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# A Study of Risk Factors of School Disengagement: Evidence from the InterRAI Child and Youth Mental Health Instrument (ChYMH)

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## Abstract

School disengagement (SD) places students at risk of dropout, academic failure and other negative psychological outcomes. Based on the data derived from a sample of southern Ontario children, this exploratory study aims to identify a wide context of risk factors associated with SD among 1298 school-aged students. Logistic regression model revealed that substance use, family functioning, Attention Distractibility Hyperactivity Disorder (ADHD) and victim of bullying significantly predicted SD. Externalizing problem was slightly stronger than internalizing problem in predicting SD. Females, compared to males, were at lower risk for SD. Implications to decrease the likelihood of premature school termination were also discussed. This study provides further supporting evidence for the argument that early intervention at school is important and improved access to mental health services should be made possible to circumvent more extensive mental health needs in students' later life and decrease premature school termination.

## Keywords

School Disengagement, Risk Factors, interRAI, Mental Health, Intervention, Family Functioning

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# Chapter 1

## 1 Introduction

Children benefit from school education tremendously. Schooling facilitates child development, socialization, and subsequent success later in life (Roeser, Eccles, & Sameroff, 2000). Through school education, children acquire particular skill sets and knowledge necessary for successful entry into the workforce (Huddleston & Oh, 2004; Ontario Education Act, 1990).

However, successful school completion is being undermined by school disengagement, which places students at higher risk of dropout, academic failure and other negative psychological outcomes (Archambault, Janosz, Fallu, & Pagani, 2009; Wang & Holcombe, 2010).

### 1.1 Definition of School Disengagement

School disengagement (SD) is defined as a lack of student involvement and commitment to school curriculum and activities (Glanville & Widhangen, 2007). It consists of multiple components in relation to behavioral, emotional and cognitive domains (Fredricks, Blumenfeld, & Paris, 2004).

With respect to behavioral dimension, school disengagement is associated with decreasing levels of participation. That is, it reflects less and less involvement in academic, social and/or extracurricular activities. It can be manifested by negative conduct such as disruptive behaviors or cutting classes or by reduced attention, concentration and effort on learning tasks and school activities. With respect to the cognitive dimension, school disengagement refers to an unwillingness to invest an effort necessary to process complex ideas and master difficult skills. It can be manifested by low productivity. With respect to the emotional dimension, school disengagement is indicative of negative affect in relation to school-related environment. Disengaged students may lose interest, feel bored, unhappy and anxious about teachers, peers, or classrooms.

In summary, students who disengage from school can refuse to go to school, cut classes, feel dissatisfied with school or school staff, manifest low productivity, and express intent to quit school, or receive expulsions from school.

## 1.2 The Warning Signals of School Disengagement

Certain pathways related to school disengagement can start as early as kindergarten demonstrated by “withdrawal, being silent”, worsening during the fourth to seventh grade, reflected in “showing little interest in school” and later resulting in premature termination of school by grade ten (Balfanz, Herzog, & Mac, 2007). As is shown, dropping out of school presents itself as a gradual process of disengaging or disconnecting from school both physically and emotionally (Finn, 1989).

More specifically, the signs of school disengagement can be characterized by a lack of involvement and attentiveness in school tasks, feelings of alienation from schooling, and having negative attitudes toward school (Archambault, Janosz, Fallu, & Pagini, 2009). Other negative behaviors (i.e., the frequency of absences and tardiness, fighting or getting into trouble, and interfering with others’ work at both the classroom and school levels) are also associated with school disengagement (Finn, 1993; Finn & Rock, 1997). A growing body of research suggests that dropping out is but the final stage in a progressive process of disengagement from school (Appleton et al., 2006; Rumberger & Arelleno, 2007).

## 1.3 The Prevalence of School Disengagement

High school dropout can become a major social problem if many young people leave high school early. It is reported that over 40% of students who attend high school are at risk of dropping out before obtaining their diploma (Fortin, Royer, Potvin, Marcotte, & Yergeau, 2004; Lessard, Fortin, Joly, Royer, & Blaya, 2004). The 2003 Organization for Economic Co-operation and Development (OECD) study (Willms, 2003) of 43 industrialized nations ranks Canada as the 5th highest in proportion of truant high school students when an estimated 26% of 15 year olds have been reported being late, skipping class, or missing school in the two weeks prior to the survey. Similarly, recent studies using large USA nationally representative samples have found truancy rates reaching as high as 11 % (Henry, 2007), which is equal to approximately 2 million students being truant from school at least once in a given month (U.S. Census Bureau, 2011). School disengagement represented by cutting classes and school incompleteness is evidently a widely existing problem.

## 1.4 The Negative Impacts of School Disengagement

Students' high or low engagement in school can exert a significant impact upon an individual's subsequent development into a competent member of society (Eccles & Wang, 2012). Students that actively engaged in school usually achieve higher grades and are better at making psychological adjustment to environmental changes (Li & Lerner, 2011). In contrast, students disengaged from school are more likely to fail academically, drop out before graduation and suffer from social maladjustment (Fortin et al., 2004) or psychological dysfunction (Kaplan et al., 1996).

Dropout, a final stage of school disengagement, is also associated with numerous social and behavioral health problems including poorer mental and physical health problems (Vaughn et al. 2014), less positive life attitudes (Oreopoulos & Salvanes, 2011) and a greater chance of involvement in criminal activity (Lochner & Moretti, 2004) in comparison with those who graduate from high school. School disengagement and high school dropout problem have been accepted as a significant public health issue in the United States and have been recently described as a crisis (Rumberger, 2011).

School disengagement can even have a long-term impact on the national economy (August & Shanahan, 2006; Dynarski, Gleason, Rangarajan, & Wood, 1998). The National Dropout Prevention Center/Network (2009) reports that school dropouts in the United States earn on average \$9,245 a year less than those high school graduates, have unemployment rates almost 13% higher than high school graduates and are also likely to have more extra needs for government assistance and subsidies, thereby contributing to a drain on the economy (Vaughn et al., 2011). The social and behavioral problems related to school disengagement can be very expensive in return. According to Loeber (2003), the cost to society of one youth engaged in a criminal career is estimated to exceed \$2 million.

## 1.5 The Necessities of Studying School Disengagement from Mental Health Perspectives

It is of necessity to study school disengagement from multidimensional perspectives (i.e., mental health perspectives, personal traits, and sociological perspectives) so as to discover in greater depth the differential associations of specific barriers to academic

success. The identified risk factors of school disengagement include poor academic performance exemplified by low literacy or verbal ability, family financial problems and personal dispositional factors such as level of self-determination (Alexander, Entwisle, & Kabbani, 2001; Cairns, R.B., Cairns, B.D., & Neckerman, 1989; Gleason & Dynarski, 2002; Rumberger, 2004). Yet it is obvious that a number of behavioral and psychiatric disorders coexist with school disengagement (Vaughn et al., 2011). One of the reasons previously discussed indicates that these behavioral and psychiatric disorders are often related to the impact of transitional events from elementary grades to the middle and high school grades when students are confronted with many new academic and social challenges (Balfanz, Herzog, & Mac, 2007). A thorough investigation of school disengagement requires additional attention paid to students' mental health status too.

The identification of mental health risk factors can communicate warning signals of emerging or existing mental health problems among children and adolescents. Roderick and colleagues (1997) identify mental health problems as factors related to school attendance. It is reported that there is an increasing risk for depression, drug involvement, and suicidal behavior among disengaged students who drop out of school (Eggert, Thompson, Randell, & Pike, 2002). It is also reported that although the majority of children and adolescents in need of mental health services receive no services at all, 70% of those who finally receive services admit their primary source is from school (USDHHS, 1999). In this sense, school can play a vital role in identifying early signs of mental health needs in light of students' attendance records or school engagement indicators. Schools are practically capable of assuming the responsibilities of promoting mental health literacy and initiating relevant mental health intervention programs. Early intervention at the school will make it possible for improved access to mental health services, thereby circumventing more extensive mental health needs in later life, including factors contributing to premature school termination.

A thorough exploration of the risk factors can meanwhile contribute to identifying protective factors that may alleviate school disengagement and provide clues about implementations of effective intervention programs to boost students' healthy development cognitively, behaviorally and emotionally. Due to the series of long-term

negative outcomes closely associated with school disengagement, researchers and educators are paying growing attention to school disengagement in the hope of finding a way to intervene and address students' low motivation, poor achievement and high dropout rates (Fredricks, Blumenfeld & Paris, 2004).

## Chapter 2

### 2 Literature Review

A large proportion of psychological and educational literature has investigated the issue of school disengagement with a focus on the serious risks and negative consequences from various individual perspectives. The risk factors previously studied concerning SD include poor academic performance (Alexander, Entwistle, & Kabbani, 2001), depressive symptoms (Garvik, Idsoe, & Bru, 2014), psychiatric correlates (Vaughn et al., 2011), health risks (Barrowman, Nutbeam, & Tresidder, 2001), family bonds (Kim & Page, 2013), cognitive difficulty (Sigrun & Halldor, 2015), disruptive behaviors (Bourke & Burgman, 2009), and substance use (Perra, Fletcher, Bonell, Higgins, & McCrystal, 2012). Although there is substantial prior research literature on school disengagement, most of them only concentrate on a single perspective such as either cognitive dimension (Doren, Murray, & Gau, 2014) or behavioral dimension (Perra, Fletcher, Bonell, Higgins, & McCrystal, 2012) or emotional dimension (Kim & Page, 2013). Few studies have examined school disengagement by viewing a number of factors in connection simultaneously across different dimensions. A relevant example of literature is concerned about a study of different patterns of school disengagement and the impact of different patterns of school engagement on educational success and mental health (Wang & Peck, 2013). In contrast, due to the comprehensive nature of the assessment utilized, the present study has the ability to examine a variety of factors related to school disengagement by including a majority of the variables outlined in the previous literature. Hence, this study serves as a good example to fill the gap of exploring risk factors of school disengagement from a panoramic view.

In addition, despite the significance of school disengagement, there are few studies of school disengagement in relation to psychopathology and behavioral functioning using large representative samples. Also, there is a gap in the research literature on the relationship between school disengagement and psychiatric comorbidity, and filling this gap is necessary to inform future prevention efforts and policy making (Vaughn, 2010). In this sense, by using a large representative sample, this study can constructively supplement the current literature on the school disengagement risk factor analysis in relation to psychiatric comorbidity.

Finally, the examination of school disengagement in previous literature has concentrated on only a few key constructs (e.g., school refusal, school dropout, school retention, absenteeism, or school expulsion) and does not take a more holistic approach to determining the multitude of factors that measure SD. To fill this gap, in the present study, school disengagement consists of a wider range of indicators and is not only confined to a single perspective (i.e., school refusal or school dropout). Specifically, to determine SD, this study utilizes more diversified, comprehensive content and is more representative of its manifestations than previously contributed literature.

## 2.1 The Relationship between School Disengagement and Internalizing Problems

In pediatric mental health, internalizing problems are cursorily categorized at least by the following 3 conditions: depressive disorders, anxiety disorders and somatic complaints (Liu, Chen, & Lewis, 2011).

