., 2009). Students demonstrate behavioural disengagement through non-compliance with behavioural expectations within the school setting including lateness or absenteeism, nonparticipation in classroom and extra-curricular activities, as well as engaging in disruptive or negative classroom behaviours (Fredricks et al., 2004). The emotional dimension of engagement is defined as a student's "feelings, interests, perceptions, and attitudes towards school" (Archambault et al., 2009). Students demonstrate emotional disengagement by refusing to attend school, indicating dissatisfaction or dislike for school, refusing or rejecting participation in school work, and demonstrating boredom while at school (Fredricks et al., 2004). The cognitive dimension of engagement is defined as a student's investment in learning and ability to establish and follow through on task-oriented goals (Archambault et al., 2009; Trowler,

2010). Students demonstrate cognitive disengagement by failing to produce and submit assigned work by expected deadlines, disinterest in educational activities, and lack of effort and motivation to seek appropriately challenging learning opportunities (Fredricks et al., 2004).

Table 1

Examples of School Engagement and Disengagement in a Classroom Setting

	Engagement	Disengagement
Behavioural	<ul style="list-style-type: none"> • Attends class Participates in lectures/lessons	<ul style="list-style-type: none"> • Skips class without excuse Disruptive in lectures/lessons
Emotional	<ul style="list-style-type: none"> • Positive attitude towards school Interested in school work	<ul style="list-style-type: none"> • Dislikes school or refuses to attend Uninterested and/or rejects school work
Cognitive	<ul style="list-style-type: none"> • Motivated to learn Effort to meet or exceed academic expectations	<ul style="list-style-type: none"> • Unwillingness to learn School work is late, rushed, incomplete, or absent

Represented along a continuum of intensity and duration, school engagement can range from brief and situation specific to longstanding and stable (Fredricks et al., 2004). Thus, school disengagement can range in severity from sporadic episodes of disengagement in classroom learning to chronic absenteeism and a persistent disinterest in education (Finn, 1989; Rumberger, 2011). School disengagement is associated with negative outcomes such as poor academic achievement, student boredom, interpersonal difficulties, mental health challenges, and school dropout (Balkis, 2018; Fredricks et al., 2004; Rumberger & Rotermund, 2012; Wang & Eccles, 2012). Students exhibit early signs of school disengagement when demonstrating “poor attention during classroom instruction, decreased participation in class, dissatisfaction with school, failure to complete or submit assignments, and lateness or nonattendance” (Glanville & Widhagen, 2007; Stewart, Klassen, & Hamza, 2016). In fact, school dropout is considered the final stage of the dynamic, additive, and multidimensional progression of school disengagement (Rumberger, 2004). We must recognize early signs of disengagement and be prepared to support students who

are experiencing difficulties engaging in school in order to circumvent the potential consequences of persistent school disengagement, such as early school dropout.

Inconsistent terminology. Despite a growing body of literature on school engagement, confusion exists among researchers about what is being measured and from what perspective due to a lack of consistency in terminology (Fredricks et al., 2004; Trowler, 2010). At times, the term “school engagement” is used to refer to the independent components (i.e., behavioural, emotional, cognitive engagement) rather than the multidimensional concept (i.e., combined behavioural, emotional, cognitive engagement). For example, a considerable amount of research defines “school engagement” as school attendance or absenteeism along with appropriate or problematic behaviour (e.g., Rumberger, 2004); however, focusing specifically on behavioural engagement, this definition neglects to include emotional and cognitive engagement. Inconsistent operationalizations of “school engagement” has led to unpredictable research findings. It is important that the term, “school engagement” be clarified and used accurately moving forward. Throughout this dissertation, the term “school engagement” refers to the multidimensional construct.

Multidimensional construct. Archambault and colleagues (2009) examined student engagement as a global concept (i.e., combined behavioural, emotional, and cognitive) as well as each independent component of engagement (i.e., behavioural, emotional, and cognitive) as associated with school dropout among a sample of French Canadian secondary school students. Findings revealed that although global disengagement is associated with school dropout, only behavioural disengagement (i.e., school attendance and discipline) provided a significant contribution to the prediction equation (Archambault et al., 2009). Consistent with school dropout research, Archambault et al., (2009) revealed that attendance is a significant predictor of

later school dropout (De Witte et al., 2013). Interestingly, the literature suggests that negative school experiences are another significant predictor of school dropout (De Witte et al., 2013). Specifically, negative achievement experiences (i.e., poor achievement, grade retention, credit accumulation deficits), disinterest in education, an externalized locus of control, low motivation, feelings of inferiority and self-defeat, low resilience to overcome adversity, anxiety, aggression, delinquency, substance use, and past suspensions are all factors significantly associated with school dropout (as cited in De Witte et al., 2013). Given the vast overlap between negative school experiences and both emotional and cognitive disengagement, it is possible that emotional and cognitive engagement may be precursor experiences prior to high intensity behavioural disengagement (i.e., absenteeism and eventually school dropout).

An investigation of the multifaceted nature of school engagement among a sample of 1025 American secondary school students revealed the necessity to consider all three components of school engagement in future research (i.e., behavioural, cognitive, emotional engagement; Wang & Peck, 2013). Five distinct school engagement groups were exposed as associated with educational functioning; high school engagement, moderate school engagement, minimal school engagement, emotionally disengaged (i.e., low emotional engagement, moderate behavioural engagement, and high cognitive engagement), and cognitively disengaged (i.e., low cognitive engagement and moderate behavioural and emotional engagement; Wang & Peck, 2013). Emotionally disengaged students were identified to be at the greatest risk for mental health concerns (Wang & Peck, 2013). Due to the presence of behavioural and cognitive engagement, emotionally disengaged students are often perceived by teachers as high performing students despite significant dissatisfaction with school (Wang & Peck, 2013). On the other hand, cognitively disengaged students were found to be at-risk academically, but did not demonstrate

significant mental health challenges. As anticipated, the minimal school engagement group was at the highest risk for school dropout (Wang & Peck, 2013). Consistent with previous findings, behavioural disengagement was a strong predictor of school dropout; however, the presence of behavioural engagement was not sufficient to guarantee academic success (Wang & Peck, 2013). In contrast to previous findings, when combining behavioural disengagement with emotional disengagement, a stronger association to school dropout was observed (Wang & Peck, 2013). Findings highlight the unique components of school engagement and emphasize the necessity to consider the multiple components of school engagement simultaneously when developing educational programming to promote educational success for all students.

1.2.3 School Disengagement Outcomes

Underachievement. School disengagement has a direct and significant effect on academic achievement (Wonglorsaichon, Wongwanich, & Wiratchai, 2014). Students who are engaged in school tend to academically outperform matched peers who are disengaged in school (Wonglorsaichon et al., 2014). A recent study conducted by Gottfried (2014) found that young students who are disengaged in school tend to experience poor math and reading achievement as well as decreased socialization opportunities, especially in the presence of absenteeism. Students who underachieve academically are consistently exposed to negative feedback at school and therefore at an increased risk for disengaging in education. Regular exposure to negative academic experiences (i.e., poor achievement, grade retention, credit accumulation deficits) could adversely impact a student's academic self-efficacy and may influence his or her perspectives towards education. Students may internalize negative feedback and begin to associate themselves with disappointment and failure. A student's emotional experience while at school has been found to be significantly related to engagement in education. Among a sample of 293 students in grades 7 to 10, frequent positive emotions during school was related to higher

levels of engagement while the experience of negative emotions while at school was related to lower levels of engagement (Reschly, Huebner, Appleton, & Antaramian, 2008). Students demonstrating academic achievement deficits from kindergarten to grade twelve tend to have emotional and behavioural concerns that remain stable or increase over time (Nelson, Benner, Lane, & Smith, 2004). Negative achievement experiences are associated with several short and long-term behavioural, social, and emotional problems among school-aged students. Students who achieve poorly in the classroom tend to experience high levels of conduct and delinquent behaviours, substance use problems, peer conflict, adult-child relational issues, mental health and wellbeing concerns, and suicidal behaviours (e.g., Barrowman, Nutbeam & Tresidder, 2001; Hemphala & Hodgins, 2014; Lee, Cornell, Gregory, & Fan, 2011; Liu, Chen, & Lewis, 2011; Quiroga, Janosz, Lyons, & Morin, 2012; Strom & Boster, 2007; Verweij, Huizink, Agrawal, Martin, & Lynskey, 2013; Wang & Peck, 2013). Additionally, students who have persistent negative academic experiences while at school are at an increased likelihood to be absent from school and drop out of school prematurely (Henry, Knight, & Thornberry, 2012).

School refusal behaviours. Initial research on school engagement tended to focus on behavioural engagement. A large body of literature has associated behavioural disengagement with negative school outcomes including school dropout (e.g., Kearney, 2008). Kearney (2008) described a continuum of school refusal behaviours that progress from “school attendance under duress and pleas for non-attendance” to “periodic absences or skipping class” to “complete absence from school for an extended time” (See Figure 1 taken directly from Kearney, 2008). School refusal behaviours are recognized to be exhibited by students for four main reasons: 1) “Avoidance of school-related stimuli that provoke negative affectivity, or general anxiety and depression” (Kearney, 2008, p. 457), 2) “Escape from aversive social and/or evaluative situations

at school” (Kearney, 2008, p. 457), 3) “Pursuit of attention from significant others” (Kearney, 2008, p. 457), and 4) “Pursuit of tangible reinforcers outside the school setting” (Kearney, 2008, p. 457). As suggested by the main reasons for engaging in school refusal behaviours, although defined based solely on behaviour, school refusal behaviours may also involve elements of cognitive and emotional disengagement. In fact, cognitive and emotional disengagement may be present prior to behavioural disengagement that is more easily recognized by classroom teachers and clinicians.

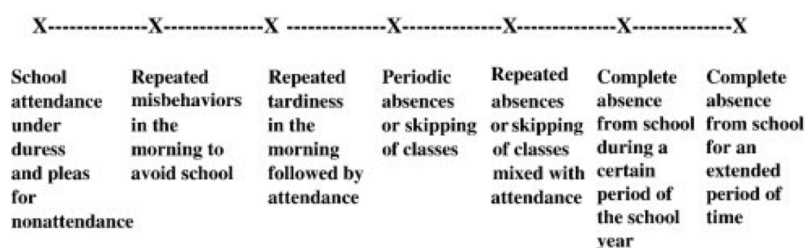


Figure 1 Continuum of school refusal behaviours as described by Kearney (2008)

Absenteeism. Absenteeism is defined by the Oxford dictionary as, “the practice of regularly staying away from school or work without good reason.” Absenteeism has been operationalized as a severe form of school refusal behaviours and is a significant independent predictor of school dropout (e.g., De Witte et al., 2013; Finn, 1993; Finn, Pannozzo, & Voelkl, 1995; Finn & Rock, 1997; Fredricks et al., 2004; Rumberger, 2004). Absence from school can be classified in two ways, (1) excusable due to medical illness or injury or (2) inexcusable and without good reason (Kearney, 2008). In a review of the literature, Kearney (2008) revealed that researchers tend to focus on inexcusable absences rather than absence related to medical illness or injury. Reportedly, school absence is most often due to school withdrawal by parents (e.g., financial difficulties, hide maltreatment, parental illness) or an increasing severity of school refusal behaviours exhibited by the student (e.g., statements of disinterest and refusal,

misbehaviour at school, lateness and skipping class; Kearney, 2003, 2004). Contextual factors associated with absenteeism among students include poverty and homelessness, teenage pregnancy, school violence and victimization, school climate and connectedness, parental involvement, family and community variables, as well as cross cultural variables (Kearney, 2008). Absenteeism is associated with numerous medical and mental health concerns as well as risky health behaviours (e.g., substance use, sexual activity, suicidal behaviours; Kearney, 2008). Yet, some students without comorbid conditions engage in school refusal behaviours and/or absenteeism (Kearney, 2008). Interestingly, the prevalence of inexcusable school absences (i.e., not medical or injury related) among elementary-age students is greater than the prevalence of major childhood behavioural disorders (i.e., depression, substance use, conduct, oppositional defiant, and attention deficit hyperactivity disorder; Costello, Egger, & Angold, 2005). Comorbidity between school refusal behaviours with mental health concerns have been highlighted specifically with depression, anxiety, aggression, and disruptive behaviour disorder (Egger, Costello, & Angold, 2003; Farmer, Burns, Phillips, Angold, & Costello, 2003; Lounsbury, Steel, Loveland, & Gibson, 2004; Tramontina et al., 2001).

School dropout. School dropout is defined as “leaving education without obtaining a minimal credential” (De Witte et al., 2013, p. 14). Specifically, with respect to Canadian children and youth, school dropout is the premature cessation of schooling prior to necessary credit accumulation for completion of the Secondary School Diploma. School dropout is the most severe form of school refusal behaviour and has been identified as the final stage of the dynamic, additive, and multidimensional progression of school disengagement (Rumberger, 2004). Indeed, school dropout is associated with poor immediate and long-term outcomes, including internalizing symptoms, conduct and delinquent behaviours, entering the criminal justice system,

and unemployment (e.g., Christle, Jolivette, & Nelson, 2007; Henry et al., 2012; Strom & Boster, 2007; Wang & Peck, 2013). Although the prevalence of school dropout has slowly declined (Bowlby, 2008), students continue to prematurely withdraw from compulsory formal education. In 2010, 1 in 12 youth across Canada dropped out of school before completion of the Secondary School Diploma (Statistics Canada, 2010). A review of the literature revealed that absenteeism and negative achievement experiences (i.e., poor achievement, grade retention, credit accumulation deficits) are key factors associated with school dropout (De Witte et al., 2013). Other factors associated with school dropout included disinterest in education, an externalized locus of control, low motivation, feelings of inferiority and self-defeat, low resilience to overcome adversity, anxiety, aggression, delinquency, substance use, and past suspensions (as cited in De Witte et al., 2013). Clearly, students who are at risk for school dropout need to be identified and supported to reduce the likelihood for future premature termination of their schooling.

1.3 Measuring School Disengagement

Identifying the signs and early predictors of school disengagement is a crucial task for educators, clinicians, and researchers because understanding the warning signs and potential pathways for intermittent and sustained school disengagement can help guide the creation of effective approaches for addressing and preventing this problem. Although there are many scales available to measure school disengagement, limited measures are available within the context of a comprehensive needs-based assessment (Fredricks & McColskey, 2012). Additionally, measures rarely have clinical utility across service settings and can be used only by limited service providers. This dissertation investigates school disengagement using a new eight-item scale on the interRAI Child and Youth Mental Health assessment (ChYMH; Stewart et al.,

2015), known as the *School Disengagement Scale* (SDeS; Stewart, Klassen, Tohver, 2015). The SDeS can be used across service settings (i.e., schools, community agencies, health care providers) and by a variety of care providers (i.e., educators, nurses, counsellors, social workers, psychologists) to identify early signs of school disengagement among students. The scale addresses each component of the multidimensional concept of school engagement (i.e., behavioural, emotional, cognitive) through an evaluation of school refusal behaviours such as refusal to attend, absenteeism, and disruptiveness at school alongside poor productivity and dissatisfaction with school. See Table 2 for item mapping of the SDeS onto the multifactor model proposed earlier in this chapter. Psychometric evaluation of the scale suggests strong inter-item reliability and construct validity as well as good inter-rater reliability (Stewart et al., 2015).

Table 2

Mapping interRAI's School Disengagement Scale (SDeS) onto the Multifactor Construct of School Disengagement

	Multifactor School Disengagement	interRAI's School Disengagement Scale
Behavioural	<ul style="list-style-type: none"> • Skips class without excuse • Disruptive in lectures/lessons 	<ul style="list-style-type: none"> • Increase in lateness or absenteeism • Poor productivity or disruptiveness at school • Conflict with school staff • Currently removed due to disruptive behaviour
Emotional	<ul style="list-style-type: none"> • Dislikes school or refuses to attend • Uninterested and/or rejects school work 	<ul style="list-style-type: none"> • Strong persistent dissatisfaction with school • Currently refuses to attend school
Cognitive	<ul style="list-style-type: none"> • Unwillingness to learn • School work is late, rushed, incomplete, or absent 	<ul style="list-style-type: none"> • Expresses intent to quit school • Overall academic performance

1.4 Summary

Despite significant research efforts focused on understanding engagement in school, confusion exists due to a lack of consistency in the operationalization of terminology. The present dissertation investigated school disengagement using a newly validated scale from a comprehensive needs-based assessment that is widely used across service settings in the province of Ontario (Stewart, Klassen, & Tohver, 2015). interRAI's SDeS is intended to support early identification of students at risk for poor educational outcomes such as academic failure, chronic absenteeism, and school dropout. There is a dearth of research investigating school disengagement among clinically referred students. There is a need to better understand the factors that may be impacting school disengagement among clinical samples of students to better serve their treatment needs within the community and the school. Identifying students who are experiencing school disengagement could lead to tailored programming to re-engage students in learning and education prior to chronic absenteeism or significant negative academic experiences.

Taken together, this research extends the existing literature on school outcomes by providing further information regarding clinically referred students, specifically as pertaining to school disengagement. Overall objectives of the thesis are: 1) to identify factors associated with school disengagement among clinically referred children and youth; 2) to investigate the relationships between other- and self-directed harm and school disengagement among clinically referred students across elementary and secondary school; and 3) to evaluate the service intensity need for clinically referred students as associated with school disengagement and reason for referral.

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Chapter 2

2 <<Investigating health adversity and school engagement among clinically referred children and youth using the interRAI Child and Youth Mental Health Assessment>>

Abstract

Students faced with health problems are often disadvantaged with respect to many educational outcomes. Social skills and personal strengths can support school engagement and promote educational success. The present study investigated how individual (e.g., specific talent) and relational (e.g., positive peer relationships) strengths and certain forms of engagement (e.g., participation in extracurricular activities) mitigate the distressing impact of physical and mental health concerns on school engagement among 8218 clinically referred elementary and secondary school students. Findings confirmed that the presence of significant physical and mental health distress is associated with greater school engagement problems among students. Further, individual and relational strengths were found to be associated with school engagement among both children and youth. Among school-age children (ages 4 to 11 years), school engagement problems were predicted by male sex, older age, medical problems, internalizing symptoms, externalizing problems, and relational problems. Relatedly, school engagement problems were predicted among youth (ages 12 to 18 years) by male sex, sleep problems, externalizing problems, low individual strengths and engagement, and relational problems. Considerations for promoting school engagement within the school context through an emphasis on relational and individual skills development are provided.

Keywords: Physical health; Mental health; Sleep; Social skills; Talents; School engagement; interRAI ChYMH

2.1 Introduction

When students are in good health, they are physically and mentally available to engage in their education. School engagement is a student's meaningful involvement in education through interest, curiosity, motivation, and active participation (Fredricks, Blumenfeld, & Paris, 2004). Roughly 30% of school-age children are living with chronic physical health conditions such as cancer, diabetes, or respiratory problems (Martinez & Ercikan, 2009; McDougall et al., 2004). Studies have consistently revealed that students who experience health adversity are at an increased risk for poor school outcomes including poor achievement, disengagement in learning, grade retention, and even school dropout (e.g., Forrest, Bevans, Riley, Crespo, & Louis, 2011; Gräf et al., 2019; Hoffmann et al., 2018; Quiroga, Janosz, Bisset, & Morin, 2013).