Depression now is assumed as one of the most common mental health problems in childhood and adolescence (Lewinsohn & Hops, 1993). A recent study from USA (Merikangas et al., 2010) suggests that an estimated 11.7% of 13–18-year-olds meet the criteria of a depressive disorder. The 12-month prevalence of adolescent depression in Canada in 1996 was estimated to be between 7 and 9 % (Wade, Cairney, & Pevalin, 2002). Higher rates have surfaced within Ontario on the Ontario School Mental Health Survey suggesting that anxiety and depression has increased and conduct disorder has decreased in children and youth (Georgiades, Boyle, Short & Manion, 2015).

Previous research has found that negative views of the self and the world are related to depression (Hammen & Rudolph, 1996; Pomerantz & Rudolph, 2003). Students with depression are characterized by: avoidance of challenges, lack of persistence in the face of failure, excessive concerns about their competence, feelings of helplessness, ineffective learning strategies, inability to adapt to failure, and negative emotions (Elliott & Dweck, 1988). According to Wang and Peck (2013), higher rates of depression are found in emotionally disengaged and minimally engaged adolescents than their peers. Depressed students are more likely to develop low



perceived self-efficacy (Bandura, 1986) than non-depressed counterparts. In comparison with disengaged students, engaged students who have a strong sense of self-efficacy tend to participate within the school context and community, work harder, and are willing to persist longer when academic challenges lie ahead (Zimmerman, 2000). Students with high levels of engagement are also found to have reduced risk of depression and suicidal ideation compared to students with low engagement (Carter et al., 2007).

Similarly, depression can have damaging effects on adolescent social and cognitive functioning (Kovacs & Goldstone, 1991). Adolescents showing serious emotional distress and depression symptoms are at risk for school failure and dropout (Quiroga, Janosz, Lyons, & Morin, 2012; Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005).

However, in Wang and Peck's study (2013), a moderate link is found between depressive symptoms and school engagement, which suggests that the association between the two variables is not so strong since many depressed adolescents are still able to remain in school despite suffering from symptoms of depression (Garvik, Idsoe, & Bru, 2014). This phenomenon communicates to educators a warning message that depression in youth may be difficult to detect.

Other mood disturbances, in addition to major depression, have been found to be connected with school disengagement based on the previous literature. According to Vaughn (2011), there is a significant comorbidity between school disengagement with both bipolar disorder and anxiety disorders. It is also found that both moderate ( $OR=1.12$   $CI=1.01-1.24$ ) and severely disengaged ( $OR=1.30$ ,  $CI=1.02-1.65$ ) participants are more likely to be diagnosed with specific phobias (Vaughn, et al., 2011). It is reported that people with social phobia are especially likely to drop out of high school prematurely (Ameringen, Mancinib, & Farvolden, 2001). As Monroe et al. (1992) reported, 25% of students cite communication apprehension as the primary reason for dropping out of high school. Approximately half of the pupils with internalizing problems do not like to go to school, compared with one third of their peers without internalizing problems.

In summary, children and adolescents with anxiety disorders, and perhaps especially those with social phobia, are at risk for underachieving in school and dropping out (Ameringena, Mancinia, & Farvoldenb, 2001).

## 2.2 The Relationship between School Disengagement and Externalizing Problems

In contrast to internalizing problems, externalizing problems are usually displayed outwardly and are manifested by behaviors towards the physical environment including conduct disorder, aggression and violence (Eisenberg et al. 2001). School disengagement now is considered as a synonym for delinquency and conduct problems since the two terms often co-occur (Farrington, 1989; Sweeten, Bushway, & Paternoster, 2009). Based on the largest U.S epidemiological study examining the association between behavioral indicators of school disengagement and psychiatric diagnoses, findings indicate that school disengagement is associated with a higher prevalence of externalizing disorders including antisocial behaviors, aggression as well as comorbid psychiatric disorders (i.e., substance use disorders and antisocial personality disorder) (Vaughn, et al., 2011). Results indicate that externalizing behavior problems, such as aggression or delinquency, contribute to an increased likelihood of dropping out (Fortin et al. 2004; Kasen et al. 1998; Newcomb et al. 2002). Among personal factors, a disruptive behavioral record (i.e., aggressive-hyperactive-oppositional behaviors) has repeatedly been shown to be associated with early withdrawal from school, even after controlling for familial and socioeconomic factors (Parker & Asher, 1987). Compared to non-engaged counterparts, engaged respondents exhibit the lowest rates of antisocial behaviors. The prevalence of antisocial behaviors is typically 6.32 times greater for respondents reporting a lifetime history of severe disengagement from school compared to respondents with no such history (Vaughan, et al, 2011).

Moreover, many forms of community and school violence have been committed by students with a history of social alienation and detachment at school (Sandhu, Arora, & Sandhu, 2001). Students with high levels of engagement are identified as exhibiting lower levels of problem behaviors (Finn & Rock, 1997 ; Gutman & Midgley, 2000 ) and lower rates of violence, aggression (e.g., fighting) and conduct-related problems. (Carter et al., 2007; Fredricks et al., 2004; Henrich et al., 2005; Loukas et al., 2006).

Furthermore, student engagement has been identified as a protective factor against weapon carrying for ethnically diverse males and African-American females (Kodjo, Auinger, & Ryan, 2003).

### 2.3 The Relationship between School Disengagement and Substance Use

There is also a significant relationship between school disengagement and substance use. Severely disengaged students have been found to be nearly three times more likely than engaged students to possess an alcohol use disorder, cannabis use disorder, nicotine dependence, and any drug use disorder (Vaughn, et al., 2011).

However, it is interesting to note that Drapela (2005) finds that dropout and drug use are only very modestly related and suggests that school discipline problems and pre-dropout levels of drug use, are better predictors of later drug use than dropout itself.

### 2.4 The Relationship between School Disengagement and Family Relations

Parents, as a child's first and primary guide throughout their schooling experiences, can have a significant influence on a child's educational aspiration, skill development and academic achievement. Problematic family functioning has been highlighted as a contributor to school refusal in children and adolescents (Hersov, 1985). Recent research further emphasizes the importance of the family system when family dysfunction is identified as a predictor of school refusal (Carless, 2014). With regard to other research, positive parent-adolescent relationships are significantly related to higher levels of student engagement (psychological and behavioral) among middle-class African American adolescents (Sirin & Rogers-Sirin, 2005). For urban adolescents, perceived social support from family members is related to greater student engagement (academic and behavioral), whereas perceived barriers—including family and social barriers—are associated with less student engagement. (Kenny, Blustein, Chaves, Grossman, & Gallagher, 2003).

Numerous empirical findings indicate that a child's secure attachment to parents can have profound effects on children's developmental domains. Children who have secure attachments with their caregivers appear to have better behavioral management skills in the school setting (Granot & Mayseless, 2001) and are more motivated to

achieve in school (Moss & St-Laurent, 2001). On the other hand, when a caregiver is inconsistently responsive to a child's distress, or has lower tolerance or unable to manage the child's regulation of emotion, the child is unlikely to learn how to manage negative affect and may develop a strategy of heightening emotion to maintain the attention of the caregiver. It is then quite likely that children will generalize the negative emotionality in their parental relationships to relations with others and encounter similar relational problems (Guttman- Steinmetz & Crowell, 2006). This might partly explain why children with family functioning problems are more likely to disengage from school.

## 2.5 The Relationship between School Disengagement, and ADHD

Defined as “a persistent pattern of inattention and/or hyperactivity–impulsivity that interferes with functioning or development” (American Psychiatric Association, DSM-5, 2013, p. 59), ADHD is affecting approximately 5% to 7% of children worldwide as a type of neurodevelopmental disorder (Willcutt, 2012). Approximately 5 to 14 percent of Canadian children have been diagnosed with ADHD (Barkley, 2006). Students with ADHD typically exhibit a variety of behaviors characterized by attentional problems, distractibility, impulsivity-hyperactivity and impairment of social functioning and these symptoms can have a great negative impact upon students' classroom and academic performance (Dupaul & Jimerson, 2014).

Twenty five percent of individuals with ADHD are also reported to have a learning disability (LD) (Pliszka, 2000). LD can place children in difficulty with one or more of the basic processes involved in understanding or in using language, spoken or written. The children who are diagnosed with LD often have difficulty listening to the class curriculum, display deficits in executive functioning and struggle with task completion (IDEA, 2004). Given the characteristics of ADHD as discussed above, it is understandable that 90% of school age children with ADHD underachieve in school; half repeat at least one year; and 30% drop out prior to completion of high school (Hechtman, 1995). Other supportive literature with this conclusion suggests that groups of adolescents who may have an increased risk for high school dropout are youth with ADHD (Weiss & Hechtman, 1986). School dropout has even been proposed as the most ubiquitous risk associated with ADHD (DuPaul et al., 2004).

Meanwhile, students with ADHD may exhibit certain behavioral problems such as openly defying teacher commands and classroom rules, and breaking major school rules (e.g., truancy, Barkley, 2015). Children and adolescents with ADHD are more likely to repeat a grade, to be referred and identified for special education services, suspended, and drop out of school compared to their peers (Barkley, Fischer, Smallish, & Fletcher, 2006).

It is also common to find comorbid psychopathology in students with ADHD. Students with ADHD, during school age and adolescence, can exhibit externalizing and internalizing symptoms (Larsson, Dilshad, Lichtenstein, & Barker, 2011). According to the summary by Barkley, 10–40% of ADHD children have anxiety disorders, 9–32% have major depression, 6–20% have bipolar disorder, 54–67% have oppositional defiant disorder (ODD), and 20–56% have conduct disorder (CD) (Barkley, 1998). These comorbid features place students with ADHD at higher risk of school disengagement and later dropout.

## 2.6 The Relationship between School Disengagement and Victim of Bullying

Aggression and peer victimization are significant problems for many elementary and middle school students. Dan Olweus (1995) gives a classic definition to bullying in school: “a student is being bullied or victimized when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other students.” Manifestations of bullying include being called names, social exclusion, and being threatened or physically attacked (Patchin & Hinduja, 2011). An additional criterion of bullying is related to inferiority in strength, that is, the student who is exposed to the negative actions has difficulty defending himself or herself (Esselmont, 2014).

Research has linked victimization to a number of serious negative outcomes including poor academic performance (Bakken & Gunter, 2012; Menard & Grotper, 2011). It is also reported that an unsafe school environment with school violence is likely to increase school refusal (Egger, Costello, & Angold, 2003; Wilkins, 2008). Such an environment could increase the rate of problematic relationships between students, which may be a significant contributor to school refusal. Research further suggests

that bullying victimization is associated with lower perceptions of safety at school (Astor et al., 2002). Similarly, being left out, being isolated, peer conflicts and fear of fellow students have all been found to be related to school refusal (Soyama, Honma, & Yaguchi, 2004; Carroll, 2011; Place, Taylor, & Davis, 2000). Moreover, research indicates that being a victim of bullying is an important reason for school absence (Lyon & Cotler, 2007; Place, Taylor, & Davis, 2000).

## 2.7 The Relationship between School Disengagement and Demographic Characteristics

The research findings recording the relationship between age and school disengagement is mixed. It is reported that truancy increases with age (Attwood & Croll, 2006; Hunt & Hopko, 2009; McAra, 2004; O'Malley et al., 2006; Smith et al., 2010). Also, on average, students' grades and attendance decline after moving from elementary school into junior high and high school (Eccles, Lord, & Midgley, 1991). An increase in absenteeism is an important part of school disengagement. Truancy and decline in attendance are significant indicators of school disengagement. However, age in itself is not a particularly good predictor of risk status (Morrison et al., 1997).