Students living with chronic physical health conditions are twice as likely as the general population to experience educational and mental health challenges (Martinez & Ercikan, 2009). Relatedly, about 20% of school-age children and youth are suffering with significant mental health challenges such as attention deficit/hyperactivity disorder, anxiety, or depression (Kirby & Keon, 2004, 2006; Offord, Boyle, Fleming, Blum, & Grant, 1989). Mental health concerns (i.e., attention deficit hyperactive disorder, anxiety, depression, suicidality, antisocial or disruptive behaviour, substance use, aggression) have demonstrated strong associations with negative school outcomes including poor achievement, disengagement in school, school refusal, and school dropout (e.g., Breslau et al., 2009; DeSocio & Hootman, 2004; Haight, Chapman, Hendron, Loftis, & Kearney, 2014; Hemphälä & Hodgins, 2014; Serbin et al., 2010; Stewart, Klassen, & Hamza, 2016; Verweij, Huizink, Agrawal, Martin, & Lynskey, 2013).

Sleep problems are common among children and youth and often comorbid with physical and mental health concerns (Chorney, Detweiler, Morris, & Kuhn, 2008; Gregory & Sadeh,

2012). Students who are sleep deprived are more likely to experience difficulties with attention, decision making, impulsivity, coping with changes, and rapid mood swings (for a review see Chaput et al., 2016). Sleep problems may lead to physical or mental health difficulties or may be resultant from such difficulties.

Mental, physical, and sleep related problems are highly associated with inconsistent school attendance and prolonged absences. As such, students who face health adversity have fewer opportunities for academic and social skills development alongside healthy peers (Quin & Hemphill, 2014). Indeed, students who experience illness-related school absences are at greater risk for poor academic achievement including an increased likelihood for grade retention and the requirement of remedial services (Schatz, 2004). Even those who can physically attend school may find it challenging to focus their attention and engage in their academics when simultaneously dealing with physical pain, intrusive thoughts, low motivation, or behavioural challenges within the school setting (Forest et al., 2011; Quiroga et al., 2013).

To better understand the complexity of an individual's circumstances, the differential impact of these problems should be considered within the context of specific strengths (Antaramian, Huebner, Hills, & Valois, 2010). School outcomes, including school engagement, are positively influenced among children and youth by wellbeing factors such as self-confidence, self-esteem, optimism, adaptive coping skills, and interpersonal skills (Li, Allen, & Casillas, 2017; Reschly, Huebner, Appleton, & Antaramian, 2008; Stankov, Lee, Luo, & Hogan, 2012). Students who have a positive attitude, believe in themselves and their abilities, and are secure in their relationships are likely to experience confidence. Not surprisingly, fostering student interests and talents has also revealed promising results in promoting engagement in education, possibly through building self-confidence and a sense of belonging within the school

community. Indeed, when investigating educational outcomes among middle school students, school outcomes were best when students reported strong positive wellbeing factors in the absence mental health distress (Antaramian et al., 2010).

Interpersonal skills are also important for supporting a student's wellbeing and self-esteem through the ability to self-regulate, communicate effectively with others, and establish and maintain relationships over time (Pollard & Lee, 2003; Webster-Stratton & Reid, 2004). Indeed, social behaviours and communication skills are positively predictive of academic functioning among elementary students (Malecki & Elliott, 2002). Within the school setting, students who do not observe social and behavioural conventions are at an increased risk for peer rejection and victimization (Espelage, Hong, Roa, & Low, 2013; Forrest, Bevans, Riley, Crespo, & Louis, 2013; Hoglund, Lalonde, & Leadbeater, 2008; Nakamoto & Schwartz, 2010). Like peer relationships, familial relationships and support impact school outcomes. Overall, parental support and involvement in education and learning has a positive impact on a student's engagement and achievement (e.g., Jaiswal & Choudhuri, 2017; Li et al., 2017; Mo & Singh, 2008; Wilder, 2014). A review of the literature indicated that parental attitudes and involvement in education and learning is important for school engagement and achievement among elementary and middle school students (Jaiswal & Choudhuri, 2017). Ultimately, a student's social influences have the potential to both mitigate and exasperate school-related concerns. As such, students who report positive and supportive relationships with peers and family tend to be less likely to experience school problems.

Although findings consistently suggest that physical and mental health problems negatively impact school outcomes and positive wellbeing factors promote educational success, a gap exists in the literature extant with respect to school engagement among highly distressed

students. Most research on school engagement tends to focus on school-based and community samples of elementary and secondary school students (e.g., Antaramian et al., 2010; Fredricks et al., 2004). Indeed, there is a dearth of research investigating school engagement among clinical samples of students across elementary and secondary school. By determining the contributions of physical and mental health distress alongside individual and relational strengths, a more comprehensive understanding of factors influential to school engagement among our highest needs students can be determined.

Taken together, previous research suggests that the presence of positive wellbeing factors attenuates the impact of significant health problems on educational outcomes. Thus, when investigating school outcomes as associated with health concerns, one must consider potential mitigating factors to gain a clearer understanding of complex interaction patterns. As such, it is plausible that the presence of individual and relational strengths would make a difference in educational outcomes when students are burdened by physical and mental health concerns. In this study, individual and relational strengths were investigated together with symptoms of physical and mental health problems to better understand the complexity of a student's circumstances. Increasing our knowledge regarding school disengagement among our high-needs students will support the creation and implementation of effective approaches for addressing and preventing poor educational outcomes.

2.1.1 Current Study

Several studies suggest that health problems negatively impact school outcomes for children and youth. In contrast, positive wellbeing factors have been identified to support positive school outcomes among students. Importantly, limited research has considered how individual and relational strengths may mitigate the negative impact of significant physical and mental health distress and its impact on school engagement among clinically referred students.

The present study addressed this gap in the literature by using a novel comprehensive assessment instrument to examine school engagement among clinically referred students. It was hypothesized that students who exhibit high levels of physical and mental health problems (i.e., medical diagnoses, internalizing symptoms, externalizing problems, and sleep problems) would be at greater risk for school engagement problems. In contrast, those students who exhibited high levels of individual and relational (i.e., peer and familial) strengths were predicted to be at a lower risk for school engagement problems. Finally, when considering physical and mental health symptoms alongside individual and relational strengths, it was anticipated that student strengths would mitigate the impact of significant physical and mental health concerns.

2.2 Methods

2.2.1 Participants

A convenience sample of 8218 clinically referred English-speaking school-aged children (n=3644; ages 4 to 11 years old) and youth (n=4574; ages 12 to 18 years old) was investigated. Participants in this study accessed mental health services at one of the forty-eight participating mental health agencies across the Province of Ontario through self-referral, referral by healthcare professionals (e.g., family physician or pediatrician) or referral by mental health professionals (e.g., counsellor or social worker). All participants were reported to be enrolled in school part-time or full-time and did not have a suspected or identified developmental disability at the time of their involvement. Participants did not receive any direct benefits for their contributions to this study and health care provided by each community mental health agency was not hindered by data collection. Approximately 47.2 percent of children and 47.2 percent of youth were found to be at risk for school disengagement. Refer to Tables 3 and 4 for more detailed participant characteristics.

Table 3*Participant Characteristics for the Child and Youth Samples*

	Children (n=3644) (4 to 11 years)	Youth (n=4574) (12 to 18 years)
Age	<i>M</i> =8.54 <i>SD</i> =1.87	<i>M</i> =14.66 <i>SD</i> =1.76
Biological Sex		
Male	2556 (70.1%)	2240 (49.0%)
Female	1088 (29.9%)	2334 (51.0%)
Patient Type		
Inpatient	159 (4.4%)	405 (8.9%)
Outpatient	3485 (95.6%)	4169 (91.1%)
School Level		
Kindergarten (Junior-Senior)	264 (7.2%)	N/A
Elementary School (Grades 1-6)	3380 (92.8%)	N/A
Middle School (Grades 7-8)	N/A	1395 (30.5%)
Secondary School (Grades 9-12)	N/A	3179 (69.5%)
Living Arrangement		
With parents or primary caregivers	3415 (93.7%)	4035 (88.2%)
With sibling(s), no parents	*	17 (0.4%)
With other relative(s)	89 (2.4%)	143 (3.1%)
With foster family	101 (2.8%)	147 (3.2%)
With nonrelative(s), excluding foster family	14 (0.4%)	189 (4.1%)
Alone	* 17 (0.5%)	43 (0.9%)
Involvement in Structured Activities		
Extracurricular lessons/classes	1468 (40.3%)	1334 (29.2%)
Volunteering	159 (4.4%)	773 (16.9%)
Organized club or team program	1417 (38.9%)	1381 (30.2%)
Medical Diagnosis		
Asthma	317 (8.7%)	416 (9.1%)
Diabetes	11 (0.3%)	41 (0.9%)
Epilepsy	58 (1.6%)	59 (1.3%)
Migraines	22 (0.6%)	128 (2.8%)
Concussion	266 (7.3%)	581 (12.7%)
Traumatic Brain Injury	21 (0.6%)	37 (0.8%)
Internalizing Symptoms (<i>r</i> =0-48)	<i>M</i> =8.73 <i>SD</i> =7.71	<i>M</i> =11.85 <i>SD</i> =9.21
Externalizing Behaviours (<i>r</i> =0-24)	<i>M</i> =8.56 <i>SD</i> =4.71	<i>M</i> =5.92 <i>SD</i> =4.90
Sleep Problems (<i>r</i> =0-16)	<i>M</i> =3.52 <i>SD</i> =3.54	<i>M</i> =3.60 <i>SD</i> =3.61

Note. * Ethics approval prohibits reporting on groups smaller than ten participants.

Table 4*Frequencies for Item Clusters for the Total, Children, and Youth Samples*

	Total Sample (4 to 18 years old) N=8218	Children (4 to 11 years old) n=3644	Youth (12 to 18 years old) n=4574
Individual Strengths			
None	346 (4.2%)	146 (4.0%)	200 (4.4%)
One	1046 (12.7%)	409 (11.2%)	637 (13.9%)
Two	1947 (23.7%)	849 (23.3%)	1098 (24.0%)
Three	2036 (24.8%)	934 (25.6%)	1102 (24.1%)
Four	1699 (20.7%)	778 (21.4%)	921 (20.1%)
Five or more	1144 (13.9%)	528 (14.5%)	616 (13.5%)
Peer Relational Problems			
None	2846 (34.6%)	1229 (33.7%)	1617 (35.4%)
One	1507 (18.3%)	663 (18.2%)	844 (18.5%)
Two	1354 (16.5%)	633 (17.4%)	721 (15.8%)
Three	1157 (14.1%)	509 (14.0%)	648 (14.2%)
Four	712 (8.7%)	326 (8.9%)	386 (8.4%)
Five	341 (4.1%)	155 (4.3%)	186 (4.1%)
Six or more	301 (3.7%)	129 (3.5%)	172 (3.8%)
Family Relational Problems			
None	2546 (31.0%)	1263 (34.7%)	1283 (28.0%)
One	1738 (21.1%)	804 (22.1%)	934 (20.4%)
Two	1410 (17.2%)	653 (17.9%)	757 (16.6%)
Three	1142 (13.9%)	499 (13.7%)	643 (14.1%)
Four	744 (9.1%)	266 (7.3%)	478 (10.5%)
Five	428 (5.2%)	123 (3.4%)	305 (6.7%)
Six or more	210 (2.5%)	36 (0.9%)	174 (3.8%)

2.2.2 Procedure and Ethical Considerations

Data collection using the *interRAI Child and Youth Mental Health Assessment* (ChYMH; Stewart et al., 2015) took place from November of 2012 to January 2018 across forty-eight participating community mental health agencies in Ontario, Canada. Trained assessors completed the interRAI ChYMH assessment with clients and their caregivers at the time of intake into

clinical services as part of typical clinical practice. Using a semi-structured interview format, the intake interviews were estimated to be 60-90 minutes and were conducted in person or over the phone. Each client who completes an interRAI ChYMH assessment is automatically assigned a randomly generated case record number and the de-identified data is stored on the interRAI Canada secure server. To further protect the identity of participants with unique profiles or rare diagnoses, results with fewer than five participants in each cell were not reported. Approval for collection and examination of the data investigated in this study was granted by the University ethics board. Although available to the mental health agencies for clinical purposes, no identifiable personal information was collected for this study. A randomly generated case record number was assigned to each participant before data was stored for the purposes of research. Data is stored on the interRAI Canada secure server (VPN protected with additional security measures to protect the identify of participants) at a partner University. All analyses presented in this study were completed with SPSS version 25.0 software (IBM Corp., Armonk, NY, USA).

2.2.3 Measures

The interRAI Child and Youth Mental Health Assessment (ChYMH; Stewart et al., 2015).

As a comprehensive assessment tool for school-age children and youth, the interRAI ChYMH features a broad range of clinical elements including medical, psychological, social, behavioural, and environmental factors along with indicators of resilience, preference, need, and risk.

Designed to promote evidence-informed clinical decision making, scales and algorithms are embedded within the instrument for measuring symptom intensity to inform level of risk and to guide intervention planning. Early identification of risk and needs can support enhanced triaging and targeted intervention for vulnerable populations. Additional information regarding the interRAI assessment suites can be found on the interRAI website (www.interrai.org). Rigorous

reliability and validity studies have been conducted across the suite of instruments displaying strong psychometric properties for scales and algorithms developed specifically for children and youth populations (e.g., Hirdes et al., 2020; Lau, Stewart, Saklofske, & Hirdes, 2019; Lau, Stewart, Saklofske, Tremblay, & Hirdes, 2018; Stewart & Babcock, 2020; Stewart, Babcock, Li, & Dave, 2020; Stewart & Hamza, 2017; Stewart, Celebre, Hirdes & Poss, 2020; Stewart, Celebre, Hirdes & Poss, submitted 2020; Stewart, Morris, Asare-Bediako, & Toohey, 2019; Stewart, Poss, Thornley & Hirdes, 2019). Details are provided for the interRAI ChYMH items and scales which were utilized in the current research to investigate factors associated with the risk for school disengagement among clinically referred children and youth.

School disengagement. School disengagement was measured using the *School Disengagement Scale* (SDeS); an eight-item scale including items that address behavioural, emotional, and cognitive disengagement (Stewart, Klassen, & Tohver, 2015). The presence (0 = no, 1 = yes) of eight items were recorded by assessors (i.e., increased lateness or absenteeism, poor productivity or disruptiveness at school, conflict with school staff, current removal from school due to disruptive behaviour, strong persistent dissatisfaction with school, current refusal to attend school, expresses intent to quit school, and poor overall academic performance) and summed to provide a score ranging from zero to eight. Consistent with validation research, scores at or greater than two suggest heightened risk for school disengagement while scores less than two suggest that the student was engaged in school (Stewart et al., 2015).

Internalizing symptoms. Internalizing symptoms were measured using the *Internalizing Mental Health Scale* (CY-INT), which measures the frequency and severity of indicators of anxiety (i.e., repetitive anxious complaints or concerns, unrealistic fears, episodes of panic, and hypervigilance), anhedonia (i.e., decreased energy, lack of motivation, withdrawal from activities

of interest, and anhedonia), and depression (i.e., expressions of hopelessness, expressions of guilt/shame, self-deprecation, and made negative comments; Lau et al., 2019). CY-INT scores were determined by summing twelve items which were rated on a scale of zero to four (from 0 = *Not present*, to 4 = *Exhibited daily in last 3 days, 3 or more episodes or continuously*). Scores on the CY-INT range from zero to 48 where higher scores were indicative more severe internalizing symptoms. Previous findings suggest that the CY-INT has strong psychometric properties and in the current study, the CY-INT scale was found to have good reliability, $r = 0.83$.

Externalizing behaviours. Externalizing behaviours were measured using the *Externalizing Mental Health Scale* (CY-EXT), which measures the frequency and severity of indicators of proactive aggression (i.e., stealing, elopement threats/attempts, bullying peers, preoccupation with violence, violent ideation, violence to others, and intimidation of others or threatened violence) and reactive aggression (i.e., impulsivity, argumentativeness, outbursts of anger, defiant behaviour, and physical abuse; Lau et al., 2019). CY-EXT scores were determined by summing twelve items which were rated on a scale of zero to two (i.e., 0 = *Not present*, 1 = *Previously present*, 2 = *Present in the last 3 days*). Scores on the CY-EXT range from zero to 24 where higher scores were indicative more severe externalizing behaviours. Previous findings suggest that the CY-EXT has strong psychometric properties and in the current study, the CY-EXT scale was found to have good reliability, $r = 0.85$.

Sleep problems. Sleep problems were measured using the *Sleep Difficulties Scale* (CY-SLEEP), which measures the frequency and severity of four sleep problems, including difficulty falling asleep or staying asleep, wakes up multiple times at night, falls asleep during the day, and resists bedtime (Stewart & Hamza, 2017). CY-SLEEP scores were determined by summing four items which were rated on a scale of zero to four (from 0 = *Not present*, to 4 = *Exhibited daily in*

last 3 days, 3 or more episodes or continuously). Scores on the CY-SLEEP range from zero to 16 where higher scores were indicative of more severe sleep problems. Consistent with previous findings, the Cronbach's alpha for the four items on the CY-SLEEP scale used in this study was found to be questionable, $r = 0.64$.

Medical problems. Children and youth who have previously or are currently managing significant medical diagnoses that could impact their ability to engage in school were identified based on available medical information collected using the ChYMH. For this study, a composite variable was developed based on the presence (0 = *Never present* or 1 = *Present or previously present*) of asthma, diabetes, epilepsy, migraines, concussion, and traumatic brain injuries as recorded by assessors. The medical problems item cluster ranges from zero to six where higher scores were indicative of the presence of a higher number of medical diagnoses.

Individual strengths and engagement. Individual strengths and engagement was identified based on five items collected using the ChYMH that reflect unique advantages both within and outside of the school setting that may support a child or youth during challenging life circumstances. For this study, a composite variable was developed based on the presence (0 = *No* or 1 = *Yes*) of a notable talent (e.g., excels in visual arts, performing arts, athletics), a consistent positive outlook, having a confidant, involvement in school-based activities (e.g., athletics, clubs, student council), and good school performance in last six months were recorded by assessors. The individual strengths and engagement item cluster ranges from zero to five where higher scores were indicative of greater individual strengths and engagement both within and outside the school setting.

Peer relational problems. Peer relational problems were identified based on eight items collected using the ChYMH to reflect difficulties in peer relationships among children or youth.

For this study, a composite variable was developed to assess peer relational problems based on a dichotomized response set (0 = *No* or 1 = *Yes*) for conflict with or repeated criticism of close friends, friends are persistently hostile, peer group includes individuals with persistent antisocial behaviour, pervasive conflict with peers, and bullying peers as recorded by assessors.

Additionally, the presence or absence of strong and supportive relationships with friends/peers, social inclusion by peers, and has at least one friend with whom visits/plays regularly were reverse coded. The peer relational problems item cluster ranges from zero to eight where higher scores were indicative of greater peer relational problems.

Family relational problems. Family relational problems were identified based on seven items collected using the ChYMH that reflect difficulties in family relationships among children or youth. For this study, a composite variable was developed to assess family relational problems based on a dichotomized response set (0 = *No* or 1 = *Yes*) for conflict with or repeated criticism of family, family are persistently hostile, family is unwilling/unable to care for child/youth, family feels overwhelmed by child/youth, parents' express feelings of anger, distress, or depression, family experienced major life stressor in last 90 days, and strong supportive family relationships (reverse coded) as coded by assessors. The family relational problems item cluster ranges from zero to seven where higher scores were indicative of greater family relational problems.

2.3 Results

2.3.1 Bivariate Analyses

In the present study, 1721 (47.2 percent) of the children (n=3664) and 2160 (47.2 percent) of the youth (n=4574) met the cut off (2+) for risk of school disengagement. Compared to children (ages 4 to 11) who were at low risk for school disengagement, children who were at heightened risk for being disengaged in school reported greater internalizing symptoms ($M_{engaged}$

= 7.12, $SD = 6.60$; $M_{disengaged} = 10.54$, $SD = 8.43$), $t(3249.65) = -13.51$, $p < .001$, externalizing behaviours ($M_{engaged} = 6.95$, $SD = 4.45$; $M_{disengaged} = 10.37$, $SD = 4.31$), $t(3619.57) = -23.52$, $p < .001$, and sleep problems ($M_{engaged} = 3.00$, $SD = 3.29$; $M_{disengaged} = 4.10$, $SD = 3.72$), $t(3454.14) = -9.40$, $p < .001$. Similarly, compared to youth (ages 12 to 18) who were at low risk for school disengagement, youth who were at heightened risk for disengagement in school reported greater internalizing symptoms ($M_{engaged} = 10.42$, $SD = 8.63$; $M_{disengaged} = 13.45$, $SD = 9.57$), $t(4372.76) = -11.19$, $p < .001$, externalizing behaviours ($M_{engaged} = 4.36$, $SD = 4.23$; $M_{disengaged} = 7.67$, $SD = 5.01$), $t(4249.10) = -23.96$, $p < .001$, and sleep problems ($M_{engaged} = 2.85$, $SD = 3.11$; $M_{disengaged} = 4.43$, $SD = 3.94$), $t(4096.13) = -1514.97$, $p < .001$. Findings suggest that high risk for school disengagement as compared to low risk for school disengagement, is associated with greater internalizing symptoms, externalizing behaviours, and sleep problems for both children and youth.

Chi-square tests of independence were performed to investigate if each of the six reported medical diagnoses (i.e., Asthma, Diabetes, Epilepsy, Migraines, Concussion, and Traumatic Brain Injury) were associated with heightened risk for school disengagement among children and youth. Findings revealed that children who reported concussions ($\chi^2(1) = 14.54$, $p < .000$; Cramer's $V = .063$, $p < .001$) and traumatic brain injuries ($\chi^2(1) = 4.96$, $p = .026$; Cramer's $V = .037$, $p = .026$) were more likely to be at risk for school disengagement (concussions 58.5%; traumatic brain injury 71.4%) than considered to be engaged in school. Additionally, trends were revealed such that epilepsy ($\chi^2(1) = 3.07$, $p = .080$; Cramer's $V = .029$, $p = .080$) and migraines ($\chi^2(1) = 2.95$, $p = .086$; Cramer's $V = .028$, $p = .086$) are associated with poorer school engagement among children. Furthermore, youth who reported asthma ($\chi^2(1) = 5.16$, $p = .023$; Cramer's $V = .034$, $p = .023$), diabetes ($\chi^2(1) = 6.43$, $p = .011$; Cramer's $V = .037$, $p = .011$) and

concussions ($\chi^2(1) = 4.43, p = .035$; Cramer's $V = .031, p = .035$) were more likely to be at risk for school disengagement (asthma 52.5 percent; diabetes 66.7 percent; concussions 51.3 percent) than considered to be engaged in school.

Next, a chi-square test of independence was performed to investigate the relation between individual strengths and risk for school disengagement among children and youth. Fewer individual strengths were found to be significantly associated with risk of school disengagement for children ($\chi^2(5) = 568.95, p < .000$) and youth ($\chi^2(5) = 868.85, p < .000$) with large effects (Cramer's $V = .395, p < .001$ and Cramer's $V = .436, p < .001$, respectively). Further, a chi-square test of independence was performed to investigate the relation between peer relational problems and school disengagement among children and youth. Peer relational problems were found to be significantly associated with risk of school disengagement for children ($\chi^2(8) = 469.12, p < .000$) and youth ($\chi^2(8) = 488.79, p < .000$) with large effects (Cramer's $V = .359, p < .001$ and Cramer's $V = .327, p < .001$, respectively). Lastly, a chi-square test of independence was performed to investigate the relation between family relational problems and risk of school disengagement among children and youth. Family relational problems were found to be significantly associated with risk of school disengagement for children ($\chi^2(7) = 251.27, p < .000$) and youth ($\chi^2(7) = 337.78, p < .000$) with large effects (Cramer's $V = .263, p < .001$ and Cramer's $V = .272, p < .001$, respectively).

2.3.2 Multivariate Analyses

First, a binary logistic regression analysis was used to predict the presence/absence of risk of school disengagement for children ages 4 to 11 years old from sex, age, internalizing symptoms, externalizing behaviours, medical problems, peer relational problems, and family relational problems. The full model provided a significantly better fit to the data than the constant-only model, indicating that the predictors, when taken together, reliably distinguish

between those who experience risk of school disengagement and those who do not ($\chi^2=805.82$, $df=7$, $p < .001$). A goodness of fit model was evidenced by non-statistically significant results on the Hosmer-Lemeshow test, $\chi^2 (n=3644) = 6.73$, $df=8$, $p = .566$. Classification estimates indicated that the model correctly predicted 69.7 percent of the cases. Results indicated that of the seven predictors in the model, older age, male sex, internalizing symptoms, externalizing behaviours, medical problems, poor peer relationships, and poor family relationships significantly predicted risk of school disengagement. Table 5 presents the results for the model including the regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals.

Table 5

Regression Analysis: School Disengagement Among Children 4 to 11 Years Old

Predictor	<i>B</i>	Wald chi-square	Odds ratio Exp(<i>B</i>)	95% confidence interval	<i>p</i> value
Biological sex	-.598	50.872	.550	[.466, .648]	.000
Age	.049	5.691	1.050	[1.009, 1.093]	.017
Internalizing Symptoms	.025	21.234	1.025	[1.014, 1.036]	.000
Externalizing Behaviours	.101	99.916	1.106	[1.084, 1.128]	.000
Medical Problems	.175	4.315	1.191	[1.010, 1.405]	.038
Peer Relational Problems	.304	148.453	1.355	[1.290, 1.423]	.000
Family Relational Problems	.116	17.115	1.123	[1.063, 1.186]	.000

Next, a binary logistic regression analysis was used to predict the presence/absence of risk of school disengagement for youth ages twelve to eighteen years old from sex, internalizing symptoms, externalizing behaviours, sleep, peer relational problems, family relational problems,

and individual strengths. The full model provided a significantly better fit to the data than the constant-only model, indicating that the predictors, when taken together, reliably distinguish between those who experience risk of school disengagement and those who do not ($\chi^2=1360.514$, $df=7$, $p < .001$). A goodness of fit model was evidenced by non-statistically significant results on the Hosmer-Lemeshow test, $\chi^2 (n=4574) = 8.260$, $df=8$, $p = .409$. Classification estimates indicated that the model correctly predicted 72.8% of the cases. Results indicated that of the seven predictors in the model, male sex, externalizing behaviours, sleep problems, less individual strengths, poor peer relationships, and poor family relationships significantly predicted risk of school disengagement. That is, internalizing symptoms was not found to be predictive for risk of school disengagement among youth. Table 6 presents the results for the model including the regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals.

Table 6

Regression Analysis: School Disengagement Among Youth 12 to 18 Years Old

Predictor	<i>B</i>	Wald chi-square	Odds ratio Exp(<i>B</i>)	95% confidence interval	<i>p</i> value
Biological sex	-.288	15.242	.750	[.649, .866]	.000
Internalizing Symptoms	.002	.216	1.002	[.994, 1.010]	.642
Externalizing Behaviours	.084	90.877	1.088	[1.069, 1.107]	.000
Sleep Problems	.084	57.765	1.087	[1.064, 1.111]	.000
Individual Strengths	-.609	431.457	.544	[.513, .576]	.000
Peer Relational Problems	.093	16.054	1.097	[1.049, 1.148]	.000
Family Relational Problems	.103	21.926	1.108	[1.062, 1.157]	.000

2.4 Discussion

Although a large body of research exists examining school engagement, it is rare to find studies that examine the simultaneous presentation of health adversity alongside individual and relational strengths particularly among clinical samples of students. The present study extends current research by analyzing data collected using a new comprehensive assessment tool to explore the associations between physical and mental health as well as individual and relational strengths and school engagement among clinically referred elementary and secondary school-aged students. As hypothesized, physical and mental health distress were found to be associated with greater risk for school engagement problems. In contrast, individual and relational strengths were found to be associated with school engagement. Differences exist in the predictive power of the examined factors for children (4 to 11 years) and youth (12 to 18 years). Based on the models of best fit, consistent predictors of school engagement problems among children and youth included male sex, externalizing symptoms, and relational problems (i.e., peer and familial). Importantly, older age, medical problems, and internalizing symptoms were uniquely predictive of school engagement problems among *clinically referred children* while sleep problems and low individual strengths were uniquely predictive of school engagement problems among *clinically referred youth*. Explanations for the discrepant predictors for school engagement problems are explored for clinically referred students.

Good health, which encompasses the physical, mental, and social wellbeing of an individual, promotes favourable school outcomes (Forrest et al., 2013). Previous research indicated that chronic health conditions affect overall school performance, particularly early in primary school (Hoffman et al., 2018). In the present study, although externalizing symptoms were found to be predictive of school engagement problems among all students, medical

problems and internalizing symptoms (i.e., symptoms of anxiety, depression, and anhedonia) were only found to be predictive of school engagement problems among kindergarten and elementary age students. Certainly, young children with health care needs are at high risk for poor school outcomes including poor attendance, low motivation to do well in school, low academic achievement, and poor social competence (Forest et al., 2011; Forrest et al., 2013). School engagement problems may be experienced by young children with health problems due to illness-related absences (i.e., sick days, medical appointments) and behavioural challenges related to illness management (i.e., medication or school refusal; DeSocio & Hootman, 2004). Further, social difficulties are common among children with health concerns likely due to inconsistent social interactions as well as ongoing behavioural and emotional regulation difficulties. Social skills development among young children with health concerns may be lagging due to reduced opportunities to develop social skills within supervised settings such as within the classroom and on the playground. Further, young children might not have the language required to describe their experience of internalizing symptoms and are more likely than older students to have poor emotion regulation skills. Students who are better able to regulate their emotions, particularly within the school setting, tend to earn higher grade point averages than peers who experienced emotional dysregulation (Li et al., 2017). Nonetheless, internalizing problems as experienced among children may be more obvious than among older students due to an increased capacity for self-regulation among teens. Interestingly, a systemic review of the functional impairments experienced by students diagnosed with anxiety disorders identified several academic and social problems (de Lijster et al., 2018). Although self-report data indicates a noteworthy sense of impairment within the school setting, discrepancies in findings were noted for academic achievement among students diagnosed with anxiety disorders

when compared to peers (de Lijster et al., 2018). In contrast, consistent results revealed that students diagnosed with anxiety disorders were at higher risk for school refusal and less likely to attend post-secondary education compared to peers (de Lijster et al., 2018). It is possible that as students increase in their capacity to regulate their experience of anxiety or perfectionistic behaviours, this might motivate older students to engage in their learning rather than inhibit their ability to both physically and mentally attend to their learning as often occurs in younger children. Additionally, young girls may be better able to share or express internalizing concerns than their male counterparts who may be more inclined to express their distress through externalizing behaviours. Further, social problems including low social competence, interpersonal difficulties, elevated reports of loneliness, and peer-victimization were reported among students diagnosed with anxiety disorders (de Lijster et al., 2018).

Unlike younger children, youth in middle and secondary school who were at risk for school engagement problems presented with significant sleep problems. Inconsistent with typical school schedules, youth tend to report greater mental and physical alertness in the evening, resulting in a shifted sleep schedule to stay up late in the evening and sleep in during the day (Bruni et al., 2015). In a systematic review, Chaput and colleagues (2016) outlined that shorter sleep duration is associated with adverse physical and mental health outcomes. Sleep is vital to maintain physical health and to support healthy brain functioning; damaged cells and tissues can be repaired, hormones are balanced, and neural networks are consolidated to support learning and memory. Specifically, longer sleep duration is associated with lower signs of obesity as well as better emotion regulation, academic achievement, and self-reported quality of life (Chaput et al., 2016). A lack of sleep therefore impacts both physical growth and development along with emotional and behavioural regulation.

Notably, youth often have poor sleep hygiene (e.g., inconsistent sleep and wake times; variable bedtime routines; unpredictable lighting, temperature, and noise levels) which is associated with significant sleep problems (Bartel, Gradisar, & Williamson, 2015; Martin et al., 2020). Sleep problems may be further influenced for youth by mental health concerns, academic pressures, extracurricular activities, substance experimentation, and increased use of technology (e.g., video gaming, television, internet use, phone use, social networking; Bartel et al., 2015; Bruni et al., 2015; Chaput et al., 2016; Gregory & Sadeh, 2012). Indeed, video gaming and use of technology (i.e., phone, computer, and internet) are related to delayed bedtimes among youth, while substance use (i.e., tobacco and caffeine), computer use, and a negative family environment are related to reduced sleep duration (Bartel et al., 2015). Compared to children, youth who have sleep problems may experience greater difficulties with absenteeism, tardiness, and attending to lessons due to increased daytime fatigue, limiting their availability to fully engage in their learning. Taken together, support to develop good sleep hygiene habits may be beneficial for youth who are experiencing sleep problems and/or at risk for negative school outcomes such as school disengagement.

Consistent with research suggesting that positive wellbeing factors such as self-confidence, self-esteem, optimism, adaptive coping skills, and interpersonal skills can have a positive impact on school outcomes, low individual strengths were revealed to be predictive of school engagement problems among youth. That is, youth who reported notable talents, optimism, social connectedness, and involvement in extra-curricular activities were more likely to be engaged in school than at risk for school engagement problems. Adolescence is a critical period during which individuals develop a sense of identity characterized by high levels of exploration, sensation seeking, risk taking, and social behaviours. Self-discovery is a necessary

step in development whereby youth learn about their personal qualities and preferences while fostering a sense of independence, self-confidence, and responsibility. Predictably, confidence in adolescence has been found to be one of the best predictors of achievement in both mathematics and English, above and beyond self-efficacy, self-concepts, and anxiety (Stankov et al., 2012). Furthermore, coping strategies are tested out during adolescence as part of an adaptive process of learning how to deal with successes and failures. Regulating emotions, whether they be positive or negative, is an essential skill to develop, when dealing with achievements as well as disappointments in life.

The role of positive emotions and coping skills as related to school engagement was explored among 293 youth in Grades 7 to 10 whereby it was revealed that positive emotions were associated with higher levels of school engagement while negative emotions were associated with lower levels of school engagement (Reschly et al., 2008). Notably, adaptive coping skills were found to partially mediate the relationship between positive emotions and school engagement among students (Reschly et al., 2008). When students are given opportunities to explore and reinforce areas of interest or talents through involvement in diverse electives and extracurricular activities or clubs, school engagement is improved (Davis & McPartland, 2012). Indeed, speciality arts programs have found that participation in tailored music programs fostered engagement in learning, peer connectedness, and community engagement (McFerran, Crooke, & Bolger, 2017). Taken together, school engagement can be fostered among youth by providing a variety of opportunities for students to explore and develop their skills and talents through both academic and extra-curricular activities.

Consistent with past research, school engagement problems can be predicted by similar factors regardless of student age. Specifically, in the current study male sex, externalizing

symptoms, and relational problems (i.e., peer and familial) were found to be influential for all clinically referred students. A gender gap in academic achievement has been observed for years across developed countries. It is well documented that girls tend to achieve higher grades than boys and female students are more likely to both graduate from high school and to attend post-secondary education than their male counterparts (e.g., DiPrete & Buchmann, 2013). Findings presented in this study consistently indicate that throughout elementary and secondary school education, male students are more likely than female students to experience problems with school disengagement. Certainly, the traditional context within which students are expected to learn in schools requires students to have strong expressive and receptive language skills, to exhibit self-regulation skills, and to demonstrate age-appropriate interpersonal skills. Research suggests that there is a slight advantage for young girls in language acquisition as compared to same age males; however, this effect seems to decrease with increased age (ages three to six years; Lange, Euler, & Zaretsky, 2016). Notably, children begin to attend school at four years old, during a time which boys are therefore disadvantaged compared to girls with respect to language skills needed for learning within the school setting. Indeed, from early on in education, girls tend to have more success on measures of reading and writing as compared to male counterparts (Cobb-Clark & Moschion, 2017). Further, it has been noted that social and behavioural skills have significant impacts on academics throughout elementary school (DiPrete & Jennings, 2012). Thus, students who have difficulties with emotional and behavioural control as well as communication would be at greater risk for poor school outcomes. Indeed, mental health symptoms and behavioural problems, which are highly comorbid among children and youth, significantly impact a student's ability to function effectively within academic and social domains present in the school setting (e.g., Quiroga et al., 2013; Wang & Peck, 2013). Notably,

students diagnosed with attention deficit hyperactive disorder (ADHD; students who experience impairments in attentional and impulse control as well as elevated activity levels) are at significantly greater risk for experiencing school problems such as poor grades, low reading and mathematics achievement, high detention and suspension rates, and low rates of high school graduation and post-secondary school enrollment (Loe & Feldman, 2007). Further, male students are 2 times more likely than female students to be diagnosed with ADHD (Ramtekkar, Reiersen, Todorov, & Todd, 2010). School engagement research suggests that as compared to their age-matched peers, high school students diagnosed with ADHD are less motivated to do well in school, less connected to their peers, and more likely to get suspended (Zendarski, Sciberras, Menash, Hiscock, 2017). That is, when students are faced with negative feedback and criticism regarding their functioning within the school setting, be it academics or behaviour, it would make sense that their educational self-concept is negatively impacted.