Many researchers have also examined the influence of sex on the risk of dropping out, but the findings are not consistent. For example, earlier studies conducted on school dropouts indicated that being male increases the dropout probability (Rumberger, 1995); however, more recent studies statistically controlling such factors as academic performance (Battin-Pearson, et al., 2000) or aggressive behavior (Alexander, et al., 1997) show that the probability that girls will drop out is greater than that of boys. It has also been found that male students are more likely to skip school (Van der Aa, Rebollo-Mesa, Willemsen, Boomsma, & Bartels, 2009), and be less academically motivated (Chouinard & Roy, 2008; Cox, et al., 2007). Conversely, female students are more likely to report health-related absenteeism than male counterparts (Pathammavong, et al., 2011). Fletcher (2008) identifies a significant association between depression and school disengagement among females only. Similarly, McCarthy et al. (2008) finds that depression in adolescence is related to school failure solely for girls. In a study examining students at-risk of school dropout, Lessard et al. (2004) note that girls report stronger school bonds than boys, especially concerning

student engagement in class, affiliation with peers, perceiving clearer rules in class, and having more positive attitudes towards teachers and the school. In contrast with girls, boys usually take a casual and detached attitude toward school as a result of the stereotyped beliefs that girls have to work hard to learn in school, whereas boys are naturally gifted (Cohen, 1998).

Data from the 2006 Census of Canada indicates that 19.8 percent of Canada's population is foreign born, and 16.2 percent of the population identified themselves as visible minorities. In many Canadian cities, such as Toronto, Vancouver, Mississauga, and Markham, immigrants and visible minorities make up close to 50% of the population or more (Statistics Canada 2006, 2008). USA Department of Education (2002) also reports that the number of English as a second language (ESL) learners enrolled across the nation has increased from 2.1 million to 4.4 million during the past decade. Among ESL learners, more than 400 first (or home) languages are represented nationally. It is estimated that ESL learners will reach 40% of the kindergarten to high school student population in the United States by the year 2030 (U.S. Department of Education, 2003).

However, in an analysis of National Assessment of Educational Progress data, Mazzeo, Carlson, Voelkl, and Lutkus (2000) found that 70% of 4th-grade, 62% of 8th-grade, and 50% of 12th-grade ESL learners score below grade level in English/language arts. Specifically, ESL learners who speak English with some degree of fluency are found to be 3 times as likely to drop out as their English-dominant peers, whereas ESL learners who have difficulty with English are 5 times more likely to drop out (August & Shanahan, 2006), which indicates that lower English proficiency is linked to school dropout.

## Chapter 3

### 3 The Present Study

Elucidating risk and protective factors for school disengagement can serve to reduce the long term negative impacts of school disruption on children and youth (e.g., school dropout, underemployment, Balfanz, Herzog, & Mac, 2007; Willms, 2003 ). However, previous research has been largely limited in focus (e.g., one risk factor) and a more comprehensive examination (e.g., multiple risk factors across a variety of domains) is needed. This research aimed to study a variety of risk factors associated with school disengagement among students aged from 4 to 18 years based on interRAI Child and Youth Mental Health (ChYMH) instrument data (Stewart et al., 2015). By including age, sex, English proficiency, internalizing problems, externalizing problems, substance use, family functioning, ADHD and victim of bullying as predictors of school disengagement, the present study provides a thorough investigation of the associations between a wide context of risk factors and school disengagement among clinically referred children and youth.

#### 3.1 Research Hypotheses

Based on previous research, first the bivariate associations were examined between individual risk factors and school disruption (see specific hypotheses below). Second, we then extended previous research by examining the multivariate effect of the included risk factors on school disruption (see specific hypothesis below).

##### *Hypothesis One:*

1-a Males are more likely to be disengaged in school than females.

1-b School disengagement will increase with age.

1-c Children who lack English language proficiency will be more likely to experience school disengagement.

1-d Children who have internalizing problems will be more likely to experience school disengagement.



1-e Children who have externalizing problems will be more likely to experience school disengagement.

1-f Children who have substance use problems will be more likely to experience school disengagement.

1-g: Children who are victims of bullying will be more likely to experience school disengagement.

1-h Children who are diagnosed with ADHD will be more likely to experience school disengagement.

1-i Children who have difficulties with family functioning will be more likely to experience school disengagement.

*Hypothesis Two:*

The predictors of sex, internalizing problems, externalizing problems, substance use, family functioning, ADHD and victim of bullying exert varying degrees of impact on school disengagement prediction.

## Chapter 4

### 4 Methods

#### 4.1 Participants

The study sample was comprised of 1298 clients assessed as part of normal clinical practice across 10 sites that provide mental health services within the province of Ontario. Among the participants, 842 (64.9%) were male and 456 (35.1%) were female. The participants' age ranged from 4 to 18 years ( $M = 11.08$ ,  $SD = 3.44$ ). There were 1269 (97.8%) of participants who spoke English as their primary language and 29 (2.2%) of them spoke other languages including French, Mandarin, Farsi, Arabic, Italian, Polish, Spanish, Turkish, Vietnamese as their primary language.

#### 4.2 Procedures

Data was collected using the February (2015) interRAI Child and Youth Mental Health (ChYMH) instrument and the Adolescent Supplement (Stewart, Hirdes et al., 2015). The interRAI ChYMH was among a suite of instruments developed through an international collaborative network in an effort to improve the quality of life for vulnerable people.

As a comprehensive, standardized multi-source clinical assessment, the interRAI ChYMH assessed mental health issues in children and youth between the ages of 4-18 years. The assessment utilizes a semi-structured interview format incorporating the collection of a broad range of common problems encountered by students with mental health problems. The instrument measured domains included mental state indicators, substance use or excessive behavior, strengths and resilience, cognition and executive functioning, independence of daily living, health conditions, family and social relations, stress and trauma, medication, prevention, service utilization, treatments, nutritional status, education, environmental assessment, diagnostic and other health related information. Clinicians completed the instrument using all sources of information, including direct contact with the family and their child or youth, other service providers where possible (e.g., educators, mental health care clinicians) and additional collateral information (e.g. case records, report cards). Each assessor involved in the study had obtained a diploma or degree in the area of child and youth

mental health and had at least two years of clinical experience working with children or youth. Each assessor also received a 2-day training program focused on the administration of the interRAI ChYMH.

The interRAI ChYMH assessment was completed at multiple time points (e.g., intake, discharge). In this study, only initial assessments were extracted for statistical analyses to prevent duplication of records.

Rigorous reliability and validity studies have been conducted across the family of instruments displaying strong psychometric properties for adults (Burrows, Morris, Simon, Hirdes, & Phillips, 2000), children, and youth (Ninan, Stewart, & Baiden, 2013; Phillips et al., 2012; Stewart, Currie, Arbeau, Leschied, & Kerry, 2015). In summary, the interRAI ChYMH provided a comprehensive picture of individuals' strengths, needs, functioning, and areas of risk to inform care planning for clients with mental health needs (Stewart, et. al, 2015).

## 4.3 Measures

### 4.3.1 School Disruption Scale (RSD)

In this study, the outcome variable, School Disengagement (SD) was measured by the Risk for School Disruption Scale (RSD). RSD was initially created by examining 6 different items on the ChYMH and ChYMH-DD that provided information regarding risk of disruption in school. RSD included items regarding as to whether or not a student had: an increase in lateness or absenteeism; poor productivity or disruptiveness at school; expressed intent to quit school; conflict with school staff; expressed strong, persistent dissatisfaction with school, refused to attend school; or if the student was currently removed from school. The RSD scale has been shown to have strong internal reliability and criterion validity (Stewart, Klassen, & Tohvner, 2015). It was found to be a useful measure to detect the severity of school disengagement and disruption, facilitating opportunities for improved care planning, quality measurement and future research (Stewart, Klassen, & Tohvner, 2015).

The RSD scale was originally scored from 0 to 8 with higher scores being indicative of increasing risk of School Disruption. This scale was used as categorical in nature due to the fact that its composite score was under 9 and scores on the scale were not

of equal distance apart (Field , 2001). For the purpose of the analyses in this study, this scale was categorized into the following values: “0-No School Disruption” (if scored 0 on SD) or “1-Presence of School Disruption” (if scored 1-8 on the School Disruption Scale”).

### 4.3.2 Internalizing Problems

Within the interRAI ChYMH instrument, there were various subscales measuring constructs related to child mental health issues. In this study, the validated Internalizing Scale (IS) from interRAI ChYMH was used to measure internalizing problems. The Internalizing Scale was a 13-item scale assessing the frequency of symptoms of internalizing problems within the past three days (i.e., sad, pained, or worried facial expressions; crying, tearfulness; made negative statements; self-deprecation; expressions of guilt or shame; expressions of hopelessness; repetitive anxious complaints/concerns (non-health-related); expressions, including non-verbal behaviors, of what appear to be unrealistic fears; episodes of panic; negative symptoms and lack of interest in social interaction; lack of motivation; expressions (including non-verbal) of a lack of pleasure in life; withdrawal from activities of interest). The frequency of each behavior was assessed using a 4-point scale (0 = not present to 4 = Exhibited daily in last 3 days, 3 or more episodes or continuously), which was totaled to provide a composite score (from 0-52). As the composite score is over 9 and scores on the scale were of equal distance apart, the internalizing scale functioned as a continuous scale. Higher scores indicated higher levels of internalizing problems. The IS scale had reliability of all Cronbach’s  $\alpha$  .80, indicating a good internal consistency as a value of .7 to .8 was regarded as an acceptable value for Cronbach’s  $\alpha$  (Field, 2009).

### 4.3.3 Externalizing Problems

Similarly, within the interRAI ChYMH instrument, there was also a validated subscale (i.e., Externalizing Scale/ES) measuring externalizing problems. This subscale is an eight-item Externalizing Scale (ES) assessing the frequency and severity of externalizing behavior (i.e., physical abuse; verbal abuse; outburst of anger; destructive behavior towards property; defiant behavior; argumentativeness; resist care; extreme risk-taking) within the past three days. The frequency of each behavior was assessed using a 4-point scale (0 = not present to 4 = Exhibited daily in

last 3 days, 3 or more episodes or continuously), which was totaled to provide a composite score (from 0-32). As the composite score is over 9 and scores on the scale were of equal distance apart, the externalizing scale functioned as a continuous scale. Higher scores indicated increasing levels of externalizing problem. The ES scale had reliability of all Cronbach's  $\alpha$  .86, indicating a good internal consistency as a value of .7 to .8 was regarded as an acceptable value for Cronbach's  $\alpha$  (Field, 2009).

#### 4.3.4 Substance Use

In order to measure substance use, multiple sources of information was utilized to determine substance use by participants. For example, clinical notes, collateral contact, parent and participant information was used to determine if participants consumed alcohol to point of intoxication, used inhalants, hallucinogens, cocaine or crack, stimulants, opiates or cannabis over the last year. Intentional misuse of prescription or over-the-counter medication in last 90 days was also determined in a similar fashion. The answers to the item were endorsed as "yes" or "no". Items that were endorsed as a "yes" were considered to have engaged in substance use.

#### 4.3.5 Family Functioning

The six-item family functioning scale was created to measure the level of functioning present in the family. Family functioning scale included the following items: strong and supportive relationship with family; family is persistently hostile or critical of child/youth; family members report feeling overwhelmed by child/youth's condition; parent/primary caregiver was unable/unwilling to continue caring; parent/primary caregiver had current developmental, mental health or substance use issues or whether sibling(s) had current developmental, mental health or substance use issues.

Family functioning scale was originally scored from 0 to 6 with higher scores being indicative of weaker family functioning. It was not a continuous variable as its composite score was under 9. For the purpose of the analyses in this study, this scale was used to create a family functioning item with the following values: "0-No Family Functioning Problem" (if scored 0 on family functioning scale) or "1-Presence of Family Functioning Problem" (if scored 1-6 on the family functioning scale").

### 4.3.6 ADHD

The ADHD categories were identified based on the DSM-IV diagnoses determined by the psychiatrist, registered psychologist or attending physician. The answers to the DSM Provisional Diagnostic Category ranked their importance as factors contributing to the current assessment admission. The responses to the ADHD diagnosis ranged from 0=Not present, 1= Most important, 2=Second most important, 3=Third most important, 4= Less important, 8=No provisional diagnosis. The participants receiving a 0 or an 8 were recoded as a 0 to indicate no ADHD DSM-IV Provisional Diagnostic Category (Code=0). Participants who received 1, 2, 3 or 4 were included in the diagnostic category (Code=1).

### 4.3.7 Victim of Bullying

Victim of bullying was measured by the item “victim of bullying” from the Life Event Section on the interRAI ChYMH instrument. The answers to this question were 0=Never, 1=More than 1 year ago, 2=31 days-1 year ago, 3=8-30 days ago, 4=4-7 days ago, 5=In last 3 days. In this study, the answer “Never” was coded as a 0 while all the others (1-5) were coded as 1 for analysis.

### 4.3.8 Demographic Variables

Questions regarding sex, age and primary language were also included. In this study, males were coded as 0 and females were coded as 1. English proficiency was measured based on whether English was spoken as primary language. English-as-primary-language speakers were coded as 0 and Non-English-as-primary-language speakers were coded as 1.

## 4.4 Statistical Analyses

Statistical analyses were performed using SPSS software, version 22 (SPSS, Chicago, IL, USA). Bivariate analyses of *chi*-square tests and Mann-Whitney tests were conducted to identify the relationship between School Disengagement (as represented on the RSD scale) and several risk factors (i.e., age, sex, English as primary language, family functioning, substance use, victim of bullying, ADHD, internalizing problems and externalizing problems). Finally, with demographic variables controlled, multivariate analysis using logistic regression was then performed to examine the

probability of school disengagement with types of risk factors as the main explanatory variables. However, before the multivariate logistic regression was conducted, any violations of assumption were checked with respect to sample size, multicollinearity and linearity of the logit.

For all the analyses, the statistically significant level was set to .05 and adjusted odds ratios (Expected  $\beta$ ) were considered statistically significant only if associated confidence intervals did not include the value 1.0.

## Chapter 5

### 5 Results

#### 5.1 Bivariate Analyses

This study aimed to examine whether students aged from 4 to 18 years were more likely to be disengaged in school if they experienced one of the following: 1) an internalizing problem; 2) an externalizing problem; 3) problems with family functioning; 4) substance use; 5) an ADHD diagnosis; or 6) bullying. Demographic variables (i.e., age, sex, & English as a primary language) were also included in the bivariate analyses. Multiple bivariate analyses were conducted respectively to measure group differences in risk (i.e., internalizing problems, externalizing problems, problems with family, substance use, ADHD, bullying, age, sex, or English as primary language) between students with and without school disruption. For categorical data (i.e., problems with family functioning, ADHD, victim of bullying, sex, substance use, English as primary language), *chi*-square tests were used. For continuous data (i.e., age, internalizing problems, externalizing problems), Mann-Whitney tests were used to examine whether there were any difference between SD students and non-SD students in age, internalizing problems, or externalizing problems. Mann-Whitney tests were adopted because age, internalizing problems and externalizing problems were not normally distributed, violating the assumption of the independent *t*-test (Field, 2009). Table 5-1 displays the observed frequencies, percentages, bivariate analyses results with *p* value, *U* value and *chi*-square value.

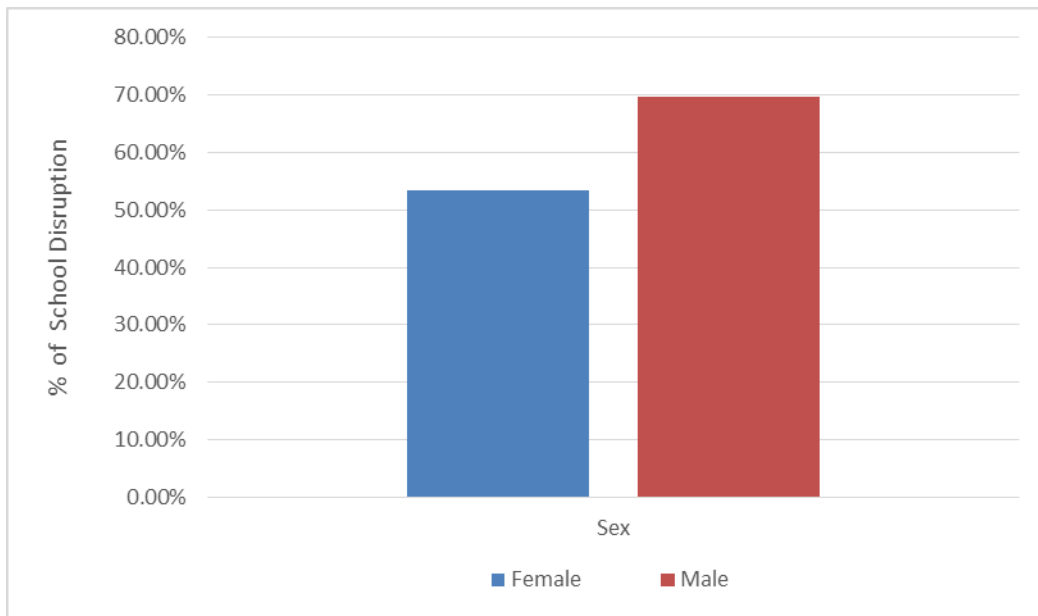
##### 5.1.1 Demographic Characteristics and SD

A *chi*-square test of independence was performed to examine the relation between sex and RSD (representing SD). A significant association between sex and SD was found,  $\chi^2(1, N = 1241) = 33.26, p < .001$ . The cross tabulation showed that among the male participants 69.5% had SD, while among the female participants 53.5% had SD. The results indicated that males were more likely to have SD than females (See Figure 5-1). Hence, hypothesis 1-a was supported.

A Mann-Whitney test result indicated that age was not greater for SD students (*Mdn* =11) than for non-SD students (*Mdn* =11),  $U = 165297.5, z = -1.79, p > .05$ . It



indicated there was no difference in age between SD students and non-SD students (See Table 5-1). Hence, hypothesis 1-b was not supported.



**Figure 5-1.** School Disruption by Sex

Meanwhile among non-English-as-primary-language participants, *chi*-square tests for independence indicated that there was no relationship between English as primary language and SD,  $\chi^2(1, N=1241) = 69, p > .05$ . It could not be concluded that non-English-as-primary-language students were more likely to be school disengaged than English-as-primary-language-students (See Table 5-1). Hence, hypothesis 1-c was not supported.

### 5.1.2 Social Characteristics and SD

A *chi*-square test for independence indicated that there was a significant relationship between family functioning and SD,  $\chi^2(1, N =1241) =75.09, p < .001$ . Among the participants with family functioning problems, 71.8% experienced SD while among the participants with no presence of family functioning problem, only 45.9% experienced SD. Students who were experiencing problems related to family functioning were more likely disengaged in school than those relatively intact families (See Table 5-1). Hypothesis 1-i was supported.

There was also a significant relationship identified between victim of bullying and SD,  $\chi^2(1, N =1241) = 29.52, p < .001$ . Among the participants, 57.3% non-victims of

bullying were disengaged in school, while 72.2% victims of bullying were disengaged in school (See Table 5-1). Considering the higher percentage of victims of bullying

Table 5-1. *Sample Characteristics by School Disruption and Non-School Disruption*

Characteristics	No SD n = 455	Yes SD n = 796	$\chi^2$	U	OR	RR
Age in Years (Mdn)	11	11		165297		
Sex			33.26***			
Male	241 (30.5%)	561 (69.5%)			2.02	1.30
Female	204 (46.5%)	235 (53.5%)			.49	.76
Internalizing Problems (Mdn)	10.00	15.00		128528***		
Externalizing Problems(Mdn)	6.00	12.00		110616***		
Substance Use			9.18**			
No	418 (37.2%)	706 (62.8%)			.51	.82
Yes	27 (23.1%)	90 (76.9%)			1.97	1.22
Family Functioning			75.09***			
No	198 (54.1%)	168 (45.9%)			.33	.64
Yes	247 (28.2%)	628 (71.8%)			2.99	1.56
ADHD			49.90***			
No	287 (45.3%)	347 (54.7%)			.42	.74
Yes	158 (26.0%)	449 (74.0%)			2.35	1.35
Victim of Bullying			29.52***			
No	286 (42.7%)	384 (57.3%)			.52	.79
Yes	159 (27.8%)	412 (72.2%)			1.93	1.26

Note: Mdn=Median; SD=School Disengagement; OR= Odds Ratio; RR=Relative Risk; \*\*\* =  $p < .001$ ; \*\* =  $p < .005$ ; \* =  $p < .05$

who were disengaged, the results indicated that students of victims of bullying were more likely to be school disengaged. Hence, hypothesis 1-g was supported.

### 5.1.3 Psychiatric Characteristics and SD

A Mann-Whitney test result indicated that internalizing problems were greater for SD students ( $Mdn=15$ ) than for non-SD students ( $Mdn =10$ ),  $U = 128528$ ,  $z = -8.03$ ,  $p < .001$ . Therefore, hypothesis 1-d was supported by the results indicating that students with internalizing problems were more likely to be disengaged in school (See Table 5-1). A Mann-Whitney test also indicated that externalizing problems were greater for SD students ( $Mdn = 12$ ) than for non-SD students ( $Mdn = 6$ ),  $U = 110615.5$ ,  $z = -10.99$ ,  $p < .001$ . Therefore, hypothesis 1-e was also supported (see Table 5-1).

*Chi*-square tests indicated that there was a significant relationship between substance use and SD,  $\chi^2 (1, N = 1241) = 9.18$ ,  $p < .005$ . Among the non-substance-use students, 62.8% were school disengaged, while among substance-use students, 76.9% were school disengaged. Findings indicated that students utilizing substances were more likely to be school disengaged than students who were not using substances (See Table 5-1). Hence, hypothesis 1-f was well supported.

*Chi*-square tests for independence also indicated that there was a significant relationship between ADHD and SD,  $\chi^2 (1, N = 1241) = 49.90$ ,  $p < .001$ . The results indicated that students with ADHD were more likely to be school disengaged (74%) than students without ADHD (54.7%) (See Table 5-1). Hence, hypothesis 1-h was supported.

## 5.2 Multivariate Binary Logistic Regression Analysis

Multivariate binary logistic regression analysis was conducted to examine the varying degrees of associations between the Risk of School Disruption and the identified risk factors. The predictor variables were sex, internalizing problems, externalizing problems, substance use, family functioning, victim of bullying and ADHD. Age and English as primary language were not included because they were not associated with SD.