Not surprisingly, students who exhibit difficulties with self-regulation also tend to have problems with interpersonal skills (DiPrete & Jennings, 2012; Forest et al., 2013; Quin & Hemphill, 2014; Zendarski et al., 2017). Consistently, in the present study, students who reported relational difficulties with peers and family members were also found to be at an increased risk for school engagement problems. Poor interpersonal skills exhibited by students can lead to negative peer and adult interactions, an undesirable social reputation, social isolation and exclusion, and ultimately peer victimization. Within the home setting, challenging behaviours and poor interpersonal skills can impact a parent's availability to be involved in their child's education. Markedly, among students in Grades 6 and 7, as students increased in age, family involvement in learning and education was found to be influential on academic achievement, particularly for female students (Li et al., 2017). Interestingly, possibly also contributing to the

gender gap in education, research suggests that male students are more sensitive to their parent's education level as compared to female students (DiPrete & Buchmann, 2013). Nonetheless, overall there is a decline parental involvement in education as students enter middle and secondary school as compared to elementary school (Jaiswal & Choudhuri, 2017). Relatedly, many studies have found that students who experience peer victimization are at an increased risk for poor educational outcomes (e.g., Forrest et al., 2013; Hoglund et al., 2008). Regardless of the type or severity of peer victimization experienced by a student, longitudinal research suggests that academic achievement and engagement in education are negatively impacted over time (Espelage et al., 2013; Nakamoto & Schwartz, 2010). Therefore, factors such as social support and connectedness with peers and family have been found to improve educational outcomes among students (e.g., Forrest et al., 2013; Hoffman et al., 2018; Wilder, 2014).

2.5 Summary

Results from the present study extend previous research to indicate that health adversity negatively impacts school engagement while individual and relational strengths promote educational success among clinically referred students. Overall, male sex, externalizing problems, and peer and familial relational problems were consistent predictors for school engagement problems for children and youth. Among clinically referred children in kindergarten and elementary school, school engagement problems were uniquely predicted by older age, medical problems, and internalizing symptoms. Meanwhile, among clinically referred youth in middle and secondary school, school engagement problems were uniquely predicted by sleep problems and low individual strengths. In conclusion, by considering the contributions of physical and mental health distress alongside individual and relational strengths as experienced

among our highest needs students, a more comprehensive understanding of factors influential to school engagement is exposed.

2.5.1 Clinical Implications

Findings reinforce the importance of promoting health literacy and social skills development among students and their families. While physical and mental health problems negatively impact a student's ability to engage in their learning, social skills and talents can promote positive school outcomes. As such, implementation of developmentally appropriate health literacy programs and mental health screening assessments for students and their families are appropriate to encourage positive school outcomes. In addition, education regarding sleep hygiene for parents and students may be beneficial for promoting healthy sleep habits through elementary school into secondary school. Further, utilization of social skills programs throughout the school setting may promote positive relationships among school community members. Finally, providing opportunities for participation in a variety of extra-curricular activities such as athletics, clubs, and immersive learning opportunities can foster student identity development while promoting school engagement.

2.5.2 Limitations

Participants in this study were accessing outpatient or inpatient mental health services at participating sites across the Province of Ontario, Canada. Hence, generalizability is limited. Also, due to the cross-sectional nature of the dataset, causal conclusions cannot be confirmed despite promising evidence for predictors of school engagement problems. As the dataset continues to grow, it would be wise to embark on a longitudinal investigation using the comprehensive assessment measure to track indicators of school engagement as clinically referred students grow and develop. Second, most agencies do not have clinicians with diagnostic abilities completing the intake assessments. Given that many participants were

seeking clinical services for the first time, mental health diagnoses would have likely been underrepresented. Lastly, only students who were enrolled in education at the time of intake into clinical services were included in this study. Therefore, students who had already dropped out of school or been removed from school prior to accessing mental health supports were not included regardless of their educational status following treatment. Given the high-risk nature of such students, it is important that longitudinal research take a closer look at these students.

2.5.3 Future Directions for Research

Future research exploring school engagement among clinical samples of children and youth should specifically investigate the chief reasons for accessing services among this population, that is harm to self and harm to others (e.g., Santillanes & Gerson, 2017). Further, an examination of school engagement across critical transitions in education (e.g., preschool to elementary school; elementary to middle school; middle to secondary school) would promote proactive intervention to support students at times of increased vulnerability. Additionally, longitudinal follow-up studies for examining outcomes beyond secondary school including college, university, career attainment would be beneficial.

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Chapter 3

3 <<Harm to others and self: An investigation of the risk for interpersonal and self-directed violence as associated with risk for school disengagement>>

Abstract

Individuals who experience emotional and behavioural problems tend to demonstrate a lack of adaptive coping strategies. Not surprisingly, harm to others and self, two forms of maladaptive coping, are two of the most commonly occurring reasons for which children and youth are referred for psychological care. Aggression directed towards peers, family, and others as exhibited by children and youth, is associated with early school leaving and criminal involvement. Relatedly, self-directed harm, including self-injury and suicidality, has been linked to school difficulties among college students. Emotion regulation difficulties underlying other-directed and self-directed harm likely contributes to negative school outcomes among students. The current study extends the literature by examining the relationships between other- and self-directed harm and school disengagement among 13365 clinically referred students across elementary and secondary school. Results indicated that risk for school disengagement was strongly associated with risk for other- and self-directed harm among both children and youth. Notably, male youth were more likely to be at risk for harm to others, while female youth were more likely to be at risk for harm to self. Further, males were at greater risk for school disengagement than females. Implications of the findings are explored within the context of the school setting and future directions are suggested.

Keywords: Emotion dysregulation; Aggression; Self-harm; School disengagement

3.1 Introduction

Emotion regulation skills are necessary for successfully navigating daily challenges. Among children and youth, a lack of adaptive emotion regulation skills (i.e., problem-oriented action, cognitive problem-solving, humour) or reliance on maladaptive emotion regulation skills (i.e., withdrawal, aggressive action, self-devaluation, perseveration) is problematic for effective functioning across settings (Braet et al., 2014). Indeed, young people who struggle to regulate their emotions are at an increased risk for mental health problems, social challenges, and ultimately school difficulties. Braet and colleagues (2014) revealed that poorer adaptive emotion regulation was associated with higher levels of internalizing and externalizing symptoms among children. Further, children who struggle to regulate their emotions are at an increased risk for interpersonal issues due to challenges with solving social conflicts, poor impulse control, and difficulties with change and acceptance (e.g., Kim & Cicchetti, 2010). Lastly, it is well documented that children and youth who experience emotional dysregulation and behavioural problems are at a higher risk for negative academic experiences such as poor achievement, school disengagement, absenteeism, and early school leaving (Quiroga, Janosz, Bisset, & Morin, 2013; Wang & Peck, 2013). Emotion regulation challenges are not always directly observable, rather subtle changes in behaviour, motivation, and interests may be indicators of underdeveloped adaptive coping skills among children and youth.

Inevitably, students with poor emotion regulation skills are poorly positioned to cope with routine challenges that arise within the school setting. Certainly, emotionally dysregulated students are more likely to demonstrate negative school attitudes (e.g., refusal to attend or participate; dissatisfaction with staff and learning), disruptive learning behaviours (e.g., lateness; absenteeism; rule-breaking within the school setting), and a disinterest in the educational

environment (e.g., lack of effort and motivation for learning; failure to submit assignments) which are all signals that a student may be experiencing some degree of school disengagement (Fredricks, Blumenfeld, & Paris, 2004; Trowler, 2010). Disengagement in school can range in intensity and duration from brief and situation-specific to longstanding and stable (e.g., Fredricks et al., 2004). School disengagement is associated with negative outcomes such as poor academic achievement, student boredom, interpersonal difficulties, mental health challenges, and failure to attain a secondary school diploma (Balkis, 2018; Rumberger & Rotermund, 2012). In fact, early school leaving is considered the last stage of the aggregate and multifaceted progression of school disengagement (Wang & Fredricks, 2014). Early school leaving is associated with significant negative long term outcomes including internalizing symptoms, conduct and delinquent behaviours, criminal justice involvement, and unemployment in adolescence and adulthood (e.g., Henderson, Hawke, Chaim, & Network, 2017; Henry, Knight, & Thornberry, 2012). Recognizing and addressing early signs of school disengagement and associated emotion dysregulation is critical to reduce the potential consequences of persistent school disengagement and important for providing adequate supports to promote positive wellbeing across the lifespan.

3.1.1 Emotion Regulation

As suggested by the emotion regulation specificity hypothesis, specific mental health problems are characterized by identifiable maladaptive emotion regulation strategies among children (Braet et al., 2014). That is, conduct and attentional problems are associated with “giving up” while affective disorders are associated with “self-devaluation” (Braet et al., 2014). Interestingly, harm to others and harm to self, which closely resemble the maladaptive coping skills of “aggressive actions”, “self-devaluation”, and “giving up”, are principal reasons for referral to mental health services and for accessing emergency departments among children and youth (Carubia, Becker, & Levine, 2016; Santillanes & Gerson, 2017). Engagement in other- and

self-directed harm behaviours may be indicative of underlying emotion regulation difficulties that interfere with a student's ability to engage in their learning.

Substantial research has been conducted to determine correlates and predictors of these detrimental and yet relatively common harm behaviours. Risk factors for children and youth accessing services in the emergency room with other-directed harm related concerns include younger age and being male, where aggressive children tend to present on weekends and oppositional children tend to present during school vacations (Peterson, Zhang, Santa Lucia, King, & Lewis, 1996). Conversely, risk factors for children and youth accessing services in the emergency room with self-harm related concerns include older age, being female, and presenting on weekday evenings throughout the school year (Peterson et al., 1996). Consistent with use of maladaptive coping skills, aggression and troublemaking behaviours (i.e., aggressive actions) are strongly predictive of other-directed harm, while depression (i.e., giving up and self-devaluation) has been identified as a significant predictor for self-harm (i.e., nonsuicidal self-injury and suicidality; Andrews, Martin, Hasking, 2012; Basch, 2011; Jenkins, Singer, Conner, Calhoun, & Diamond, 2014). Notably, poor impulse control, which is commonly demonstrated by individuals with poor emotion regulation skills, is thought to play a key role in the initiation and maintenance of both other- and self-directed harm behaviours among adolescents (Brennan, Shaw, Dishion, & Wilson, 2012; Jenkins et al., 2014; Lockwood, Daley, Townsend, & Sayal, 2017). Despite the vast body of literature examining other- and self-directed harm among young people, a gap exists with respect to the implications of these behaviours within the school context. Particularly, school disengagement has yet to be examined as associated with other- and self-directed harm for elementary and secondary students. Due to the potential for injury experienced by students from peer perpetrated and self-inflicted harm, the current study

investigated the relationships between other- and self-directed harm and school disengagement using a cross-sectional sample of clinically referred elementary and secondary school students.

3.1.2 Other-Directed Harm

Harm to others can be described as threats or acts of physical, emotional, or verbal aggression towards others. Harm to others within a school setting can include incident-specific threats, intimidation, and aggravated assault or more chronic forms of harassment and peer victimization. Aggression is significantly related to delinquency, disruptive behaviours, interpersonal problems (i.e., peer rejection, low peer acceptance, peer victimization, low prosocial behaviour, low social preference), and poorer psychosocial adjustment (i.e., internalizing problems, emotion dysregulation, and attention problems; Card & Little, 2006). Physical aggression demonstrated by males ages six to twelve years old is predictive of engagement in physical violence and early school leaving by age seventeen years old (Ellickson & McGuigan, 2000; Kokko, Tremblay, Lacourse, Nagin, & Vitaro, 2006). Further, predictive risk factors for aggression and violent perpetration among youth include a history of violence, adverse childhood experiences, possession of weapons, medical problems, school challenges, and loss of a friend to suicide (e.g., Duke, Pettingell, McMorris, & Borowsky, 2010; Resnick, Ireland, & Borowsky, 2004). The presence of prosocial behaviours among aggressive male youth has not been found to protect against the noted negative outcomes (Kokko et al., 2006). Certainly, students who engage in harm to others are likely experiencing underlying issues with emotion regulation skills.

3.1.3 Self-Directed Harm

Self-directed harm is characterized as any intentional and direct acts to harm one's body including non-suicidal self-injury (NSSI) and suicidality. NSSI is described as any physical damage to one's body without lethal intent, while suicidality entails intentionality for ending

one's life (American Psychiatric Association, 2013). Self-directed harm can take various forms of increasing severity such as cutting, burning, head banging, poisoning, strangulation, or use of lethal weapons (American Psychiatric Association, 2013). Females consistently display higher rates of self-injury related hospitalizations, while males account for three quarters of the identified deaths by suicide (Skinner et al., 2016). Prevalence estimates for reported nonsuicidal self-injury among community samples of adolescents range from 7-24 percent, with higher rates observed among inpatient populations (Barrocas, Hankin, Young, & Abela, 2012; Muehlenkamp, Claes, Havertape, & Plener, 2012). Ultimately, death by suicide continues to be a leading cause of death among young people in Canada (Malla et al., 2018; Pollock et al., 2021; Statistics Canada, 2012;).

Self-harm is associated with emotional and behavioural concerns among adolescents including depression, anxiety, attention deficit hyperactive disorder, and aggression (Andrews et al., 2012; Tatnell, Kelada, Hasking, & Martin, 2014). For example, self-harm and school outcomes were investigated among college freshman, revealing that students who reported self-harm tended to report poor academic achievement (Kiekens et al., 2016). Specifically, students who reported lifetime NSSI showed a 3.4 percent drop in grade point average and those who reported NSSI in the last twelve months showed a 5.9 percent drop in grade point average (Kiekens et al., 2016). Similarly, suicidality has been found to be associated with school difficulties. In an early study, youth ages 9 to 18 years old who reported suicide attempts demonstrated significantly poorer academic achievement than youth who did not report suicidality (Lewis, Johnson, Cohen, Garcia, & Velez, 1988). Findings revealed that symptoms of depression were associated with suicide attempts and poor achievement (Lewis et al., 1988). Furthermore, engaging in self-harm has been described as a coping strategy to regulate emotions

(Hamza, Stewart & Willoughby, 2012). Although self-directed harm is associated with school problems among youth and college students, this relationship has yet to be explored among clinically referred elementary school students.

3.1.4 Current Study

To date, no studies have examined school disengagement and its association with other- and self-directed harm in clinical samples. Based on the extant literature, it was hypothesized that students at high risk for harm to others and self-harm would be at a greater risk for school disengagement compared to those students of low risk for the examined harm behaviours. Sex differences were anticipated such that male students would be at an increased likelihood for risk of harm to others while female students would be at an increased likelihood for risk of harm to self. Further, it was hypothesized that male students would be at higher risk for school disengagement compared to females. It was also expected that risk for school disengagement would increase with age in alignment with greater student independence and autonomy.

3.2 Method

3.2.1 Participants

The present study examined archival data from 13365 interRAI Child and Youth Mental Health assessments completed at partnering community mental health agencies in the Province of Ontario, Canada. Participating school-aged children (n=5637; ages 4 to 11 years old) and youth (n=7728; ages 12 to 18 years old) were English speaking, currently enrolled in school (i.e., part-time or full-time), and at the time of assessment, did not have a diagnosed or suspected intellectual disability. Approximately 53.5 percent of children and 29.0 percent of youth were found to be at risk for harm to others, while 26.2 percent of children and 57.2 percent of youth were found to be at risk for harm to self. Similar rates of risk for school disengagement were

reported among clinically referred children (46.1 percent) and youth (46.3 percent). Refer to Table 7 for more detailed participant characteristics.

3.2.2 Procedure & Ethical Considerations

Data collection took place from November of 2012 to February 2019 across fifty-five participating community mental health agencies in Ontario, Canada using the *interRAI Child and Youth Mental Health Assessment* (ChYMH; Stewart et al., 2015). The ChYMH was completed at the time of initial intake into clinical services, such that all participants in this study represented unique individuals. Data collection was carried out by trained assessors (e.g., nurses, social workers, child and youth workers) as part of typical clinical practice. All assessors completed a two-and-a-half-day training program on the administration of the interRAI ChYMH.

Administration involved a 60-90-minute semi-structured interview (i.e., in-person or telephone interview) with the child or youth, guardians, family members, and collateral contacts (e.g., teachers, therapists) as well as review of available related information (e.g., medical and education records). Approval for collection and examination of the data investigated in this study was granted by the University ethics board. No identifiable personal information was stored on the interRAI Canada secure server due to the use of randomly generated case record numbers. Data is stored on the interRAI Canada secure server (VPN protected with additional security measures to protect the identify of participants) at a partner University. Additionally, to protect the identity of participants with rare diagnoses or unique profiles, results with fewer than five participants in each cell were not reported. All analyses were performed using SPSS version 25.0 software (IBM Corp., Armonk, NY, USA) and the assumptions for all tests were followed to control for threats to statistical conclusions.

Table 7*Demographic Information for the Children and Youth Samples*

	Children (n=5637) (% of subsample)	Youth (n=7728) (% of subsample)
Age	<i>M</i> =8.60 <i>SD</i> =1.85	<i>M</i> =14.75 <i>SD</i> =1.76
Biological Sex		
Male	3909 (69.3%)	3659 (47.3%)
Female	1728 (30.7%)	4069 (52.7%)
Patient Type		
Inpatient	213 (3.8%)	607 (7.9%)
Outpatient	5424 (96.2%)	7121 (92.1%)
School Level		
Kindergarten (Junior-Senior)	384 (6.8%)	N/A
Elementary School (Grades 1-6)	5253 (93.2%)	N/A
Middle School (Grades 7-8)	N/A	2227 (28.8%)
Secondary School (Grades 9-12)	N/A	5501 (71.2%)
Classroom Type		
Preschool	45 (0.8%)	N/A
Homeschooled	33 (0.6%)	108 (1.4%)
Regular Classroom – No Extra Support	2244 (39.8%)	3591 (46.5%)
Regular Classroom – Special Accommodations	1500 (26.6%)	2025 (26.2%)
Regular Classroom – Extra Support	1114 (19.8%)	447 (5.8%)
Special Education Class(es)	453 (8.0%)	671 (8.7%)
Special School/Program	248 (4.4%)	886 (11.5%)
Enrollment		
Part-time enrolled	245 (4.3%)	580 (7.5%)
Full-time enrolled	5392 (95.7%)	7148 (92.5%)
Living Arrangement		
With parents or primary caregivers	5265 (93.4%)	6860 (88.8%)
With sibling(s), no parents	11 (0.2%)	26 (0.3%)
With other relative(s)	158 (2.8%)	258 (3.3%)
With foster family	149 (2.6%)	221 (2.9%)
With nonrelative(s), excluding foster family	30 (0.5%)	291 (3.8%)
Alone	23 (0.4%)	72 (0.9%)
Involvement in Structured Activities		
Extracurricular lessons/classes	2278 (40.4%)	2236 (28.9%)
Volunteering	232 (4.1%)	1327 (17.2%)
Organized club or team program	2179 (38.7%)	2353 (30.4%)

3.2.3 Measures

interRAI Child and Youth Mental Health Assessment (ChYMH)

Comprising numerous clinical elements (e.g., medical, cognitive, psychological, social, behavioural, environmental, resilience and risk, and service utilization), the ChYMH evaluates the strengths, needs and preferences of school-age children and youth and their existing support systems. Scales and algorithms are embedded within the instrument to measure symptom frequency and severity to indicate level of risk and to support goal setting for intervention planning. Further, the ChYMH contains care planning protocols that highlight areas of imminent risk and provide goal-directed interventions to be used in consultation with the individual and his or her support system for intervention planning. interRAI suites of assessment tools have been implemented internationally by researchers and clinicians to better support vulnerable populations. Refer to the interRAI website (www.interrai.org) for additional information regarding interRAI assessment suites and their current applications internationally. Strong psychometric properties have been demonstrated for the ChYMH, including scales and algorithms (e.g., Hirdes et al., 2020; Lau, Stewart, Saklofske, & Hirdes, 2019; Lau, Stewart, Saklofske, Tremblay, & Hirdes, 2018; Stewart & Babcock, 2020; Stewart, Babcock, Li, & Dave, 2020; Stewart, Celebre, Hirdes & Poss, 2020; Stewart, Celebre, Hirdes & Poss, submitted 2020; Stewart & Hamza, 2017; Stewart, Morris, Asare-Bediako, & Toohey, 2019; Stewart, Poss, Thornley & Hirdes, 2019).

Harm to others. Risk for harm to others was measured using the *Risk of Injury to Others* (RIO) algorithm, which reflects the risk of injury to others among children and youth (Stewart et al., submitted 2020). The RIO algorithm decision tree is composed of nine individual items (i.e., violent ideation, threatened violence, violence to others, verbal abuse, socially inappropriate or disruptive behaviour, destructive behaviour, family overwhelmed, impulsivity, and physical

abuse) from the ChYMH assessment. The RIO decision tree is composed of twenty-one terminal nodes ranging from zero to six, where higher risk levels are indicative of greater risk of injury to others. The RIO algorithm was found to have strong psychometric properties and clinical applicability among clinically referred children and youth (Stewart et al., submitted 2020). A cut-point of 3+ was determined to provide adequate sensitivity (91.4 percent) and specificity (74.1 percent) for utility with a clinical population of children and youth for identifying those at severe risk of injury to others (Stewart et al., submitted 2020).

Harm to self. Risk for harm to self was measured using the *Risk of Suicide and Self-Harm in Kids* (RiSsK) algorithm, which reflects the risk of suicide and self-harm among children and youth (Stewart et al., 2020). The RiSsK algorithm decision tree is composed of six individual items (i.e., attempt to kill, self-harm attempt without intent to kill, considered self-injury, others concerned about self-injury, family overwhelmed, and any self-injurious behaviours) from the ChYMH assessment as well as the Depression Severity Index (DSI; a nine-item measure for the frequency and severity of depressive symptoms). The RiSsK decision tree is composed of twenty terminal nodes ranging from zero to six, where higher risk levels are indicative of greater risk for suicide and self-harm. Validation research indicated that the RiSsK algorithm has strong psychometric properties and clinical applicability among clinically referred children and youth for indicating risk of suicide and self-harm (Stewart et al., 2020). Due to the potential for associated life-threatening outcomes, researchers argued the necessity for a high severity risk cut-point that favoured sensitivity over specificity. A cut-point of 2+ was determined to provide adequate sensitivity (93 percent) and specificity (61 percent) for indicating risk of suicide and self-harm among a clinical population of children and youth (Stewart et al., 2020).

School disengagement. Measuring the risk for school disengagement among children and youth, the *School Disengagement Scale* (SDeS) is a newly validated scale introduced as part of the ChYMH assessment. The eight-item scale (i.e., increased lateness or absenteeism, poor productivity or disruptiveness at school, conflict with school staff, current removal from school due to disruptive behaviour, strong persistent dissatisfaction with school, current refusal to attend school, expresses intent to quit school, and overall academic performance) includes elements of behavioural, emotional, and cognitive disengagement. The standardized Cronbach's alpha based on the polychoric correlation matrix of the eight items on the SDeS scale was 0.86 which suggested good reliability (Stewart, Klassen, & Tohver, 2015). The presence (0 = *no*, 1 = *yes*) of each of the eight items on the SDeS scale is summed resulting in a scale score ranging from zero to eight, where higher scale scores indicate greater risk for school disengagement. For the current study, students with SDeS scores of less than two were classified as being at low risk of school disengagement and students with SDeS scores of two or greater were classified as being at heightened risk for school disengagement.

3.3 Results

3.3.1 Harm to Others

First, the relationship between risk of harm to others and risk for school disengagement was examined using separate chi-square analyses for children and youth. Findings presented in Table 8 revealed that risk of harm to others was found to be significantly related to risk of school disengagement with medium effects. Specifically, high risk for harm to others was found to be associated with an increased risk for school disengagement by nearly 3 times for both children (OR 3.02, 95% CI: 2.71-3.37, $p < .001$) and youth (OR 2.78, 95% CI: 2.51-3.08, $p < .001$) as compared to those students who were at low risk for harm to others. As expected, findings indicated that students at low risk for harm to others were more likely to also be at low risk for

school disengagement; conversely, those students who were at high risk for harm to others were more likely to be at high risk for school disengagement.

3.3.2 Harm to Self

Next, the relationship between risk of harm to self and risk for school disengagement was examined using separate chi-square analyses for children and youth. As shown in Table 8, risk of harm to self was found to be significantly related to risk of school disengagement for children and youth with small effects. High risk for self-harm was found to be associated with an increased risk for school disengagement by over 2 times for children (OR 2.33, 95% CI: 2.07-2.64, $p < .001$) and approximately 1.5 times for youth (OR 1.37, 95% CI: 1.26-1.51, $p < .001$) as compared to those students who were at low risk for harm to self. Students at low risk for harm to self were more likely to also be at low risk for school disengagement.

3.3.3 Sex Differences

Lastly, sex differences in risk of harm to others, risk of harm to self, and risk for school disengagement were examined using separate chi-square analyses for children and youth. Findings presented in Table 9 reveal that male children were nearly 2 times more likely to be at risk for harm to others (OR 1.78, 95% CI: 1.59-2.00, $p < .001$) as well as school disengagement (OR 1.96, 95% CI: 1.74-2.20, $p < .001$) as compared to female children. No sex difference was found for harm to self among children. As shown in Table 9, male youth were 2.5 times more likely to be at risk for harm to others (OR 2.54, 95% CI: 2.29-2.81, $p < .001$) and nearly 2 times more likely to be at risk for school disengagement (OR 1.70, 95% CI: 1.56-1.86, $p < .001$) as compared to female youth. Female youth were found to be over 2.5 times more likely to be at risk for harm to self (OR 2.69, 95% CI: 2.46-2.96, $p < .001$) as compared to male youth.

Table 8

Chi-Square Comparison Between Harm to Others and Harm to Self with School Disengagement for Children and Youth

	School Disengagement				χ^2 (df)	<i>p</i>	Cramer's V
	Low Risk		High Risk				
	<i>N</i>	(%)	<i>N</i>	(%)			
Children (4-11 years)							
Harm to Others*					402.17 (1)	<.001	.267
Low Risk	1786	(58.8)	835	(32.1)			
High Risk	1250	(41.2)	1766	(67.9)			
Harm to Self*					191.05 (1)	<.001	.184
Low Risk	2468	(81.3)	1692	(65.1)			
High Risk	568	(18.7)	909	(34.9)			
Youth (12-18 years)							
Harm to Others*					399.55 (1)	<.001	.227
Low Risk	3343	(80.6)	2146	(59.9)			
High Risk	804	(19.4)	1435	(40.1)			
Harm to Self*					47.98 (1)	<.001	.079
Low Risk	1927	(46.5)	1384	(38.6)			
High Risk	2220	(53.5)	2197	(61.4)			

3.4 Discussion

Despite harm to others and self being common and distressing behaviours exhibited among children and youth, limited information is available with respect to the impact these behaviours have on school engagement, particularly among younger students. The present study addressed this gap in the literature by examining the relationships between harm to others and self with school disengagement using a large clinically-referred sample of elementary and

Table 9

Sex Differences for Each of the Examined Risk Behaviours using Chi-Square Analyses for Children and Youth

	Male		Female		χ^2 (df)	<i>p</i>	Cramer's V
	<i>N</i>	(%)	<i>N</i>	(%)			
Children (4-11 years)							
Harm to Others*					98.72 (1)	<.001	.132
Low Risk	1646	(42.1)	975	(56.4)			
High Risk	2263	(57.9)	753	(43.6)			
Harm to Self					2.65 (1)	.104	.022
Low Risk	2860	(73.2)	1300	(75.2)			
High Risk	1049	(26.8)	428	(24.8)			
School Disengagement*					128.12 (1)	<.001	.151
Low Risk	1912	(48.9)	1127	(65.2)			
High Risk	1997	(51.1)	601	(34.8)			
Youth (12-18 years)							
Harm to Others*					332.17 (1)	<.001	.207
Low Risk	2236	(61.1)	3253	(79.9)			
High Risk	1423	(38.9)	816	(20.1)			
Harm to Self*					447.21 (1)	<.001	.241
Low Risk	2027	(55.4)	1284	(31.6)			
High Risk	1632	(44.6)	2785	(68.4)			
School Disengagement*					136.26 (1)	<.001	.133
Low Risk	1709	(46.7)	2437	(59.9)			
High Risk	1950	(53.3)	1632	(40.1)			

secondary school-aged students. As anticipated, high levels of student distress were found to be associated with school disengagement. Students identified as being at high risk for harm to others and harm to self were independently found to be at a higher risk for school disengagement

than those who were identified as being at low risk for each harm behaviour. Further, consistent with predictions, sex differences were revealed for each of the examined behaviours.

3.4.1 Harm to Others

As hypothesized, risk for harm to others was associated with an increased risk for school disengagement. Socially inappropriate behaviours such as displays of aggression and violence within the school setting can lead to negative interpersonal interactions and removal from the classroom or school setting altogether, negatively impacting a student's ability to engage in school. Moreover, students who are at risk for harming others are at an increased risk for negative academic experiences due to issues related to attendance as well as school and peer connectedness (e.g., Basch, 2011; Kokko et al., 2006; Quin & Hemphill, 2014). Although the prevalence rates for risk of harm to others decreased with age (i.e., 53.5 percent of children and only 29.0 percent of youth), the risk for school disengagement increased by three times for both children and youth who were at high risk for harm to others compared to those at low risk for harm to others. Younger students may be more likely to behave inappropriately when in distress due to a lack of self-regulation skills as well as limited language to describe their feelings or needs which is likely to impact their engagement in school (Alink et al., 2006). Previous research has indicated that deviant behaviour, paired with school challenges and poor school connections during middle school, is predictive of violent behaviours five years later (Ellickson & McGuigan, 2000). In this study, although considerably fewer youth were found to be at risk for harm to others, those at highest risk may pose a significant threat to their own safety as well as the safety of others within the school setting. Contributing factors to this risk include academic struggles, mental health difficulties, increased risk-taking, and poor interpersonal relationships (Chein, Albert, O'Brien, Uckert, & Steinberg, 2011; Connor, Steingard, Cunningham, Anderson, & Melloni, 2004).

3.4.2 Harm to Self

As predicted, risk for harm to self was associated with an increased risk for school disengagement. School engagement problems including poor academic achievement and early school leaving have been noted among secondary students and college freshman who reported nonsuicidal self-injury and suicidality (Daniel et al., 2006; Kiekens et al., 2016). Students burdened by perseverative thoughts, feelings of hopelessness, hypervigilance, and/or suicidal ideation may be preoccupied while at school, limiting their availability to engage fully in school activities (e.g., Quiroga et al., 2013; Tatnell et al., 2014). Consistent with the age of onset for self-harm behaviours, harm to self was found to be more common among youth (57.2 percent) than children (26.2 percent; Stallard, Spears, Montgomery, Phillips, & Sayal, 2013). Nonetheless, results indicated that risk for school disengagement increased by two times for children and by one and a half times for youth who were at high risk for harm to self, compared to those at low risk for harm to self. As such, findings suggest that students who exhibit behaviours consistent with school disengagement must be screened for risk of harm to self in order to reduce potential life threatening consequences.

Surprisingly, relatively similar rates of school engagement and disengagement were found among youth at high risk for self-harm. Previous research has found that self-harming youth often exhibit perfectionistic qualities. Specifically, concern over mistakes and organization are aspects of perfectionism found to influence adolescent engagement in nonsuicidal self-injury (Hoff & Muehlenkamp, 2009). Furthermore, negative reactions to imperfection and perceived parental pressure to perform were related to fear of failure, somatic complaints, and depressive symptoms among students (Stoeber & Rambow, 2007). Correspondingly, perfectionistic tendencies observed among self-harming youth may positively influence school engagement. For example, perfectionistic strivings among adolescents were predictive of increases in cognitive

engagement, investment in learning, and the ability to establish and follow through on task-oriented goals (Damian, Stoeber, Negru-Subtirica, & Băban, 2017). Setting high personal standards impacts behavioural and emotional engagement among high achieving students (Shim, Rubenstein, & Drapeau, 2016). Further, youth engaging in self-harm may not exhibit behaviours consistent with school disengagement such as a lack of effort or motivation to attend and participate in school activities due to an increasing ability to compartmentalize or conceal emotional and behavioural dysregulation as well as inhibit impulses when needed (Chein et al., 2011; Värnik et al., 2009). Hence, perfectionistic students may engage in self-harm behaviours to cope with distress while maintaining adequate engagement in school.

3.4.3 Sex Differences

Consistent with reported higher rates of behavioural regulation challenges and prosocial difficulties, male students were found to be at greater risk for harm to others and school disengagement than their female counterparts (Kokko et al., 2006; Little & McLennan, 2010; Ramtekkar, Reiersen, Todorov, & Todd, 2010). Indeed, the revealed sex differences in risk for harm to others increased with age such that male children were 2 times more likely than female children to be at risk for harm to others, while male youth were 2.5 times more likely than female youth to be at risk for harm to others. In the present study, 57.9 percent of male children and 43.6 percent of female children were found to be at risk for harm to others compared to 38.9 percent of male youth and 20.1 percent of female youth. When children are dysregulated, they may not have the language to describe their feelings or needs and therefore may behave disruptively through displays of aggression and violence towards others, ultimately impacting school engagement (Alink et al., 2006). Findings suggest that as emotional and behavioural regulation skills as well as an awareness of socially acceptable behaviours develop, fewer students engage in behaviours that may be harmful to others (Chein et al., 2011). Nonetheless, sex differences

and risk for school disengagement remained stable such that male children and youth were 2 times more likely than female children and youth to be at risk for school disengagement.

No sex differences were found for harm to self among children; approximately one in four male and female children in the present study were found to be at risk for harm to self. Despite the typical age of onset for self-harm during early adolescence, findings highlight that younger students are at risk for these behaviours and require access to early intervention. As anticipated, over two thirds of the female youth (68.4 percent) in the present study were found to be at risk for self-harm (Skinner et al., 2016). As such, female youth were found to be over two and a half times more likely to be at risk for harm to self when compared to male youth. Still, 26.8 percent of male children and 44.6 percent of male youth were found to be at risk for harm to self. Research indicates that male students who engage in harm to self tend to utilize more lethal methods of self-harm such as strangulation and use of firearms, and as a result, male youth are more likely than female youth to die by suicide (Värnik et al., 2009).

3.5 Summary

Taken together, findings from the current study extend previous research by demonstrating that higher levels of distress are generally associated with greater school disengagement among clinically referred elementary and secondary students (e.g., Quiroga et al., 2013; Wang & Peck, 2013). Harm to others and harm to self are each independently associated with school disengagement among children and youth. Further, sex differences identified in community samples were supported in the present study. Notably, some students at risk for harm behaviours did not demonstrate significant school disengagement. Without a streamlined strategy for identifying and addressing student distress in its early phases, all individuals within the

school setting are vulnerable to serious bodily harm including violence to others and self-inflicted death.

3.5.1 Implications for School Psychology

Evidence that school disengagement is associated with harm to others and self, draws attention to the importance of early recognition of student distress for circumventing potential life threatening consequences. Shifts in a student's school attitude and level of interest in education, as well as the presence of disruptive learning behaviours, are all signals that a student may be struggling more broadly. Although school staff are in a unique position to notice signs of student distress, there is a need for a standardized system for evaluating harm to others and self in schools that is integrated across service sectors. Indeed, a health information system that can direct referrals from within the school setting across service sectors will promote proper triaging and support early access to intervention. Utilizing an integrated assessment-to-intervention approach that can be applied across multiple service sectors can foster service system integration by improving communication through a common language and reduce the duplication of services, while promoting evidence-informed care (Hirdes et al., 2020; Stewart & Hirdes, 2015). Hence, preschools, schools, mental health agencies, hospitals, home care, policing, youth justice, and child welfare all need to work together to interrupt the progression of school disengagement and not only support students in obtaining their secondary school diploma, but also support the safety of all individuals within the school community by reducing the likelihood for other perpetrated and self-inflicted harm.

3.5.2 Limitations and Future Directions for Research

Due to the cross-sectional nature of the study, causation cannot be determined from the findings. Although examined independently in the current study, aggression and harm to self frequently co-occur (Hartley, Pettit, & Castellanos, 2018; O'Donnell, House, & Waterman,

2015). Indeed, young adolescents with low self-esteem, such as those who engage in self-harm, have been found to be more likely to be physically aggressive with others in late adolescence and early adulthood (Claes, Houben, Vandereycken, Bijttebier, & Muehlenkamp, 2010; Ellickson & McGuigan, 2000). It is anticipated that a subset of children and youth may present with risk for both harm to others and harm to self. Future research should explore the unique characteristics of students at risk for both harm behaviours as it is likely that these students would be at the highest risk for school disengagement. Next, caution should be used when generalizing these findings to community samples given that all participants were accessing mental health services. To ensure the safety of students who are at increased risk for self-harm, the RiSsK algorithm favours sensitivity over specificity which may have resulted in elevated prevalence estimates of risk for self-harm. Future research should investigate school samples to examine the diversity common among students.

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Chapter 4

4 << School disengagement and mental health service intensity need among clinically referred students utilizing the interRAI Child and Youth Mental Health Assessment Instrument>>

Abstract

Although mental health challenges are widespread, impacting approximately one in five children and youth, only 25 percent of these young people receive the required mental health supports. Unmet mental health needs are strongly associated with functional impairments including poor self-care, interpersonal challenges, and school difficulties among young people. School disengagement, or a student's lack of involvement in education through interest, curiosity, motivation, and active participation, is associated with a wide array of detrimental outcomes including chronic mental health difficulties, conduct and delinquent behaviours, criminal justice involvement, and unemployment in adolescence and adulthood. Disengagement observed within the school setting may be indicative of underlying mental health challenges and reflective of service intensity need. The current study extends the literature by examining the relationship between school disengagement and mental health service intensity need among 14750 clinically referred students across elementary and secondary school utilizing the interRAI Child and Youth Mental Health instrument. Findings indicated that more than 25 percent of clinically referred students were at heightened risk for school disengagement and required high-intensity services. Further, mental health service intensity need was positively associated with risk of school disengagement among students with varied findings related with both sex and age (i.e., young children, school-aged children, and youth). Lastly, findings indicated that the specific reason for referral (i.e., psychiatric symptoms, harm to self, harm to others, or addiction or dependency)

was uniquely related to the likelihood that students experienced school disengagement.