### 5.2.1 Testing Assumptions

Before multivariate binary logistic regression was conducted, assumptions were checked to make sure that sample size should meet logistic regression criteria. Linearity of the logit was confirmed to ensure there were no high inter-correlations among the predictors. Based on the criteria for sample size (Field, 2005), it was suggested that there should be at least 10 cases for each predictor / independent variable for logistic regression. Only significant predictors from the bivariate analyses were included in the multivariate model (i.e., sex, victim of bullying, family functioning, substance use, ADHD, externalizing problems, internalizing problems), which was well within the 10-11 predictor maximum (See Table 5-2).

Table 5-2. *Characteristics of Predictor Frequency*

<b>Predictor</b>	<b>Frequency</b>	
Sex(0=Male, 1=Female)	0= 709	1=368
Victim of Bullying	0=668	1=569
Family Functioning	0=874	1=363
Substance Use	0=1124	1=115
ADHD Diagnosis	0=630	1=607

In this example, there were two continuous variables (i.e., internalizing problems and externalizing problems), therefore, analyses were conducted to ensure that each one was linearly related to the log of the outcome variable (Field, 2009). The results suggested that all two interactions had significance values greater than .05 in each model, indicating that the assumption of linearity of the logit had been met for the variables of externalizing problems and internalizing problems (Field, 2009).

Multicollinearity could affect the parameters of a regression model (Field, 2009). In order to make sure levels of multicollinearity were within acceptable limits, it was suggested that tolerance should be more than .1 (Menard, 1995) and VIF be less than 10 (Myers, 1990). Also, for variance proportion, investigation of predictors that had high proportion on the small eigenvalue was conducted in order to identify multicollinearity (Field, 2009). Tolerance noted for each predictor was more than 0.6 and VIF for each predictor was smaller than 2. Also, no predictor was found to have a

high proportion on the small eigenvalues, suggesting multicollinearity was not an issue in the present study.

### 5.2.2 Binary Logistic Regression Model

School disruption (presence/absence) was predicted from the set of predictors (i.e., sex, substance use, victim of bullying, family functioning, ADHD, externalizing problems and internalizing problems). The full model containing all predictors was significant,  $\chi^2(7, N= 1241) = 228.05, p < .001$ , indicating that the model was able to distinguish between the participants who were disengaged in school and not disengaged in school (See Table 5-3). The model as a whole correctly classified 71.5% of cases.

Table 5.5 showed the logistic regression coefficient, Wald test, and odds ratio for each of the predictors. Employing a .05 criterion of statistical significance, sex, substance use, family functioning, ADHD, victim of bullying, internalizing problems and externalizing problems all made a uniquely statistically significant contribution to the model with varying degrees of association.

Results demonstrated that students were more likely to experience school disruption when they were male, had problems with family functioning, were victims of bullying, experienced substance use, were diagnosed with ADHD, had an internalizing problem, or had an externalizing problem. With all other variables held constant, the strongest predictor of the outcome variable of SD was substance use, recording an odds ratio of 2.13 ( $CI = 1.31-3.46, p < .005$ ). The next strongest predictor turned out to be family functioning, recording an odds ratio of 1.85 ( $CI = 1.39-2.45, p < .001$ ).

The results indicated that the participants who were diagnosed with ADHD were 1.40 times more likely to be disengaged in school ( $CI = 1.06-1.84, p < .005$ ) than those who did not have this diagnosis. Similarly, the participants who were victim of bullying were 1.48 times more likely to be disengaged in school than non-victims of bullying ( $CI = 1.13 -1.94, p < .05$ ). Females were 54% less likely to be disengaged in school than males ( $\beta = -.77, OR = .46, CI = .35-.61, p < .001$ ).

Externalizing problems ( $OR = 1.06$ ,  $CI = 1.04-1.09$ ,  $p < .001$ ) and internalizing problems ( $OR = 1.03$ ,  $CI = 1.02-1.05$ ,  $p < .001$ ) were found to be significantly related to SD too. Externalizing problems were slightly stronger in predicting SD than internalizing problems.

As was shown in Table 5-3, the results of binary logistic regression supported hypothesis 2. Specifically, the predictors of sex, internalizing problems, externalizing problems, substance use, family functioning problem, ADHD and victim of bullying had varying degrees of association with school disengagement.

Table 5-3. *Results of Model: Modelling the Risk Factors of SD*

Predictors	$\beta$	S.E.	Wald	df	Exp( $\beta$ ) (OR)	95% Confidence Interval
Sex (0=Male / 1=Female)	-.77	.14	30.87	1	.46***	[.35- .61]
Substance Use (0/1)	.76	.25	9.34	1	2.13**	[1.31-3.46]
Family Functioning Problem (0/1)	.61	.15	17.91	1	1.85***	[1.39-2.45]
Victim of Bullying (0/1)	.39	.14	8.21	1	1.48***	[1.13-1.94]
ADHD (0/1)	.33	.14	5.67	1	1.40*	[1.06-1.84]
Externalizing Problems	.06	.01	33.38	1	1.06***	[1.04-1.09]
Internalizing Problems	.03	.01	17.26	1	1.03***	[1.02-1.05]

**Note:** \*\*\* =  $p < .001$ ; \*\* =  $p < .005$ ; \* =  $p < .05$

## Chapter 6

### 6 Discussion

Based on the evidence from the large-scale representative interRAI ChYMH data, the current study aimed to examine the risk factors of school disengagement (SD) among school aged participants from 4 to 18 years and to detect these risk factors' differences in predicting the likelihood of SD through logistic regression model. In this study, in order to investigate SD from a panoramic view, the relevant risk factors selected for study were not confined only to individual characteristics (i.e., age, sex, and primary language spoken) but also extended to a wider context of social, family characteristics (i.e., victim of bullying, family functioning) and psychiatric characteristics (i.e., internalizing problems, externalizing problems, substance use and ADHD). Logistic regression was used with an aim to provide most convincing evidence about the varying degrees of associations that these factors could have with SD.

The statistical result indicated that a majority of variables (i.e., sex, family functioning, victim of bullying, ADHD, substance use, internalizing problems and externalizing problems) included in this study were significant predictors of SD. With all the other variables controlled for, the principal predictors of SD were substance use and family functioning. The next strongest predictors were being a victim of bullying and having a diagnosis of ADHD. Externalizing problem was slightly stronger than internalizing problem in predicting SD but the difference was not huge. A significant effect for sex was noted, given that females were 54% less likely to be disengaged in school than males. In this study, whether English was primary language spoken and age were not related to SD.

#### 6.1 Summary of the Study Results in Relevance to Previous Literature

This study suggested that substance use and family functioning were the two strongest risk factors to predict SD, followed by ADHD diagnosis and being a victim of bullying. Externalizing problems exhibited a slightly stronger relationship in predicting SD than internalizing problems. The research finding is partly consistent with the previous literature suggesting that the major risk factors for school

absenteeism were family issues and externalizing behaviors (Ingul, Klockner, Silverman, & Nordahl, 2012). Consistent with previous findings, family functioning played a significant role in school engagement. However, externalizing problem did not have a large direct effect on SD. Similarly, internalizing problem was not a major predictor of SD in this study. This research expands the study by Ingul and colleagues for also examining the significant impact of substance use on SD.

Although the predictors employed in both studies are similar in their characteristics, several explanations could still be made to find out why results concerning major risk factors of SD are different. In this study, the outcome variable of SD consists of not only information about being absent or not from school (e.g. absenteeism) but also other information (i.e., dissatisfaction with school, poor productivity or disruptiveness at school, expresses intent to quit school, conflict with school staff, strong, persistent dissatisfaction with school, current refusal to attend school, and currently removed from school due to disruptive behavior). Therefore, a difference in the content of the outcome variable would lead to different results as to which risk factors assume more strength for prediction than the other predictors.

Next, the participants recruited for these studies are different in age range and cultural background. In this study, the age of the participants ranged from 4 to 18 years ( $M = 11.08$ ,  $SD = 3.44$ ). While in Ingul et al.'s study, the participants were adolescents of high school age ranging from 16 to 21 ( $M = 17.18$ ,  $SD = 1.15$ ). Also, Ingul's study sample came from a Norwegian high school while this study sample was based from clinic data (interRAI ChYMH) of Southern Ontario in Canada. In addition, Ingul's study gathered participants' answers through self-report (questionnaire), however, this study's data was based on a multiple source of information collection, with multiple informants allowing for more breadth and depth of information available to complete the assessment.

### 6.1.1 Demographic Characteristics in relevance to Previous Literature

Previous research studies have identified various factors that can predict the likelihood of school disengagement. For example, with respect to sociodemographic characteristics, it was hypothesized that males were more likely to be disengaged in school than females (Hypothesis 1-a). The hypothesis was supported given that



females were 54% less likely to be disengaged in school, compared to male counterparts. This study finding is largely consistent with the previous literature. Specifically, previous studies have found that being a boy increases the dropout probability (Rumberger, 1995), intensifies the likelihood of a history of school disengagement (Vaughn, et al., 2011), increases the probability of skipping school (Van der Aa, Rebollo-Mesa, Willemsen, Boomsma, & Bartels, 2009), and decreases the likelihood that the student is academically motivated (Chouinard & Roy, 2008; Cox et al., 2007). Several explanations might account for this observation. It was reported that girls are somewhat better adapted to today's school environment than boys and this could partially explain why girls often outperform boys in academic contexts (Spinath, Eckert & Steinmayr, 2014 ). Girls often exhibit fewer behavioral problems and tend to be more emotional engaged than boys (Wang, Willett, & Eccles, 2011). Girls also display levels of self-discipline, domain-specific ability, self-concept, intrinsic motivation, and also exhibit lower work-avoidance goals (Spinath, Eckert, & Steinmayr, 2014) compared to boys. This might explain the difference between female and male in experiencing SD.

Regarding hypothesis 1-b, that SD would increase with age, a Mann-Whitney test indicated that age was not significantly associated with SD within this clinical sample; therefore, being older did not indicate an increased likelihood of being disengaged in school and hypothesis 1-b was not supported. This finding is inconsistent with previous literature that suggested truancy increases with age (Attwood & Croll, 2006; Hunt & Hopko, 2009; McAra, 2004; Smith et al., 2010). Discrepancy with the above findings may be partly attributed to the fact that truancy is only one of the components associated with SD and does not completely reflect the disengagement process across childhood. This study did not define or measure SD as truancy alone but also included more sensitive information such as the child or youth's interest and commitment to school, productivity, school disruption, relations with staff, as well as interest in academia. Consequently, young children who consistently exhibit these risk factors are at heightened risk for truancy as they become older, independent and receive increased autonomy. Younger children, unlike adolescents, often have no choice or autonomy and are required to attend school by law. Therefore, truancy, followed by school dropout, just contributes to the final stages of school disengagement. Also unlike previous studies, our concept of school disengagement also examines many of

the features (e.g., truancy, and dissatisfaction with school) that are often exhibited prior to the final stages of SD (e.g., dropout) and likely explain the reasons why no age effect was found. Additionally, most studies examining truancy include samples between the ages of 12-18 years (Vaughn, Maynard, Wright, Perron, & Abdon, 2013). However, in this study, the age span was across from 4 to 18 years. Therefore, a different age span might be another factor relevant to inconsistent result with previous literature.