Implications of the findings are explored within the context of the school setting and future directions are suggested.

Keywords: interRAI, Mental health; School disengagement; Resource intensity need; Referral reason

4.1 Introduction

An estimated 1.2 million Canadian children and youth experience significant mental illness with clinically significant impairments in functioning requiring treatment (Kirby & Keon, 2006). Despite a significant number of children and youth demonstrating functional limitations across settings, an alarming number of young people and their families continue to have unmet mental health needs (Waddell, McEwan, Shepherd, Offord, & Hua, 2005; Sareen, Cox, Afifi, Yu, & Stein, 2005). Challenges exist in mental health care for young people across Canada with respect to access to timely and effective treatment as well as coordination of services across sectors (i.e., education, social services, medical, and community-based services; Farmer, Burns, Phillips, Angold, & Costello, 2003; Gandhi et al., 2016). Identifying those young people in need of support services and making available the necessary treatments is important to promote positive immediate and life-long outcomes for all Canadians. Certainly, determining the intensity and nature of mental health services required to support a young person and his or her family is a difficult and yet critical step in offering timely and effective treatment opportunities. Although it is widely accepted that mental health challenges are associated with negative educational outcomes, service intensity need has yet to be explored in relation to academic outcomes (e.g., Henry, Knight, & Thornberry, 2012). Early identification of children and youth in need of mental health services and providing timely access to appropriate treatments is important to promote educational success.

4.1.1 Mental Health & School Problems

Mental health concerns exhibited by children and youth such as anxiety, attention deficit/hyperactivity disorder, depression, conduct disorder, eating disorders, and suicidal ideation and attempts, are associated with negative educational outcomes (Canadian Mental Health Association, 2014). A review of the literature on the impact of mental health on school success revealed that “poor academic functioning and inconsistent school attendance are early signs of emerging or existing mental health problems during childhood and adolescence” (DeSocio & Hootman, 2004, p.189). Research has consistently demonstrated that mental health challenges can contribute to poor academic achievement, school disengagement, school refusal, and school dropout (e.g., Breslau et al., 2009; Breslau, Lane, Sampson, & Kessler, 2008; Haight, Chapman, Hendron, Loftis, & Kearney, 2014; Hemphala & Hodgins, 2014; Lee, Cornell, Gregory, & Fan, 2011; Quiroga, Janosz, Lyons, & Morin, 2012; Stewart, Klassen, & Hamza, 2016; Verweij, Agrawal, Martin, & Lynskey, 2013).

School problems during childhood and adolescence have been associated with significant negative outcomes. Indeed, early school refusal behaviours, such as school disengagement, increases the risk for later criminal activity, substance use, and school dropout (Jones, Dodge, Foster, & Nix, 2002). A substantial number of youth involved in the criminal justice system have experienced academic failure, school refusal, school exclusion, and early termination of secondary education (Christle, Jolivet, & Nelson, 2005). A longitudinal study that followed 585 children from age 5 to 27 years old demonstrated that individuals who drop out of secondary school are four times more likely to experience negative outcomes such as being arrested, fired, reliant on government assistance, using illicit substances, and having poor health by 27 years of age (Lansford, Dodge, Pettit, & Bates, 2016). Additionally, secondary school dropouts are 24

times more likely to experience as many as four or more of the stated negative outcomes (Lansford et al., 2016). When considering adult outcomes, individuals who dropped out of secondary school make up disproportionately higher percentages of prison inmates as compared to those who completed secondary school (Cataldi & KewalRamani, 2009). Notably, when young people who dropout of secondary school received treatment for behavioural, emotional, or substance use problems before the age 24 years, a reduction in the number of expected negative outcomes has been observed (Lansford et al., 2016). Early identification and timely provision of treatment for children and youth requiring intervention services may reduce the likelihood for the manifestation of acute distress requiring crisis supports both immediately and later in life (e.g., Gandhi et al., 2016; Kieling et al., 2011).

4.1.2 Estimated Value of Services

Significant costs are associated with mental health challenges and delinquency including criminal activity, substance use, and school dropout. Previously, Cohen (1998) estimated that typical societal costs for a career criminal, (\$1.3–\$1.5 million USD), a heavy drug user (\$370,000 to \$970,000 USD), and a high-school dropout (\$243,000 to \$388,000 USD). When taken together, Cohen (1998) estimated that the monetary value of saving a high-risk youth was approximately \$2.3 million USD. Updated estimates of the monetary value of saving a high-risk 14-year-old from a life of negative outcomes range from \$2.6 to \$5.3 million USD (Cohen & Piquero, 2009). Ultimately, delinquency, including school refusal and school dropout can be both detrimental for individuals and their families as well as expensive for society (e.g., Cataldi & KewalRamani, 2009; Waddell et al., 2005).

Costs associated with supporting children and youth presenting with various mental health challenges has been examined (Beecham, 2014). According to the findings, significant

discrepancies in expenditures associated with specific diagnoses exist likely because of inconsistent samples and methods for assessing the monetary costs of treatment and the accumulated consequences of unmet treatment needs. Nonetheless, it is clear that when young people do not receive adequate support and treatment, there is an increased likelihood of experiencing significant negative outcomes (i.e., health, mental health, quality of life, unemployment, and poor income), ultimately increasing long-term societal costs (Beecham, 2014).

4.1.3 Service Utilization

Although the first onset of many mental health issues is typically between childhood and early adulthood, children and youth do not always receive the necessary treatment to prevent life-course persistent and chronic mental health problems (Kessler et al., 2005; Kessler et al., 2007; Waddell et al., 2005). Research indicates that up to 75 percent of Canadian children and youth with mental health challenges do not receive required mental health services (Waddell et al., 2005). Early research on patterns of service utilization for addressing mental health challenges among young people indicated that sociodemographic factors, parental attitudes, and the intensity of a child's illness significantly influence service use across settings (i.e., mental health, general health, school; Zahner & Daskalakis, 1997). The education system is uniquely situated to identify and support children and youth who are experiencing mental health distress and functional limitations. Not surprisingly, the schools were revealed as the main point of entry to mental health services for children and youth (Farmer et al., 2003). The second most common point of entry to mental health services for children up to 13 years old was identified as the specialty mental health sector and for youth 14 to 16 years old was the juvenile justice system (Farmer et al., 2003). First episode of mental health service utilization among young people

tends to “increase in early to middle childhood, stabilize, then increase again in early adolescence” (Erath et al., 2009). Externalizing behaviours were most predictive of first time service use in middle childhood; however, combined externalizing and internalizing presentation predicted first time service use during adolescence (Erath et al., 2009).

Parental and adolescent problem recognition are an important step towards service utilization for addressing mental health challenges (for a review see Zwaanswijk, Verhaak, Bensing, Van der Ende, & Verhulst, 2003). Indeed, caregivers play an important role in supporting young people in accessing and participating in mental health interventions (Logan & King, 2001). Parental beliefs that their child needs help is a critical predictor of service use (Zahner & Daskalakis, 1997). Parents are more likely to seek services when their child’s problems are more severe and persistent, including the presence of comorbidity (Zwaanswijk et al., 2003). Additionally, medical issues and school problems were revealed to increase parental help seeking behaviours for young people (Zwaanswijk et al., 2003). Consistently, children and youth who acknowledge their experience of psychological distress and related impairments are more likely to seek services (Zwaanswijk et al., 2003). Gender differences in help-seeking behaviours were revealed such that males were more likely to access services during childhood and early adolescence, whereas females were more likely to access services in late adolescence (Zwaanswijk et al., 2003).

4.1.4 Current Study

School disengagement is associated with varying degrees of challenges for students within the school setting. The current study presents a first look at the association between service intensity need and school disengagement among clinically referred students. A strong positive relationship between school disengagement and service intensity need was expected such that students who were disengaged in school were expected to require high-intensity

services compared to those students who were engaged in school. Consistent with previously noted age and sex-based findings, it was anticipated that the association between school disengagement and service intensity need at the time of intake to clinical services may differ based on age and sex. Further, primary concerns for referral to mental health services (i.e., psychiatric symptoms, harm to self, harm to others, or addiction or dependency) were investigated as related to school disengagement to offer insights for triaging purposes.

4.2 Methods

4.2.1 Participants

Archival *interRAI Child and Youth Mental Health Assessment* (ChYMH; Stewart et al., 2015) data collected at seventy community mental health agencies in the Province of Ontario, Canada between November 2012 and May 2019 were utilized for this study. A convenience sample of 14750 clinically referred young children ($n=1700$; ages 4 to 7 years old), school-aged children ($n=4396$; ages 8 to 11 years old), and youth ($n=8654$; ages 12 to 18 years old) who accessed mental health services was investigated. Participants in this study accessed services through self-referral and referral by healthcare professionals (e.g., family physician or pediatrician), schools, or mental health professionals (e.g., counsellor or social worker). The total sample was comprised of English-speaking male (56.2 percent) and female (43.8 percent) children and youth ranging in age from four to eighteen years old ($M_{age}=12.23$, $SD_{age}=3.52$) who were formally enrolled in schooling. Refer to Table 10 for more detailed participant characteristics.

Table 10
Sample Demographic Information by Age Group

	Young Children (n=1700) (% of subsample) <i>M</i> =6.20 (<i>SD</i> =0.91)	School-age Children (n=4396) (% of subsample) <i>M</i> =9.56 (<i>SD</i> =1.10)	Youth (n=8654) (% of subsample) <i>M</i> =14.77 (<i>SD</i> =1.77)
Age			
Biological Sex			
Male	1188 (69.9%)	3039 (69.1%)	4059 (46.9%)
Female	512 (30.1%)	1357 (30.9%)	4595 (53.1%)
Patient Type			
Inpatient	29 (1.7%)	201 (4.6%)	654 (7.6%)
Outpatient	1671 (98.3%)	4195 (95.4%)	8000 (92.4%)
Enrollment in School			
Part-time Enrolled	93 (5.5%)	169 (3.8%)	655 (7.6%)
Full-time Enrolled	1607 (94.5%)	4227 (96.2%)	7999 (92.4%)
Education Status			
Preschool	45 (2.6%)	N/A	N/A
Homeschooled	*	30 (0.7%)	117 (1.4%)
Regular Classroom – No Extra Support	814 (47.9%)	1621 (36.9%)	4023 (46.5%)
Regular Classroom – Extra Support	733 (43.1%)	2103 (47.8%)	2769 (32.0%)
Specialized School Program	101 (5.9%)	642 (14.6%)	1745 (20.2%)
Reason for Referral			
Specific Psychiatric Symptoms	822 (48.4%)	2315 (52.7%)	5473 (63.2%)
Harm to Self	249 (14.6%)	925 (21.0%)	3050 (35.2%)
Harm to Others	557 (32.8%)	1436 (32.7%)	1748 (20.2%)
Addiction or Dependency	*	16 (0.4%)	702 (8.1%)

Note. * Ethics approval prohibits reporting on groups smaller than ten participants.

4.2.2 Procedure & Ethical Considerations

Trained assessors (including nurses, psychologists, psychiatrists, social workers, child and youth workers, case managers, and speech and language pathologists) collected data as part of typical clinical practice using a 60-90-minute semi-structured interview with the child or youth, caregivers, and collateral contacts (e.g., teachers, therapists) along with any information available with respect to medical and education records. All participants were assigned a case

record number upon completion of the assessment tool and no identifying information (e.g., names, full birthday, postal code) was stored on the interRAI secure server. Additionally, to protect the identity of participants with rare diagnoses or unique profiles, results with fewer than five participants in each cell were not reported. Data collection using the ChYMH is ongoing across the Province and has been approved by the university ethics review committee. Data is stored on the interRAI Canada secure server (VPN protected with additional security measures to protect the identify of participants) at a partner University. All analyses used in this study were conducted on SPSS version 25.0 software (IBM Corp., Armonk, NY, USA).

4.2.3 Measures

4.2.3.1 The interRAI Child and Youth Mental Health Assessment (ChYMH; Stewart et al., 2015).

The interRAI ChYMH is a comprehensive assessment tool designed to identify clinically relevant elements pertaining to the specific needs of school-age children and youth (i.e., medical, psychological, social, behavioural, environmental, strengths, and risk). As part of the Child and Youth suite of interRAI assessment tools, instruments within the Child and Youth suite of instruments are being utilized both nationally and internationally. A variety of scales and algorithms are embedded within the instrument to provide tracking indices for measuring symptom severity and to generate data-driven risk assessments across domains (e.g., self-harm, harm to others, service intensity need). Further, numerous care planning protocols highlighting areas of imminent concern or risk are produced upon completion of the interRAI ChYMH to support clinicians in tracking client progress and in developing adaptive treatment plans. Additional literature with respect to the interRAI assessment can be found on the interRAI website (www.interrai.org). Scales and algorithms developed specifically for the Child and Youth suite of instruments have demonstrated robust psychometric properties including strong inter-rater reliability, internal consistency, as well as substantial face validity, content validity,

criterion validity, and discriminant validity (e.g., Hirdes et al., 2020; Lau, Stewart, Saklofske, & Hirdes, 2019; Lau, Stewart, Saklofske, Tremblay, & Hirdes, 2018; Stewart & Babcock, 2020; Stewart, Babcock, Li, & Dave, 2020; Stewart, Celebre, Hirdes & Poss, 2020; Stewart, Celebre, Hirdes & Poss, submitted 2020; Stewart & Hamza, 2017; Stewart, Morris, Asare-Bediako, & Toohey, 2019; Stewart, Poss, Thornley & Hirdes, 2019). Several items, scales and a recently published algorithm from the interRAI ChYMH suite were included in the current research to investigate factors associated with the risk for school disengagement among clinically referred children and youth.

4.2.3.1.1 *School Disengagement.*

School disengagement among students was evaluated using an eight-item scale including elements of behavioural, emotional, and cognitive disengagement (Stewart, Klassen, & Tohver, 2015). The presence (0 = *no*, 1 = *yes*) of eight items were recorded by assessors (i.e., increased lateness or absenteeism, poor productivity or disruptiveness at school, conflict with school staff, current removal from school due to disruptive behaviour, strong persistent dissatisfaction with school, current refusal to attend school, expresses intent to quit school, and poor overall academic performance). Items were summed and ranged from zero to eight with higher scores indicating an increased risk of school disengagement. For the current paper, scores at or greater than two were indicative of heightened risk for school disengagement while scores less than two indicated that the student was engaged in school (Stewart et al., 2015).

4.2.3.1.2 *Service Intensity Need.*

Reflecting the intensity and nature of services required to support children and youth seeking mental health services, the *Resource Intensity for Children and Youth* (RICHY) algorithm was used in this present study (Stewart, Poss et al., 2019). The RICHY algorithm is an

empirically based decision-support tool composed of twenty-five individual items, three scales (i.e., *Anxiety*, *Parenting Strengths*, *Family Functioning*), and two decision-support algorithms (i.e., *Self-Harm*, *Harm to Others*) from the ChYMH assessment. Based on critical indicators from the interRAI ChYMH assessment tool, an individual's level of risk is determined using the RICHY to suggest priority for intensive service needs. Variability in critical indicators of service need due to the age of a young person led to the development of three independent but related age-based RICHY decision trees (i.e., 4 to 7 years old, 8 to 11 years old, and 12 to 18 years old). The terminal nodes of the RICHY decision tree range from zero to five, where higher nodes are indicative of higher service intensity need. Strong psychometric properties and clinical applicability have been demonstrated for the RICHY algorithm for its use with children and youth accessing mental health services (Stewart, Poss et al., 2019). Notably, children and youth accessing outpatient services scored significantly lower on the RICHY algorithm as compared to children and youth accessing inpatient services (Stewart, Poss et al., 2019).

4.3 Results

4.3.1 School Disengagement and Service Intensity Need

Findings indicated that 45.9 percent of students were identified as at risk for school disengagement (young children: 42.1 percent; school-age children: 47.6 percent; youth: 45.9 percent) and 45.5 percent of students were identified as requiring high service needs (young children: 23.6 percent; school-age children: 41.4 percent; youth: 51.9 percent) at the time of intake into clinical care. Within this sample, 26.1 percent of the students (young children: 16.2 percent; school-age children: 26.3 percent; youth: 28.0 percent) were identified as being disengaged in school and as requiring high intensity service needs. The relationship between school disengagement and service intensity need was examined using separate chi-square analyses for each of the investigated age groups (i.e., young children, school-age children,

youth). Findings presented in Table 11 revealed that service intensity need was significantly related to school disengagement with low to moderate effects. Specifically, students who were

Table 11

Chi-Square Comparison of Service Intensity Need and Risk for School Disengagement by Sex and Age

	School Disengagement				χ^2 (df)	<i>p</i>	Cramer's V
	Engaged		Disengaged				
	<i>N</i>	(%)	<i>N</i>	(%)			
Young Children							
Male (n=1188)							
Low Service Need	521	(84.3)	348	(61.1)	81.62 (1)	<.001	.262
High Service Need	97	(15.7)	222	(38.9)			
Female (n=512)							
Low Service Need	338	(92.1)	92	(63.4)	63.43 (1)	<.001	.352
High Service Need	29	(7.9)	53	(36.6)			
Total (n=1700)							
Low Service Need	859	(87.2)	440	(61.5)	151.45 (1)	<.001	.298
High Service Need	126	(12.8)	275	(38.5)			
School-age Children							
Male (n=3039)							
Low Service Need	1045	(71.3)	708	(45.0)	215.83 (1)	<.001	.266
High Service Need	420	(28.7)	866	(55.0)			
Female (n=1357)							
Low Service Need	593	(70.6)	228	(44.1)	94.01 (1)	<.001	.263
High Service Need	247	(29.4)	289	(55.9)			
Total (n=4396)							
Low Service Need	1638	(71.1)	936	(44.8)	312.48 (1)	<.001	.267
High Service Need	667	(28.9)	1155	(55.2)			
Youth							
Male (n=4059)							
Low Service Need	1227	(64.3)	943	(43.9)	169.37 (1)	<.001	.204
High Service Need	682	(35.7)	1207	(56.1)			
Female (n=4595)							
Low Service Need	1383	(49.8)	606	(33.3)	122.50 (1)	<.001	.163
High Service Need	1392	(50.2)	1214	(66.7)			
Total (n=8654)							
Low Service Need	2610	(55.7)	1549	(39.0)	240.19 (1)	<.001	.167
High Service Need	2074	(44.3)	2421	(61.0)			

disengaged in school were between about two to four times more likely in odds to require high-intensity services as compared to low-intensity services (young children: OR 4.26, 95% CI: 3.35-5.42, $p < .001$; school-age children: OR 3.03, 95% CI: 2.68-3.43, $p < .001$; youth: OR 1.97, 95% CI: 1.80-2.14, $p < .001$). Given that the rates of school disengagement remain relatively stable across age ranges and the requirement of high-intensity services increases dramatically with age, the relative risk for requiring high-intensity services when disengaged in school decreases with age (young children: 3.01; school-age children: 1.91; youth: 1.38). That is, when young children are disengaged in school, the relative risk of requiring high-intensity services is 3 times that of their peers who are engaged in school. Meanwhile, among school-age students the relative risk of requiring high-intensity services is about two times that of their peers who are engaged in school and among youth who are disengaged in school, the relative risk of requiring high-intensity services is about 1.5 times that of their peers who are engaged in school. As expected, findings indicated that students who require low-intensity service needs were more likely to also to be engaged in school; conversely, those students who require high-intensity service needs were more likely to be disengaged in school.

Sex differences were explored as associated with the relationship between school disengagement and service intensity need. Again, separate chi-square analyses were utilized to examine sex differences for each of the investigated age groups (i.e., young children, school-age children, youth). Findings presented in Table 11 revealed that male students who were disengaged in school were over 2 to 3.5 times more likely in odds to require high-intensity services as compared to low-intensity services (young children: OR 3.43, 95% CI: 2.60-4.51, $p < .001$; school-age children: OR 3.04, 95% CI: 2.12-3.54, $p < .001$; youth: OR 2.30, 95% CI: 2.03-2.61, $p < .001$). The odds for male students being both at high risk for school disengagement and

requiring high-intensity services decreased with age. Specifically, among male students, the relative risk for requiring high-intensity services decreases with age (young children: 2.48; school-age children: 1.92; youth: 1.57). That is, when young male children are disengaged in school, the relative risk of requiring high-intensity services is two and a half times that of their peers who are engaged in school. Meanwhile, among male school-age students the relative risk of requiring high-intensity services is about 2 times that of their peers who are engaged in school and among male youth who are disengaged in school, the relative risk of requiring high-intensity services is about 1.5 times that of their peers who are engaged in school. Relatedly, female students who were disengaged in school were between about two to almost seven times more likely in odds to require high-intensity services as compared to low-intensity services (young children: OR 6.71, 95% CI: 4.04-11.16, $p < .001$; school-age children: OR 3.04, 95% CI: 2.42-3.82, $p < .001$; youth: OR 1.99, 95% CI: 1.76-2.25, $p < .001$). The odds for female students being both at risk for school disengagement and requiring high-intensity services was greatest for young females and decreased dramatically at different age ranges. Specifically, among female students, the relative risk for requiring high-intensity services also decreases with age (young children: 4.63; school-age children: 1.90; youth: 1.33). That is, when young female children are disengaged in school, the relative risk of requiring high-intensity services is over 4.5 times that of their peers who are engaged in school. Meanwhile, among female school-age students the relative risk of requiring high-intensity services is about 2 times that of their peers who are engaged in school and among female youth who are disengaged in school, the relative risk of requiring high-intensity services is just less than 1.5 times that of their peers who are engaged in school. As anticipated, findings suggest that sex differences are present in the relationship

between school disengagement and service intensity need; however, this relationship is more stable for male students across development as compared to female students.

4.3.2 Reason for Referral and School Disengagement

The relationship between reason for referral and school disengagement was examined using separate chi-square analyses for each of the investigated age groups (i.e., young children, school-age children, youth). Findings presented in Table 12 revealed that reason for referral was associated with risk for school disengagement with low to moderate effects depending on the specific referral reason and the examined age group. Specifically, students who were referred for serious psychiatric symptoms were about two times more likely in odds to be at high risk for disengagement as compared to lower risk (young children: OR 1.69, 95% CI: 1.40-2.06, $p < .001$; school-age children: OR 2.21, 95% CI: 1.96-2.50, $p < .001$; youth: OR 1.69, 95% CI: 1.55-1.85, $p < .001$). Further, students who were referred for harm to self were between 1.5 and 4 times more likely in odds to be at risk for school disengagement as compared to those at lower risk (young children: OR 3.74, 95% CI: 2.80-4.99, $p < .001$; school-age children: OR 2.35, 95% CI: 2.02-2.73, $p < .001$; youth: OR 1.54, 95% CI: 1.41-1.69, $p < .001$). The odds for students being referred for harm to self and risk of experiencing school disengagement decreased with age. Additionally, students who were referred for harm to others were about 3 times more likely in odds to be at risk for school disengagement as compared to engaged in school (young children: OR 3.56, 95% CI: 2.88-4.40, $p < .001$; school-age children: OR 3.14, 95% CI: 2.76-3.59, $p < .001$; youth: OR 2.72, 95% CI: 2.44-3.03, $p < .001$). Finally, youth who were referred for addiction issues were about 3 times more likely in odds to be at risk for disengagement as compared to those at lower risk (OR 2.97, 95% CI: 2.51-3.51, $p < .001$). As expected, findings indicated that the specific reason for referral was uniquely related to the likelihood that students experienced school disengagement.

Table 12*Chi-Square Comparison for School Disengagement and Reason for Referral*

	School Disengagement				χ^2 (df)	<i>p</i>	Cramer's V
	Engaged		Disengaged				
	<i>N</i>	(%)	<i>N</i>	(%)			
Young Children							
Psychiatric Symptoms					28.48 (1)	<.001	.129
No	563	(57.2)	315	(44.1)			
Yes	422	(42.8)	400	(55.9)			
Harm to Self					87.38 (1)	<.001	.227
No	908	(92.2)	543	(75.9)			
Yes	77	(7.8)	172	(24.1)			
Harm to Others					144.24 (1)	<.001	.291
No	777	(78.9)	366	(51.2)			
Yes	208	(21.1)	349	(48.8)			
School-age Children							
Psychiatric Symptoms					167.32 (1)	<.001	.195
No	1305	(56.6)	776	(37.1)			
Yes	1000	(43.4)	1315	(62.9)			
Harm to Self					128.53 (1)	<.001	.171
No	1973	(85.6)	1498	(71.6)			
Yes	332	(14.4)	593	(28.4)			
Harm to Others					299.95 (1)	<.001	.261
No	1821	(79.0)	1139	(54.5)			
Yes	484	(21.0)	952	(45.5)			
Youth							
Psychiatric Symptoms					134.58 (1)	<.001	.125
No	1981	(42.3)	1200	(30.2)			
Yes	2703	(57.7)	2770	(69.8)			
Harm to Self					92.36 (1)	<.001	.103
No	3246	(69.3)	2358	(59.4)			
Yes	1438	(30.7)	1612	(40.6)			
Harm to Others					333.97 (1)	<.001	.196
No	4078	(87.1)	2828	(71.2)			
Yes	606	(12.9)	1142	(28.8)			
Addiction or Dependency					176.13 (1)	<.001	.143
No	4472	(95.5)	3480	(87.7)			
Yes	212	(4.5)	490	(12.3)			

4.4 Discussion

Although it is widely accepted that mental health challenges are associated with negative educational outcomes, service intensity need has yet to be explored in relation to school engagement problems among clinical samples of students. The current study contributes to the literature by presenting a first look at the association between school disengagement and service intensity need among clinically referred young children, school-age children, and youth. As predicted, school disengagement was found to be associated with high-intensity service needs. Indeed, students who were at highest risk for school disengagement were approximately two to four times more likely in odds to require high-intensity services. The strength of this relationship differed by age (i.e., young children (4 to 7 years), school-age children (8 to 11 years), and youth (12 to 18 years)) such that young children who were at high risk for school disengagement were more likely to require high-intensity services as compared to their youth counterparts. Further, sex differences indicated that male students who were at high risk for school disengagement were 2 to 3 times more likely in odds to require high-intensity services while female students who were at risk for school disengagement were 2 to 7 times more likely in odds to require high-intensity services. The relationship between school disengagement and service intensity need was more stable for male students as compared to female students. Results indicated that young female children who were at heightened risk for school disengagement were found to be almost seven times more likely in odds to require high-intensity services as compared their matched male peers who were only three times more likely in odds to require high-intensity services. Young girls who require high intensity services is rare, but when this occurs, it is quite significant and highly associated with school disengagement. Interestingly, among school-age children and youth, the likelihood for male and female students to be disengaged in school and

require high-intensity services was similar. Findings are considered within the context of the school setting and future directions are suggested.

Research suggests that the severity of presenting concerns is typically associated with the intensity of individualized treatment approaches such that young people who are experiencing more severe distress are more likely to be involved with psychiatric or multidisciplinary supports (Sareen et al., 2005). In this study, students who were at heightened risk for school disengagement, thus experiencing significant challenges within the school setting, were found to be more likely to require high-intensity services. The proportion of students identified as being disengaged in school and requiring high-intensity services increased with age. That is, among clinically referred students, 26 percent of school-age children and 28 percent of youth were identified as being disengaged in school and requiring high-intensity services as compared to only 16 percent of young children. Understandably, young people often rely heavily on their parents for accessing mental health treatment and research suggests that service utilization by children and youth is associated with the health-seeking behaviours of the adults in their household (Dreyer, Williamson, Hargreaves, Rosen, & Deeny, 2018). An early study investigating unmet mental health service needs in community samples of children and adolescents revealed that economic disadvantage, parental psychopathology, poor school grades, and parent-reported barriers were key problems for accessing services (Flisher et al., 1997).

It has also been found that parental psychopathology is associated with increased service utilization and expenditures for children and youth, even after controlling for parental service utilization (Dreyer et al., 2018; Olfson, Marcus, Druss, Pincus, & Weissman, 2003). For example, parental depression is associated with increased emergency department use and consultations with general practitioners as well as outpatient and inpatient services by children

and youth (Dreyer et al., 2018). An investigation of predictors for mental health service utilization among a sample of adolescent males revealed that diagnoses of attention deficit hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD) among adolescent males, as well as parental substance use disorders (i.e., paternal alcohol disorder and maternal amphetamine use disorder) predicted increased mental health service utilization (Cornelius, Pringle, Jernigan, Kirisci, & Clark, 2001). Previous research suggests that young people who acknowledge their distress and related functional impairments are more likely to seek services (Flisher et al., 1997; Zwaanswijk et al., 2003).

Help seeking behaviours associated with mental health services among adolescents and young adults were revealed to be hindered by “perceived stigma and embarrassment, difficulties recognizing symptoms, and a preference for self-reliance” (Gulliver, Griffiths, & Christensen, 2010). Research consistently indicates that stigma associated with mental illness and mental health treatments can significantly impact an individual’s willingness to access and fully participate in treatment services (Corrigan, 2004). Among 1092 young Canadians ages 15 to 24 years old presenting with a mood, anxiety, or substance-related disorders, it was demonstrated that individuals most likely to access mental health services were female, living alone, experiencing challenges in social situations, and presenting with mood disorders or chronic illness (Bergeron, Poirier, Fournier, Roberge, & Barrette, 2005). Harm to self and others as well as substance use represent forms of maladaptive coping. In the current study, each form of maladaptive coping was found to increase the likelihood for school disengagement for all students.

The education system has been identified as the main point of entry to mental health services for children and youth (Farmer et al., 2003). School staff are uniquely positioned to

support students through referrals to more intensive school and community based services. Exploration of the effectiveness of universal screeners as completed by school staff versus traditional classroom-referral methods for identifying at-risk students revealed that many students requiring mental health support are overlooked when universal screeners are not utilized (Eklund et al., 2009). As indicated in the present study, psychiatric symptoms as well as harm to self and others were related to school engagement problems for all students. Consistently, in an investigation of educators' ability to recognize students with mental health concerns within the classroom, teachers were found to be significantly less likely to accurately identify students exhibiting moderate or subclinical mental health symptoms (Splett et al., 2019). Interestingly, findings revealed that general referrals for psychiatric symptoms increased the likelihood for school disengagement by two times across age groups which was considerably lower than other reasons for referral such as harm to self and others or addiction.

Within the school setting, teachers can consistently detect students exhibiting severe externalizing and internalizing problems (Splett et al., 2019). Given the nature of behavioural problems across settings, referral for harm to others was therefore expected to be associated with school engagement problems for all students. Findings from the present study revealed a strong association between referral for harm to others and school disengagement such that students referred for harm to others were about three times more likely in odds for school disengagement. The strength of the relationship decreased slightly with increasing age. This is consistent with other research which indicates that young children are most often referred for externalizing problems such as aggressive and disruptive behaviours whereas youth are referred more for both internalizing and externalizing disorders (Erath et al., 2009). Further, young children are highly dependent on their caregivers which necessitates significant caregiver involvement in accessing

and participating in intervention services. Although the education system is the first most common point of entry to mental health services for children and youth, the second most common point of entry to mental health services for children up to 13 years old is the specialty mental health sector and for youth 14 to 16 years old was the juvenile justice system (Farmer et al., 2003). In the present study, it may be that older students are just as likely to require high-intensity service needs for harm to others behaviours, however, these students may be involved in services from other sectors (e.g., youth justice) and thus not included in our clinically referred sample.

Results indicated that referral for harm to self was found to be related to risk of school disengagement; however, the odds of referral for harm to self and concurrent school disengagement decreased with age from almost four times among young children to two times among youth. Students who are engaging in self-harm require intensive services and support across settings. Within the classroom, self-harm among young students may be more obvious or disruptive in nature as compared to youth who may use adaptive strategies to conceal their self-harming behaviours. As such, school disengagement and self-harm among young students might be more easily detected. Indeed, youth who engage in self-harming behaviours may in fact be high-achieving students with perfectionistic tendencies who are engaged in school, but are struggling with mental health functioning outside of the classroom setting (Hoff & Muehlenkamp, 2009). Relatedly, Splett and colleagues (2019) found that teachers rated externalizing behaviours to be more severe and detrimental for the student than internalizing symptoms which may help to explain why self-harm behaviours go unnoticed until the student reaches a point of requiring significant support and intervention.

Of concern particularly among youth, referral for addiction or dependency was found to increase the risk for school disengagement by three times as compared to their non-substance addicted counterparts. Although experimentation with risky behaviours such as substance use is common among adolescents, regular substance use can jeopardize an adolescent's physical and mental health and wellbeing especially given that adolescent substance use is a significant predictor of substance abuse in adulthood (Hemphala & Hodgins, 2014; Henry et al., 2012). Further, substance using teens are at a greater risk for both immediate and long-term consequences such as psychopathology, emotional distress, cognitive impairments, and substance-induced psychosis (e.g., Levine, Clemenza, Rynn, & Lieberman, 2017; Lubman, Cheetham, & Yücel, 2015). Youth who are dependent on substances tend to have significant challenges with managing their drug related behaviours which can interfere with their education. Indeed, directly as related to school outcomes, substance using youth are not able to fully participate in their learning if they are under the influence during school or homework hours. Present findings highlight that drug and addiction education is important among school-age children and youth to reduce the likelihood of addiction and dependency problems which can impact adaptive functioning later in life.

4.5 Summary

Taken together, findings from the current study extend previous research to highlight the relationship between risk of school disengagement and mental health service intensity need among clinically referred students across elementary and secondary school. Indeed, one in four clinically referred students were found to be at risk for school disengagement and requiring high-intensity service needs. School engagement problems within the school setting may be an indicator of underlying mental health problems. School staff are uniquely positioned to support

students through early identification and referrals to school and community level supports and services. Significant age and sex differences in the relationship between school disengagement and high-intensity service need suggest the requirement of focused triaging protocols to support students at various stages in development.

4.5.1 Limitations

Despite the large sample size and use of a use of the interRAI ChYMH, known to be a highly reliable and valid multisource clinician-rated comprehensive assessment tool, the present study should be considered together with its limitations. All participants in the present study were accessing services at a community or inpatient mental health agency, and consequently, generalization of these findings to school-based populations is limited. The examination of school disengagement longitudinally, and prior to referrals to community agencies, would be beneficial to enhance prevention measures to reduce discontinued pursuits to educational attainment. Additionally, racial and cultural information was not obtained and, as a result, examination of these variables in relation to service utilization could not be conducted. Such data will be important to examine to improve social justice, equity as well as the importance of multi-culturally attentive processes and procedures when delivering mental health services.

4.5.2 Clinical Implications & Future Directions

This research highlights the necessity for early identification and providing timely access to intervention as a method to improve the lives of those at risk for mental health and school problems. Early identification and timely provision of treatment for children and youth requiring mental health services may reduce the likelihood for the manifestation of acute distress requiring crisis supports as well as life-long consequences (e.g., Gandhi et al., 2016; Kieling et al., 2011). Many mental health supports and treatments are provided within the education system; however, the education system is not an appropriate venue to provide all types of treatments required to

address psychopathology (e.g., psychiatric intervention, family support, trauma-focused intervention). Thus, it is critical that sectors involved in supporting children and youth work together in their approach to mental health screening and assessment to foster improved mental health and wellbeing and to maximize reductions in the negative outcomes that may otherwise be experienced (Tobon, Reid, & Brown, 2015). Continuity of care across sectors, namely education, mental health, and medical health services, is essential for ensuring that children and youth demonstrating mental health challenges are provided with appropriate services in a timely manner (Beecham, 2014; Farmer et al., 2003). Implementation of a standardized assessment-to-intervention system within the educational system, the most common point of entry into mental health services, could ultimately improve our mental health delivery system. Such an approach supports early intervention while also facilitating service integration through the use of a common language across service providers, improved triaging and prioritization, and enhanced use of quality data for decision making at a system level (Stewart & Toohey, under review). Through the identification of risk and resilience factors, early identification of at-risk students could reduce the likelihood of long-lasting detrimental impacts of school disengagement, resulting in improved outcomes and reducing negative sequelae throughout the lifespan.

4.6 References

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Chapter 5

5 Discussion and Conclusions

The extant literature suggests that school disengagement is associated with negative impacts on a student's wellbeing (e.g., low self-esteem, increased risk for anxious and depressive symptoms, higher rates of aggressive and conduct behaviours) and school outcomes (e.g., academic achievement, absenteeism, and school dropout; e.g., Fredricks, Blumenfeld, & Paris, 2004; Henry, Knight, Thornberry, 2012, Wang & Peck, 2013). However, the nature of the associations between school disengagement and mental health, other and self-directed harm, and service intensity need had yet to be thoroughly examined among a clinical sample of students. This dissertation investigated school disengagement using a newly validated scale for gaining a more complex understanding of school problems among a clinical sample of elementary and secondary school students (Stewart, Klassen, & Tohver, 2015). The aims of this dissertation were to utilize a large convenience sample of clinically referred students to explore: 1) health adversity alongside positive wellbeing factors as related to school disengagement, 2) the relationships between school disengagement and other-directed and self-directed harm, and 3) school disengagement as associated with mental health service intensity need and reason for referral. This research makes important contributions towards our understanding of the association between school disengagement and mental health factors and how this differs by age (i.e., elementary and secondary) as well as by biological sex (i.e., male and female). The findings of this dissertation extend the existing body of literature by examining the associations between school disengagement and mental health and well-being among our highest-risk students. Notably, this research provided a general investigation of the associations between school disengagement and physical and mental health distress as well as specific consideration for the

chief concerns at the time of referral to mental health services (i.e., harm to others and harm to self). Further, this research provided a first look at the relationship between school disengagement and mental health service intensity need among clinically referred students to support triaging for mental health services. Findings from this research highlight the necessity for the implementation of universal screening measures within the school setting to ensure early identification of the risk for poor mental health symptoms and behaviours as associated with poor school outcomes (i.e., school disengagement). Indeed, this study provided further evidence that age and biological sex is associated with variable risks for school disengagement as well as the investigated mental health symptoms and behaviours. Early identification of students who are experiencing school disengagement could lead to tailored programming to re-engage students in learning and education prior to significant negative academic experiences or chronic absenteeism. As such, this dissertation provided evidence that future use of a universal assessment-to-intervention approach within the education system and across all sectors providing services for children and youth is needed.