In this study, English as a primary language did not predict SD significantly. This research finding is inconsistent with previous literature. Several explanations might account for this finding. One reason might be that this study did not examine English proficiency thoroughly. As evidenced by Worswick (2001), language proficiency and age at arrival are particularly noticeable factors that influence settlement and adaptation to school life. Age at the time of migration is especially critical, whereby youth who immigrate during the latter years of high school are most at risk of dropping out (Hospital for Sick Children, 2005). The other reason that could explain the difference from previous findings might be the disproportionate sample size of non-English-as-primary-language speakers. With the interRAI ChYMH, only approximately 2.2% percent of the population spoke other languages than English as their primary language, which may have caused biased results.

## 6.1.2 Psychiatric Characteristics in Relevance to Previous Literature

### 6.1.2.1 Summary of Internalizing Problems

It was hypothesized in this study that participants with internalizing problems (IP) would be more likely to be disengaged in school than students without such difficulties. Both the Mann-Whitney U test result and logistic regression results indicated that IP made a significant contribution to the prediction of School Disengagement ( $p < .05$ ). However, the direct effect of IP on SD was small ( $OR = 1.03$ ), which is consistent with previous literature. For example, previous studies had reported limited direct effect of depression on dropout (Fergusson & Woodward, 2002; Miech et al., 1999). With regard to the reasons for the small direct effect, previous literature has indicated that the relationship between depression and dropping out of school is mediated by self-perceptions of academic competence

(Quiroga, Janosz, Bisset, & Morin, 2013). Specifically, depressive symptomatology at the beginning of secondary school is related to higher dropout mainly as a result of pessimistic views about the likelihood to reach desired school outcomes (Quiroga, Janosz, Bisset, & Morin, 2013). High levels of pessimism and negative thought patterns in students who experience depression are related to self-doubt and their belief in their ability to do well in school. These thoughts often coincide with feeling anxious and guilty about school performance, blaming themselves for failing in school, which, in turn, lead to feelings of helplessness (Eccles, Roeser, Vida, Fredricks, & Wigfield, 2006; Nolen-Hoeksema et al., 1992).

Research has also suggested a number of mechanisms through which grade retention and depression might become linked to the prediction of school dropout. According to Anderson (Anderson et al., 2005), as children transition into adolescence, there is an increasing concern for doing well academically. For depressed students who experience grade retention, feelings of being stereotyped by teachers and peers, in conjunction with social and cognitive impairment (Kovacs & Goldstone, 1991) could result in further academic failure and later dropout.

With respect to the relationship between anxiety and disengagement in school, it was reported that anxious students have trouble speaking in front of the class and exhibit feelings of nervousness at school (Albano et al., 1998). These are two of the most common reasons participants cited for leaving school prematurely and not enjoying school (Ameringen, Van, Mancinib, & Farvolden, 2001). It was also reported that socially anxious youth display less prosocial behavior and more social withdrawal than their non-anxious classmates (Erath, Flanagan, & Bierman, 2007). For example, observing 7–14 year-old youth with social phobia at school, Spence et al. (1999) recorded low levels of social initiation and peer interaction, as well as short response length during conversational role-plays. In further attempts to cope, socially anxious students may utilize avoidant coping styles in an attempt to deal with negative affect experienced in the school context, which can lead to a lack of connectedness and future school disengagement.

#### 6.1.2.2 Summary of Externalizing Problems

It was hypothesized that having externalizing difficulties would lead to a greater likelihood of experiencing SD. Consistent with expectations, the logistic regression result suggested that with every unit increase of externalizing problems, the possibility of having SD would increase by 6%, controlling for other predictors. The study finding is in line with previous literature and supports the general theoretical viewpoint that school disengagement is part of a cumulative process of conduct-related problems leading to future dropout (Sweeten, Bushway, & Paternoster, 2009). The relevant explanation for the correlation had been discussed in a few studies. Prior research suggested that cognitive deficits (i.e., lower IQ, attention problems and low reading readiness) are underlying explanations for school difficulties experienced by young aggressive children (Bierman, et. al., 2013). Cognitive factors also play a greater role in predicting school maladjustment during the elementary school years and may be important determinants of academic progress (e.g., grade retention, Hinshaw, 1992).

Behavioral and social factors can also, to some extent, contribute to learning engagement of young children who are aggressive (Bierman, et. al., 2013). Aggression at school often provokes negative social feedbacks from peers and adults. Therefore, students with aggressive behaviors will experience increased interpersonal conflict with peers and school staff, receive decreased social support and increased negative feedback, resulting in negative attitudes towards school.

Ensminger and Slusarcick (1992) reported that the link between aggressive behaviors, low grades as early as in first grade and later school dropout is stronger for children living in poorer neighborhoods. The environmental contexts outside the home (i.e., community-level poverty and danger, exposure to violence, victimization in the neighborhood, or exposure to deviant peers) are correlated with early-onset antisocial behavior (Ingoldsby & Shaw, 2002).

It was also mentioned that disruptiveness may lead to early withdrawal from school because it increases the likelihood of grade retention or special classroom placement (Jimerson, Carlson, Rotert, Egeland, & Sroufe, 1997). Half of the students exhibiting externalizing behavioral problems have experienced grade retention (Hinshaw, 1992). The risk of dropping out of school is more than 4 times as high for children in retention than for children without retention (Vitaro, Brendgen, & Tremblay, 1999).

As a frequently used strategy for children with learning or conduct problems (American Federation of Teachers, 1997), grade retention contributes to older classmates sharing classrooms with younger classmates (i.e., non-age appropriate regular classroom [AARC] environments). In this case, the non-AARC environment worsens children's preexisting school-related difficulties and cultivates in them a further lack of interest in school, which makes early school withdrawal more likely (Vitaro, Brendgen, & Trembla, 1999). This argument is further supported by other authors (Kaufman & Bradby, 1992) who have suggested that being retained represents a humiliating experience for children. In all, grade retention has serious, detrimental effects on students' long-term academic achievement and emotional adjustment, which, in turn, cause them to leave school before graduation (Jimerson et al., 1997).

Similarly, school-based interventions designed to help struggling students can increase feelings of alienation and aggravate students' aggressive behavior problems. When children with behavioral problems are enrolled into special education programs, they end up spending most of their time with other problem children (Vitaro, Brendgen, & Tremblay, 1999). The aggressive behaviors escalate due to peer contagion (Visser, Kunnen, & Van Geert, 2010). Special education programs also affect their self-esteem, learning success and belief in their own academic ability (Baird et al. 2009). This, in turn, interrupts the development of self-advocacy skills that are necessary for students to be successful in upper secondary schools and foster students' dependence on available extra assistance (Feldmann & Messerly, 1995), which may increase their possibility of drop out in upper secondary school.

It is also suggested that some early life experience will influence the emergence of externalizing problems. The experiences associated with maltreatment, especially physical abuse, have been associated with the early occurrences of externalizing behavior problems (Manly, Cicchetti, & Barnett, 1994). Other aspects of the family environment (i.e., reciprocal and escalating negative interactions, harsh parenting styles) appear related to the development of externalizing behavior problems. It is quite likely that students will generalize this experience at home to the school context, which helps to formulate problematic relationships with peers and teachers, thereby indirectly increasing their possibility of school disengagement (i.e., refusing to go to school, dissatisfaction with school, or disruptive behavior in school).

### 6.1.2.3 Summary of ADHD

The present study indicated that students with ADHD were 40% more likely to experience SD than their non-ADHD counterparts. The majority of conceptual models emphasized in the literature have indicated that ADHD impairs executive functioning and self-regulation (Loe & Feldman, 2007; Nigg, 2001). Executive functioning enables students to plan, stay focused, remember instructions, and handle multiple tasks successfully. For students with ADHD, high rates of off-task behavior, attention seeking, and poor task completion impact academic success and achievement (Vile Junod, DuPaul, Jitendra, Volpe, & Cleary, 2006). Adolescents with ADHD, compared to their non-ADHD counterparts, have an increased likelihood of failing academic subjects (Mannuzza, Klein, & Moulton, 2002), which, in turn, serve as indicators of future school disengagement, including school exclusion, schoolwork non-completion, school refusal, grade repetition (DuPaul et al., 2008; DuPaul & Stoner, 2003; Pliszka, 2009; Purdie, Hattie, & Carroll, 2002).

Students with ADHD tend to exhibit higher levels of impulsivity and an increased likelihood of engaging in high risk behaviors, actions that are found to be associated with a lack of school bonding, disruptions in education, truancy and subsequent school dropout (Henry, Knight, & Thornberry, 2012). It had also been suggested that children with ADHD struggle with self-awareness, self-reflection and self-evaluation (Zucker, Morris, Ingram, Morris, & Bakeman, 2002). Those difficulties often contribute to socially inappropriate behavior, unawareness or denial that their behavior is problematic, and emotionally-laden reactions to social interaction due to peer non-acceptance. This, in turn, could lead to later refusal to attend school.

### 6.1.2.4 Summary of Substance Use

The present study supported the hypothesis that participants with a substance use problem were more likely to experience SD than participants with no substance use problem. The logistic regression result suggested that participants engaging in substance use were 113% more likely to experience SD than non-using counterparts. These findings are comparable to previous literature suggesting that early substance use is associated with a decreased likelihood of successful developmental milestones during adolescence and reduced probability of high school graduation (Mccluskey, Krohn, Lizotte, & Rodriguez, 2002). Strong negative correlations exist between drug

use and measures of school performance, including attendance, grades and graduation (Bachman, Johnston, & Malley 1998).

Several explanations might shed light on this research finding. For example, drug use in early adolescence impairs cognitive development, memory, attention and overall functioning, leading to poor school performance. Initiation of substance use also increases the risk of other negative outcomes (e.g., early onset sexual behavior, teen pregnancy), which might indirectly contribute to non-attendance and later premature dropout from school (Mrug, Gaines, Su, & Windle, 2010). Once disengaged from school, adolescents often seek affiliations with deviant peers further exacerbating the likelihood of sustained substance use and increased deviancy (Kliewer & Murrelle, 2007).

Other research literature exists that records positive or mixed influences related to substance use. For example, Wexler (1975) found “drug experimentation users in high school were more self-confident and socially skilled than non-users”. Similarly, Bentler (1987) found “a small positive association between marijuana use and positive self-concept”. Conversely, Swadi (1992) found “adolescent experimenters to be more behaviorally disturbed, but with no more emotional problems”. Boyle and Offord (1991), in a sample of 12-16-year-olds, found that “tobacco, alcohol and hard drug use was related to more signs of emotional disorder, but marijuana usage was not”. It was suggested that infrequent substance use is associated with either no negative consequences or else better mental health than found in non-users (Williams, Zolner, Bertrand, & Davis, 2004). Therefore, to obtain a thorough understanding of the correlation between substance use and SD, further analysis is recommended to examine the impact of different types of substance use as well as frequencies of substance use on school disengagement. As mentioned in a study on adolescents from Alberta, Canada, occasional use of some substances does not appear to have negative mental health associations. However, as drug use progresses to more illicit types, there is an increasingly negative association with mental health as drugs become progressively stronger (e.g., cannabis, hallucinogens; Williams, Zolner, Bertrand, & Davis, 2004).