5.1 Unique Contribution of Each Paper

School disengagement has been found to be associated with significant negative outcomes both immediately and later in life (e.g., Henry et al., 2012). With limited studies focusing specifically on school disengagement within a clinical sample of children and youth, additional research is needed to better serve such students' treatment needs within the education system and the community. The comprehensive nature of the interRAI Child and Youth Mental Health assessment instruments presented an opportunity to explore school disengagement among clinically referred children and youth together with a variety of clinically significant determinants of health (Stewart et al., 2015). Specifically, the research undertaken in this

dissertation utilized the accepted multidimensional framework of school disengagement (i.e., a student's meaningful involvement in education through interest, curiosity, motivation, and active participation in learning) to investigate physical and mental health distress as well as service needs among typically-developing children and youth who were enrolled in schooling at the time of intake into clinical services (Fredricks et al., 2004). Indeed, school disengagement was found to be uniquely associated with age and biological sex across the three studies which influences the clinical implications of the findings. The unique contributions of each paper constituting this dissertation are outlined.

5.1.1 Health Adversity, Resilience, & School Disengagement

The first research paper investigated the simultaneous influence of health adversity (i.e., physical and mental health distress) together with resilience factors (i.e., individual and relational strengths) as related to school disengagement. Certainly, robust health, which involves the physical, mental, and social wellbeing of an individual, promotes favourable school outcomes (Forrest, Bevans, Riley, Crespo, & Louis, 2013). Findings extend previous research by providing a more comprehensive understanding of factors influential to school disengagement among clinically referred elementary and secondary school students. Indeed, physical and mental health distress was found to be associated with school disengagement while individual and relational strengths were found to be associated with school engagement among high-risk students. That is, when examined concurrently, individual and relational strengths may mitigate the distressing impact of physical and mental health concerns on our most vulnerable students. Of importance, the this study exposed unique predictors of school disengagement for clinically referred school-age students (ages 4 to 11 years) and youth (ages 12 to 18 years).

Previous findings revealed that chronic health conditions are associated with negative school outcomes, particularly early in primary school (Hoffman et al., 2018). Consistently, the present study confirmed that school disengagement was uniquely predicted by medical problems (i.e., asthma, diabetes, epilepsy, migraines, concussion, and traumatic brain injuries) among clinically referred kindergarten and elementary age students (ages 4 to 11 years). Further, previous research suggested that students who experience challenges with emotional regulation are at a heightened risk to experience both academic and social difficulties (de Lijster et al., 2018). In the present study, internalizing symptoms (i.e., symptoms of anxiety, depression, and anhedonia), uniquely predicted school disengagement among clinically referred school-age students (ages 4 to 11 years).

Moreover, clinically referred youth (ages 12 to 18 years) who were found to be at risk for school disengagement, presented with significant sleep problems. As such, youth often have poor sleep hygiene which is associated with significant sleep problems as well as adverse physical and mental health outcomes (Bartel, Gradisar, & Williamson, 2015; Chaput et al., 2016; Martin et al., 2020). With decreased parental supervision, sleep problems among youth can result in difficulties with absenteeism, tardiness, and attending to lessons, limiting their availability to fully engage in their learning. Further, consistent with research suggesting that positive factors associated with wellbeing such as self-confidence, self-esteem, optimism, adaptive coping skills, and interpersonal skills can have a positive impact on school outcomes, low individual strengths and engagement was predictive of school disengagement among clinically referred youth (Davis & McPartland, 2012; McFerran, Crooke, & Bolger, 2017). That is, findings suggested that school engagement can be fostered among clinically referred youth by providing a variety of

opportunities for students to explore and develop their skills and talents through both academic and extra-curricular activities.

Consistent with previous findings, behavioural and social difficulties were found to be predictive of school disengagement for most students (e.g., Henry et al., 2012; Kokko, Tremblay, Lacourse, Nagin, & Vitaro, 2006). Certainly, the traditional context for learning within the school setting requires students to maintain emotional and behavioural control and to demonstrate age-appropriate interpersonal skills. Further, within the home setting, challenging behaviours and poor social skills can impact a parent's availability to be involved in their child's education (Li, Allen, & Casillas, 2017). Further, the this study replicated previous research suggesting that sex differences exist with respect to school disengagement across education levels (i.e., elementary and secondary school; DeSocio & Hootman, 2004). That is, unrelated to student age, externalizing problems (i.e., aggression and conduct behaviours), relational problems (i.e., peer and familial), and male sex were consistent predictors for school disengagement among all clinically referred students.

5.1.2 Other-Directed Harm, Self-Harm, & School Disengagement

In the second research paper, the relationships between school disengagement and other-directed and self-directed harm were explored. Behind exacerbated mental health symptoms and behaviours, harm to others and harm to self are primary psychological concerns resulting in referral to mental health services among children and youth. Findings from this study extended previous research by demonstrating that higher levels of distress are generally associated with greater school disengagement among clinically referred elementary and secondary students (e.g., Quiroga, Janosz, Bisset, & Morin, 2013; Wang & Peck, 2013). Indeed, harm to others and harm to self, forms of maladaptive coping, are each independently associated with school

disengagement among children and youth. Consistent with previous findings, as emotional and behavioural regulation skills as well as an awareness of socially acceptable behaviours develop, fewer students engage in behaviours that may be harmful (Chein, Albert, O'Brien, Uckert, & Steinberg, 2011). Finally, sex differences previously identified in community and clinical samples were supported in the present study such that male youth were more likely to be at risk for harm to others, while female youth were more likely to be at risk for harm to self (e.g., Kokko et al., 2006; Skinner et al., 2016).

Risk for school disengagement increased by three times for all students who were at high risk for harm to others compared to those at low risk for harm to others. Indeed, prevalence rates for harm to others in this study are consistent with previous findings that indicate that young students (4-11 years) are more likely than older students (12-18 years) to engage in aggressive behaviours towards others (Kokko et al., 2006). Nonetheless, previous research has found that deviant behaviour, paired with school challenges and poor school connections during middle school, is predictive of violent behaviours five years later (Ellickson & McGuigan, 2000). Further, risk for school disengagement increased for students who were at high risk for harm to self. Notably, risk for school disengagement was higher among young students (4-11 years) as compared to youth (12-18 years) who reported engaging in self-harm behaviours. Indeed, the typical age of onset for self-harming behaviours is during early adolescence, thus younger students reporting self-harm are likely experiencing substantial distress which would negatively impact their ability to engage in their learning (Stallard, Spears, Montgomery, Phillips, & Sayal, 2013).

An important finding replicated in this study was that some students at risk for harm behaviours did not demonstrate significant school disengagement. That is, similar rates of school

engagement and disengagement were found among youth at high risk for self-harm. Previous studies have suggested that students who engage in self-harm behaviours often exhibit perfectionistic qualities (Hoff & Muehlenkamp, 2009; Stoeber & Rambow, 2007). Tendencies such as setting high personal standards have been associated with increases in a student's investment in learning and ability to establish and follow-through on tasks (Damian, Stoeber, Negru-Subtirica, & Băban, 2017). With an increasing ability to compartmentalize or conceal emotional and behavioural dysregulation as well as inhibit impulses when needed, youth may be able to maintain adequate engagement in school while engaging in self-harm behaviours to cope with distress (Chein et al., 2011; Värnik et al., 2009). As such, findings suggest that students who exhibit behaviours consistent with school disengagement must be screened for harm behaviours to reduce potential life threatening consequences. Without a streamlined strategy for identifying and addressing student distress in its early phases, individuals within the school setting are vulnerable to serious bodily harm including violence to others and self-inflicted death.

5.1.3 Service Intensity Need & School Disengagement

Finally, in the third research paper, findings provide a first look at school disengagement among clinically referred young children (4-7 years), school-age children (8-11 years), and youth (12-18 years) as associated with mental health service intensity need and reason for referral to community mental health services. Unmet mental health service needs are associated with significant difficulties across settings (Farmer, Burns, Phillips, Angold, & Costello, 2003; Gandhi et al., 2006). Research suggests that school disengagement may be indicative of underlying mental health challenges and thus, reflective of service intensity need (e.g., Stewart, Klassen, & Hamza, 2016). Consistent with previously reported prevalence rates, over twenty-five percent of the participants in this study were found to be at heightened risk for school

disengagement and requiring high-intensity services at the time of intake into clinical care (Kirby & Keon, 2006; Waddell, McEwan, Shepherd, Offord, & Hua, 2005; Sareen, Cox, Afifi, Yu, & Stein, 2005). Previous research suggested that the severity of presenting concerns is typically associated with the intensity of individualized treatment approaches needed (Sareen et al., 2005). Results from this study indicated that mental health service intensity need was positively associated with school disengagement among students with varied findings related with both sex and age. Specifically, the relationship between school disengagement and service intensity need was more stable for male students as compared to female students. Although among school-age children and youth, the likelihood for male and female students to be disengaged in school and require high-intensity services was similar, among young children, a significant difference exists. That is, young girls who require high intensity services is rare, but when this occurs, it is quite significant and highly associated with school disengagement. Further, young children who were at high risk for school disengagement were more likely to require high-intensity services as compared to their youth counterparts. Certainly, young children who access services are highly dependent on their caregivers and often require significant adult involvement across settings (i.e., home, school, daycare, community activities). Further, older students may be just as likely to require high-intensity services as younger children, however since the common points of entry to mental health services differs by age, the highest needs youth such as justice-involved youth, might not have been included in our clinically referred sample from community mental health agencies.

Lastly, findings from this study indicated that the specific reason for referral was uniquely related to the odds that students experienced school disengagement. Specifically, general referrals for psychiatric symptoms were associated with an increase in odds for school

disengagement as compared to engagement in school by two times across age groups. Further, consistent with trends in behavioural challenges across settings, referral for harm to others was found to be associated with an increase in odds for school disengagement as compared to engagement in school by about three times for all students (Splett et al., 2019). Notably, referral for harm to self was found to be associated with an increase in odds for school disengagement as compared to engagement in school and decreased with age from almost four times among young children to two times among youth. That is, as self-harming behaviours increase in prevalence throughout adolescence, the strength of the revealed association between self-harm and school disengagement decreases. Within the classroom, self-harm among young students may be more obvious or disruptive in nature as compared to youth who may use adaptive strategies to conceal their self-harming behaviours. As mentioned in chapter three, youth who engage in self-harming behaviours may in fact be high-achieving students with perfectionistic tendencies who are engaged in school, but are struggling with mental health functioning outside of the classroom setting (Hoff & Muehlenkamp, 2009). Finally, referral for addiction or dependency among youth was found to be associated with an increase in odds for school disengagement as compared to engagement in school by three times as compared to their non-substance addicted counterparts. School staff are uniquely positioned to support students through early identification and referrals to school and community level supports and services.

5.2 Implications for Education and Clinical Practice

Taken together, this dissertation investigated school disengagement as associated with common mental health symptoms and behaviours among clinically referred children and youth. School disengagement has been found to be associated with significant immediate and long-lasting consequences for students and their families. Indeed, school disengagement is associated

with poorer academic achievement, student boredom, and a lack of educational goals as well as dropping out of school early and consequently failing to enroll in post-secondary education (e.g., Archambault, Janosz, Fallu, & Pagani, 2009; Kearney, 2008; Martin, 2007). Further, school disengagement is also associated with internalizing symptoms, conduct and delinquent behaviours, interpersonal difficulties, criminal justice involvement, and unemployment in adolescence and adulthood (Balkis, 2018; Henderson, Hawke, Chaim, & Network, 2017; Henry et al., 2012). Therefore, the effects of school disengagement are far-reaching and associated with impairments in not only academic functioning, but also emotional, behavioural, and social functioning across settings. Subtle changes in a student's school attitude and level of interest in education, as well as the presence of disruptive learning behaviours, are all signals that a student may be struggling more broadly. Not surprisingly, as mentioned in chapter four, students who experience chronic school disengagement and associated negative sequelae represent a disproportionate amount of the expenditures across various service sectors (Cataldi & KewalRamani, 2009; Cohen & Piquero, 2009). Certainly, recognizing and addressing early signs of school disengagement among students is a critical step for reducing the potential individual, social, and financial consequences of persistent school disengagement (Beecham, 2014). This dissertation highlights the importance of providing timely screening and assessment as well as targeted prevention and intervention practices to improve the lives of students at risk for mental health and school problems. Such efforts may reduce the likelihood for the manifestation of acute distress requiring crisis supports while promoting positive wellbeing for children and youth across their lifespan (e.g., Gandhi et al., 2016; Kieling et al., 2011).

Although school staff are uniquely positioned to support students through referrals to more intensive-school and community-based services, when universal screeners are not utilized,

many students requiring mental health support go undetected (Eklund et al., 2009). That is, evidence suggests that teachers are significantly less likely to accurately identify students exhibiting moderate or subclinical mental health symptoms as compared to severe mental health symptoms (Splett et al., 2019). Certainly, pre-service training for educators on signs and symptoms of mental health distress among students is important and this is beginning to take hold across the Province of Ontario (Masia-Warner, Nangle, & Hansen, 2006; Rodger et al., 2020). Further, ongoing professional development on student mental health is needed to ensure that all school staff are made aware of risk factors and possible intervention options available for students who may be in need. Nonetheless, research suggests that all at-risk students cannot be identified without the use of a validated screening measure that addresses a broad range of clinically relevant domains across settings. Ideally, this comprehensive screening measure would be available within the typical school setting and administered by trained educators (Farmer et al., 2003). Notably, education systems tend to be overwhelmed by long waitlists for specialized mental health services. As such, implementation of a comprehensive screening measure that may be administered by trained educators within the school setting would be advantageous to promote timely assessment and triaging as well as immediate access to tiered-intervention supports while awaiting more intensive supports as provided by psychological services or community agencies. Further, given that the education system has been identified as the main point of entry into mental health services for children and youth, implementation of a standardized assessment-to-intervention system within the educational system, could ultimately improve our mental health delivery system (Farmer et al., 2003; Stewart & Toohey, under review). Implementing an integrated assessment-to-intervention approach that can be utilized across multiple service sectors (i.e., preschools, schools, mental health agencies, hospitals, home

care, policing, youth justice, and child welfare) will foster service system integration, reduce the duplication of services, improve communication across sectors with a common language, foster evidence-informed care, and enhance the quality of data for decision making at a system level (Hirdes et al., 2020; Stewart & Hirdes, 2015; Stewart & Toohey, under review). Moreover, administration of such screening and assessment tools by school personnel would eliminate barriers present in traditional avenues for accessing mental health services while also improving triaging and prioritization of student needs from first point of contact. Certainly, a health information system that can direct referrals from within the school setting across service sectors will support the safety of all individuals within the school community by interrupting the progression of school disengagement and reducing the likelihood for exacerbated mental health symptoms and behaviours such as other perpetrated and self-inflicted harm.

Furthermore, findings from this dissertation consistently revealed the requirement of focused prevention and triaging protocols to support students with specific mental health concerns at various stages in development. An assessment-to-intervention approach that provides evidence-informed care plan protocols would be beneficial for students and their supports across sectors. Within the school setting, this may involve professional development for school staff, mental health seminars for students, or presentations for caregivers to promote awareness and recognition of early signs of student distress. Indeed, results reinforced the significance of promoting health literacy and social skills development throughout education. That is, implementation of developmentally appropriate physical and mental health literacy programs for students, their families, and school staff may influence positive school outcomes. In addition, education regarding sleep hygiene for students and their caregivers may be beneficial for promoting healthy sleep habits through elementary school into secondary school. Drug and

addiction education is also important among school-age children and youth to reduce the likelihood of substance dependency problems which can impact adaptive functioning later in life. Moreover, provision of social skills development opportunities and healthy relationship training across school activities may promote positive relationships among members of the school community. Relatedly, continued practices to reduce and eliminate peer victimization is encouraged as many students who experience distress within the educational system tend to be involved in negative peer interactions. Finally, providing opportunities for students to explore and develop their skills and talents through both academic and extra-curricular activities such as athletics, clubs, and immersive learning opportunities can foster student identity development along with positive self-esteem and self-confidence. Nonetheless, many mental health supports and treatments are provided within the education system; however, classroom teachers and school support staff (i.e., social workers, counsellors, psychologists) are not equipped to provide all types of treatments required to address psychopathology (e.g., psychiatric intervention, family support, trauma-focused intervention). Therefore, it is essential that sectors involved in supporting children and youth work together in their approach to addressing distress experienced by young people to maximize reductions in the negative outcomes that may otherwise be experienced (Beecham, 2014; Farmer et al., 2003).

5.3 Future Directions

Several important findings with respect to school disengagement among clinically referred students were documented across the three papers in this dissertation. Indeed, along with noteworthy implications for education and clinical practice, potential future research avenues were also exposed. Continued research focused on disentangling the unique factors associated with school disengagement among sub-populations of students of various ages may offer

opportunities to improve prevention and intervention programs across settings. While previous research suggested that students with greater lived distress are at an increased likelihood for school disengagement, it will be important that future research investigate community and school samples of students across elementary and secondary school to determine sub-clinical factors that may serve as early predictors of school disengagement. In addition, examination of school engagement across critical transitions throughout education (e.g., preschool to elementary school; elementary to middle school; middle to secondary school; secondary to post-secondary school) is needed to support proactive prevention and intervention for students at times of increased vulnerability. Moreover, longitudinal follow-up studies that examine outcomes beyond secondary school including college, university, and career attainment would be beneficial to evaluate the efficacy of prevention and intervention efforts to promote school engagement across various stages. Further, due to limited available demographic and socioeconomic information, cultural and economic diversity within each sample was not explored. Such information may have implications for the suitability of targeted prevention and intervention programming as well as accessibility to program delivery for specific populations. Notably, as mentioned in chapter three, a subset of children engage in many maladaptive coping behaviours (i.e., harm to others, harm to self, substance use, disordered eating) which may represent the highest risk groups of students within both community and clinical settings. Future research should explore the unique characteristics of students at risk for and those engaging in such maladaptive coping behaviours as it is likely that these students would be at the highest risk for school disengagement. Lastly, although relational problems were identified as a factor associated with school disengagement in chapter two among all students, peer victimization and disruptions in living arrangements or educational settings were not specifically examined. Given the long-lasting impact of early life

disruptions and negative interpersonal relationships, further investigation of such factors is recommended. Taken together, research suggests that school disengagement is associated with substantial negative outcomes for students, their families, and society. As a system supporting these young people, it is essential that we work together to do everything we can to prevent such consequences by acting early to identify those at-risk for school problems and providing intervention, both proactively and in a timely manner in response to revealed distress.

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Curriculum Vitae

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2016 – 2021 Ph.D. School and Applied Child Psychology
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