## 6.1.3 Social Context Characteristics in Relevance to Previous Literature

### 6.1.3.1 Summary of Family Functioning

In support of the hypothesis that participants who experience high rates of family dysfunction have a greater likelihood of experiencing SD, results from this study suggested that participants with family problems were 85% more likely than those without family difficulties to experience SD. A number of studies have found associations between patterns of problematic family interactions and later school refusal. Based on non-clinic samples of children with severe school refusal, it was found that families with a school-refusing child tended to have a long history of strained relationship between parents. In over one-third of those households, the father figure was absent; meanwhile, a majority of the mothers had significant mental health problems (Place, Hulsmeier, Davis, & Taylor, 2000). Research in relation to the families of school-refusing youths also has noted a high frequency of poor role definitions, entangled relationships, and high levels of conflict within the parent–child relationships (Bernstein & Borchardt, 1996). Parental depression, anxiety, and stress, for example, might aggravate the challenges of coping with school-refusal, especially when parental mental health problems impair the ability to appropriately support their distressed child (Heyne, 2006).

Regarding family relationships, studies have also considered how social support, in particular, parental support, could impact student engagement (Sharkey, You, & Schnoebelen, 2008). It was reported that urban adolescents' perceived social support from family members is related to greater student engagement (academic and behavioral), whereas perceived barriers, including family and social barriers, is associated with less student engagement (Kenny, Blustein, Chaves, Grossman, & Gallagher, 2003). In addition, Bohnert, Martin, and Garber (2007) examined a model of school activity involvement and found that familial relationship quality not only has a direct effect on school involvement, but also indirectly affects involvement through adolescent perceptions of self-worth and perceived competence.

### 6.1.3.2 Summary of Victim of Bullying

Results suggested that victims of bullying were 48% more likely than non-victims of bullying to experience SD. This finding is in accordance with previous literature



suggesting that an unsafe school environment increases student refusal to attend school (Egger, Costello, & Angold, 2003; Wilkins, 2008). Research has further suggested that bullying victimization is associated with low perceptions of safety at school (Astor et al. 2002). It was estimated that at least 5–10% of students fear an attack by bullies at school (Astor et al. 2002), and that this fear might result in negative consequences such as school avoidance (Astor et al. 2002; Menard & Grotzger, 2011). Research has also indicated that boys feel less safe than girls and are more likely to fear victimization (Astor et al. 2002; Bradshaw et al. 2009). In addition, victims of bullying report significantly higher levels of internalizing problems, such as anxiety and depression, and lower levels of self-esteem and social competence than other youths (Haynie, Nansel, Eitel, et al., 2001), which are also considered as factors related to school disengagement.

Research suggests that there are much higher rates of self-reported, over peer-reported, victimization (Baly, Cornell, & Lovegrove, 2014). Some researchers have indicated that self-report measures may be prone to inflation (Kert, Coddling, Tryon, & Shiyko, 2010). Samples from the interRAI ChYMH were gathered from multiple source information, which could decrease the extent of the inflation caused by self-report victimization. However, longitudinal studies are also recommended in order to determine whether the same students were bullied over time or whether students were bullied at different grade levels. This would provide an opportunity to evaluate the impact of chronic bullying over time and determine how persistent bullying has varying impacts on SD (Baly, Cornell, & Lovegrove, 2014).

## 6.2 Implications for Practice

The present study provides numerous implications for psychologists, educators, counselors, social workers and policy makers. First, school disengagement is a complex problem which involves a multitude of factors that vary across time, context and across the lifespan. Consequently, no single factor can predict future SD. Based on the findings, academic performance which has been considered as a well-established major risk factor of SD, students' mental health status, family functioning, status of bullying victimization, status of ADHD diagnosis, and sex should all be taken into consideration when preventing future SD.

This study provided a unique contribution to the field, as it not only effectively identifies major risk factors contributing to the prediction of SD, it also examines the differential associations of these risk factors with school disengagement. This provides an opportunity to examine the varying importance of risk factors to assist in prioritizing directions for the prevention of school disengagement. The present study indicated that substance use and family functioning are first-tier risk factors that should attract most attention when addressing SD within clinical samples. The second-tier risk factors include ADHD and the experience of being bullied, followed by internalizing and externalizing problems. These identified risk factors would serve as valuable clues for educators or practitioners to refer to in order to better understand students' SD experience and decide which one of these issues should receive priority attention in the prevention of school disengagement.

Thirdly, these findings will also enhance the general understanding and knowledge of SD given that this is a costly social issue and a nationwide public health problem. Less SD among students can mean fewer children involved in justice system in the future, higher employment rate and better quality of life resulting in improved physical and mental health.

SD is highly associated with family dysfunction given that the presence of family problems led to an 88% higher likelihood of school disengagement compared to those families without such problems. Therefore, engaging family in prevention efforts is needed to improve overall students' engagement. Interventions focusing on specific interactions (i.e., parents' hostile attitude toward the student) within the family as well as enhancing services for additional needs of other family members to address outstanding mental health issues within the family (i.e., parent or sibling having mental health problem) would reduce the likelihood of future school disengagement. The obtained family information would provide important guidance for direction as to what measures can be implemented to more effectively improve the adverse situations those students experience within the family context.

Similarly, the study also elucidates the detrimental impact of victimization in schools and the importance of environment safety within the school context. Students experiencing bullying and victimization were approximately 48% more likely to suffer from disengagement in school, compared to their non-bullied counterparts.

Bullying and victimization can produce significant harm to students' physical, psychological and cognitive development. Bullied children often feel high levels of fear, anxiety and somatic complaints leading to school refusal. Consequently, it is necessary to create a safe environment free from bullying and victimization in school or outside school. Programs to promote safe school environments and encourage positive school cultures are recommended to prevent future school disengagement.

This study provides additional evidence to indicate the importance of school-based mental health intervention. Previous research has revealed that the majority of adult mental health disorders begin in childhood, with 50% emerging before the age of 14 and 75% by the age of 24 (Kessler, Berglund, Demler, Jin, & Walters, 2005). There is a strong impetus to identify the relevant problems and to intervene early. Schools represent an excellent place to intervene to promote children's mental health literacy. Not only would students identified with mental health or behavioral problems benefit from the mental health promotion efforts (i.e., social skills training or social emotional learning) but all students could learn to strengthen their coping ability broadly and to address an array of emotional and behavioral problems around them or in them. Meanwhile, the findings of this study echo with Ontario teachers' high-level concern for "student mental health and substance abuse issues and a strong perceived link between student emotional well-being and academic achievement" (Short, Ferguson, & Santor, 2009). This study serves as another piece of evidence to support Ontario teacher's appeal for "increased leadership, training, and support to improve the capacity to identify and intervene appropriately to student needs" (Manion, Short, & Ferguson, 2012).

Both internalizing and externalizing problems need to be addressed early considering their significant contribution to the prediction of SD. In regard to internalizing problems (i.e., depression, anxiety and anhedonia), school-based behavioral and cognitive-behavioral interventions are recommended (either in individual or to groups), with an emphasis on elements such as social problem-solving skills, positive coping, and cognitive restructuring. In regard to externalizing problems, most effective approaches tend to focus on techniques such as recognizing stimuli that evoke negative responses, resisting aggressive responses, implementing alternative

strategies, and skill building in the areas of self-control, perspective taking, and conflict resolution (Manion, Short, & Ferguson, 2012).

In addition, most general education teachers agree that they have received limited training in behavior management procedures and are less tolerant of externalizing behavior than other types of classroom problems (Goldstein, 1995). Under such circumstances, students with behavior or learning difficulties are more likely to be referred to special education programs by their teachers. However, research indicates that a large percentage of students with behavior and learning problems can be successful in general education environments if given adequate support (Zins et al., 1993). Therefore, effective use of proper assessment approaches that facilitate early identification and needs-based interventions are recommended in order to reduce the numbers of students classified and placed in special education programs (Reschly & Ysseldyke, 1995).

As suggested by this study, students with ADHD are 40% more likely to experience school disengagement compared to non-ADHD counterparts. Since students with ADHD may have trouble paying attention, controlling impulsive behaviors or be overly active, it is recommended that classroom teachers receive evidence-informed classroom management strategies and techniques to address many of these behaviors. It is also necessary to increase teachers' awareness of the importance of differentiating teaching techniques to the specific mental health needs of students and integrate these strategies in classroom activities in order to match diverse learning and behavior styles of students. Providing standardized assessment practices to identify specific needs, linked to positive care planning approaches within the classroom and at home, can foster better outcomes for children, especially when implemented across contexts and at the earliest possible time in the child's life.

### **6.3 Implications for Future Research**

Future research should attempt to analyze how sex can interact with other specific predictors to further explore the differential impact on males and females in relation to SD. For example, it was reported that among students who were disengaged, there was a significant association between depression and SD in females. A significant association was also reported between externalizing problems and SD in males. It

may be that females experience school disengagement as a result of health-related absenteeism, internalizing problems and pregnancy. Males, conversely, appear to disengage from school as a result of behavioral difficulties, aggression and conduct-related problems.

Future research should also attempt to replicate the findings in a community-based sample other than a clinical sample. The participants in this study were children/youth who were referred to a mental health agency or hospital for treatment or intervention. If the same measures are applied to a community-based sample, the result may be different since the participants present with different individual needs, characteristics, strengths and family dynamics.

Future studies should also continue to explore cultural factors associated with SD as some culture would bear more tolerance for certain risk factors (such as substance use) (Williams, Zolner, Bertrand & Davis, 2004). Specifically, substance use may have unique meanings within different cultures and therefore have different predictive value in relation to SD across cultures. Comparisons could be made among a variety of different cultural groups (e.g., Latinos, Africans, Asians, Caucasian and Aboriginal population) to determine differential weightings of factors associated with the prediction of SD.

Future research should also attempt to examine the effect exerted by certain moderator variables such as self-perceptions of academic competence or grade retention on internalizing problems. The previous literature reported limited direct effect of depression on dropout (Fergusson & Woodward, 2002; Miech et al., 1999). By adding moderators, further analyses could be conducted to determine whether certain variables moderate the relationship between internalizing problems and SD.

The previous literature mentioned that cannabis did not have a negative impact upon students' academic performance. Future research should attempt to compare different kinds of substance use among participants and examine which types of substance use would exert greater influence on the prediction of SD. Given that substance use tends to have a greater negative impact upon younger children, compared to older children, it will be important to determine whether early use of substance or later use of substance would differentially predict SD.

Regarding the importance of family functioning in this study, further research might also be conducted on different family structures and different family constellations (e.g., single parent household; kinship households) that would have any association with SD. Previous research found that close to 40% of the children and adolescents with school refusal lived with one parent (Bernstein et al., 1996). Therefore, whether the child comes from a single-parent family, two-parent family or foster-parent family would predict SD differently should be further investigated while determining potential protective factors that may buffer the risk of certain family constellations.

Considering the fact the ADHD increased the likelihood of SD, further analysis should also examine different classroom strategies and evidence-informed practices in teacher relevant inclusive education. Further analysis should be conducted to determine if various forms of support to increase leadership and training among teachers or other practitioners improve their capacity to identify special needs and to intervene appropriately to address socio-emotional, learning, behavioral and psychiatric issues.

Bullying and victimization requires further study. There are various types of bullying and victimization (i.e., physical bullying, emotional bullying, both physical and emotional bullying, cyber bullying) as well as varying degrees with respect to frequency and intensity. Further analysis could be conducted to determine which types of bullying have the greatest effect upon SD and compare the difference in likelihood of SD prediction based on the varying types, frequencies and severity levels of bullying and victimization. Longitudinal studies designed to examine the impact of bullying and victimization across the lifespan is also needed as there may be certain critical points in development that could differentially impact outcomes.

Future studies should also attempt to classify school disengagement into varying degrees of severity and examine the effectiveness of different intervention approaches to curtail school disengagement. The extent to which each risk factor differs in predicting types of SD should also be taken into consideration for future programs of research.

## 6.4 Limitations of the Current Design

Despite the many strengths of the present study including a large sample size, the use of many sources of information, only initial assessments included, use of validated scales, assumption checking with each statistical analysis, the current study is not without limitations. First of all, the sample in the present study is based on a set of clinical data, including only children and youth referred to community mental health facilities in Ontario, Canada for mental health treatment. Consequently, such sample characteristics reduce the generalizability of the findings to school samples.

In addition, certain confounding factors were not considered in the present study. The confounding factors such as financial status, parental educational status, or relationships with teachers were not measured and not controlled in the regression model, which might have an impact on certain findings. The present sample is also not diversified enough in ethnicity given that approximately 98% of the participants speak English as their primary language.

Lastly, the present study does not take into consideration the severity of school disengagement and various types of school disengagement. While the Risk for School Disruption Scale provided various indices related to school disengagement, the outcome variable for this study was dichotomous in nature. Further analysis should be conducted utilizing the RSD scale in relation to cut points that reflect severity levels related to risk.

## 6.5 Summary

Despite the limitations of the study, the present research communicates a number of significant findings to educators, psychologists, social workers and other relevant practitioners. The present findings indicate that SD does not increase with age. Also, it is demonstrated that children will be more likely to be disengaged in school if they experience any of the following: being males, substance use, family dysfunction, internalizing and externalizing problems, ADHD, and being a victim of bullying. Such findings are consistent with previous literature and support the view that school disengagement should be analyzed from more than one dimension for it correlates not only academic performance but also with behavioral/psychiatric disorders and many others.

The logistic regression model not only identified major risk factors of SD but also provided important guiding information to educators and researchers about which direction their efforts and attention should be prioritized to. Emphasis should be placed on addressing a variety of issues including substance use, family functioning, ADHD, bullying and externalizing and internalizing problems.

Finally, this study makes a tangible contribution to promoting mental health literacy and underlines the importance of early mental health intervention. Mental health prevention and intervention should be implemented within a school-based context. It will be important for Ontario teachers to receive the necessary training to improve their capacity to identify and intervene appropriately to reduce the long-term negative consequences of school dropout and improve student mental health needs to ultimately promote school engagement.



## References

- Achenbach, T. M., & Edelbrock, C. (1991). *The child behavior checklist and revised child behavior profile*. Burlington, VT: University Associates in Psychiatry.
- Albano, A. M., Chorpita, B. F., & Barlow, D. H. (1998). Childhood anxiety disorders. In: E. J. Mash & R. A. Barkley (Eds.), *Child Psychopathology* (pp. 196–241). New York: Guilford Press.
- Alexander K. L., Entwisle, D. R., & Kabbani, N. S. (2001). The dropout process in life course perspective: Early risk factors at home and school. *Teachers College Record*, 103,760–822.
- Alexander, K. L., Entwisle, D. R. & Horsey, C. S. (1997). From first grade forward: Early foundation of high school dropout. *Sociology of Education*, 70, 87–107.
- American Federation of Teachers (1997). *Promote or retain? Pendulum for students swings back again*. Washington, DC: American Federation of Teachers.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed)*. Arlington (VA): American Psychiatric Publishing.
- Ameringen, M.V., Van, M., Mancinib, C., & Farvolden, P. (2003). The impact of anxiety disorders on educational achievement. *Anxiety Disorders*, 17,561–571.
- Anderson, G. E., Jimerson, S. R., & Whipple, A. D. (2005). Student ratings of stressful Experiences at home and school. *Journal of Applied School Psychology*, 21, 1-20.  
Doi:10.1300/J370v21n01\_01
- Appleton, J., Christenson, S., Kim, D., & Reschley, A. (2006). Measuring cognitive and psychological engagement: Validation of the student Engagement Instrument. *Journal of School Psychology*, 44(5), 427-445.
- Archambault, I., Janosz, M., Fallu, J., & Pagani, L. S. (2009). Student engagement and its relationships with early high school dropout. *Journal of Adolescence*, 32, 651–670.  
doi:10.1016/j.adolescence.2008.06.007
- Astor, R.A., Benbenishty, R., Zeira, A., & Vinokur, A. (2002). School climate, observed risky

- behaviors, and victimization as predictors of high school students' fear and judgments of school violence as a problem. *Health Education & Behavior*, 29,716–736.
- Attwood, G., & Croll, P. (2006). Truancy in secondary school pupils: Prevalence, trajectories, and pupil perspectives. *Research Papers in Education*, 21(4), 467-484.
- August, D., & Shanahan, T. (2006). *Developing literacy in second language learners: Report of the national literacy panel on language-minority children and youth*. Mahwah, NJ: Erlbaum.
- Bachman J. G., Johnston L. D., & O'Malley P. M. (1998). Explaining recent increases in students' marijuana use: Impacts of perceived risks and disapproval, 1976 and 1996. *American Journal of Public Health*, 88, 887–92.
- Baird, G. L., Scott, W. D., Dearing, E., & Hamill, S. K. (2009). Examining cognitive self-Regulatory differences in LD and non-LD youth: Implicit theories of intelligence, academic self-efficacy, and academic goal preferences. *Journal of Social and Clinical Psychology*, 28, 881–908.
- Bakken, Nicholas, W., Whitney, D., & Gunter, W. D. (2012). Self-cutting and suicidal ideation among adolescents: Gender differences in the causes and correlates of self-injury. *Deviant Behavior*, 33, 339–356.
- Balfanz, R., Herzog, L., & Mac, I. D.J. (2007). Preventing student disengagement and keeping students on the graduation path in urban middle-grades schools: Early identification and effective interventions. *Educational Psychologist*, 42, 223–235.
- Baly, M. W., Cornell, D. G., & Lovegrove, P. (2014). A longitudinal investigation of self- and Peer reports of bullying victimization across middle school. *Psychology in the Schools*, 51(3), 217-240.
- Bandura, A. (1986). Social foundation of thought and action: A social-cognitive theory. *Englewood Cliffs*. NJ: Prentice-Hall.
- Barkley, R. A., Fischer, M., Smallish, L., & Fletcher, K. (2006). Young adult outcome of

- hyperactive children: adaptive functioning in major life activities. *Journal of the American Academy of Child and Adolescent Psychiatry*, 45, 192–202.
- Barkley, R.A. (1998). *Attention Deficit Hyperactivity Disorder: A Handbook for diagnosis and Treatment (2nd ed.)*. New York: Guilford Press.
- Barkley, R.A. (2006). Attention-deficit hyperactivity disorder. *A handbook for diagnosis and treatment. (3rd ed.)*. New York: Guilford.
- Barkley, R. A. (Ed.), (2015). *Attention-deficit/ hyperactivity disorder: A handbook for Diagnosis and treatment (4th ed.)*. New York, NY: Guilford Press.
- Barrowman, C., Nutbeam, D., & Tresidder, J. (2001). Health risks among early school leavers: Findings from an Australian study examining the reasons for, and consequences of, early school dropout. *Health Education*, 101(2), 74-82.
- Battin-Pearson, S., Newcomb, M. D., Abbott, R. D., Hill, K. G., Catalano, R. F., & Hawkins, J. D. (2000). Predictors of early high school dropout: A test of five theories. *Journal of Educational Psychology*, 92(3), 568–582.
- Beck, J.S., Beck A. T., & Jolly, J. (2001). *Manual for the beck youth inventories of emotional and social adjustment*. San Antonio, TX: The Psychological Corporation.
- Bentler, P.M. (1987). Drug use and personality in adolescence and young adulthood: Structural models with non-normal variables. *Child Development*, 58, 65-79.
- Bernstein, G. A., & Borchardt, C. M. (1996). School refusal: Family constellation and family functioning. *Journal of Anxiety Disorders*, 10, 1–19.
- Bierman, K. L, Coie, J., Dodge, K., Greenberg, M., Lochman, J., McMohan, R., Pinderhughes, E., & Conduct Problems Prevention Research Group. (2013). School outcomes of aggressive-disruptive children: prediction from kindergarten risk factors and impact of the fast track prevention program. *Aggressive Behavior*, 39, 114–130.
- Bohnert, A. M., Martin, N. C., & Garber, J. (2007). Predicting adolescents' organized activity involvement: The role of maternal depression history, family relationship quality, and

- adolescent cognitions. *Journal of Research on Adolescence*, 17, 221–224.
- Bourke, S. & Burgman, I. (2009). Coping with bullying in Australian school: How children with disabilities experience support from friends, parents and teachers. *Disability and Society*, 25(3), 359-371.
- Boyle, M.H., & Offord, D.R. (1991). Psychiatric disorder and substance use in adolescence. *Canadian Journal of Psychiatry*, 36, 699-705.
- Bradshaw, C. P., Sawyer, A. L., & O’Brennan, L.M. (2009). A social disorganization perspective on bullying-related attitudes and behaviors: The influence of school context. *American Journal of Community Psychology*, 43, 204–220.
- Burrows, A.B., Morris, J.N., Simon, S.E., Hirdes, J.P., & Phillips, C. (2000). Development of a minimum data set-based depression rating scale for use in nursing homes. *Age and Aging*, 29,165–172.
- Cairns, R. B., Cairns, B. D., & Neckerman, H. J. (1989). Early school dropout: Configurations and determinants. *Child Development*, 60, 1437–1452.
- Carless, B. I. (2014). *The importance of family factors in adolescent school refusal (Doctoral dissertation)*. Retrieved from [http://arrow.monash.edu .au/hdl/1959.1/929437](http://arrow.monash.edu.au/hdl/1959.1/929437)
- Carless, B., Melvin, G.A., Tonge, B. J., & Newman, L.K. (2015).The Role of Parental Self-Efficacy in Adolescent School-Refusal. *Journal of Family Psychology*, 29(2), 162–170.
- Carroll, H. C. M. (Tim). (2011).The peer relationships of primary school pupils with poor attendance records. *Educational Studies*, 37 (2), 197–206.
- Carter, M., McGee, R., Taylor, B., & Williams, S. (2007). Health outcomes in adolescence: Associations with family, friends and school engagement. *Journal of Adolescence*, 30, 51–62.
- Chouinard, R., & Roy, N. (2008). Changes in high-school students' competence beliefs, utility value and achievement goals in mathematics. *British Journal of Educational Psychology*, 78(1), 31-50.

- Cohen, M. (1998). A habit of healthy idleness: Boys underachievement in historical perspective. pp. 19–33 in *Failing boys? Issues in gender and achievement*, edited by D. Epstein, J. Elwood, V. Hey, and J. Maw. Buckingham, UK: Open University Press.
- Cox, R. G., Zhang, L. e., Johnson, W. I. D., & Bender, D. R. (2007). Academic performance and substance use: Findings from a state survey of public high school students. *Journal of School Health, 77*(3), 109-115.
- Doren, B., Murray, C., & Gau, J.M. (2014). Salient predictors of school dropout among secondary students with learning disabilities. *Learning Disabilities Research & Practice, 29*(4), 50– 59.
- Drapela, L. A. (2005). Does dropping out of high school cause deviant behavior? An analysis of the national education longitudinal study. *Deviant Behavior, 26*(1), 47–62.
- DuPaul, G. J., & Stoner, G. (2003). *ADHD in the schools: Assessment and intervention strategies (2nd ed)*. New York, NY: Guilford Press. doi: 10.1037/e344862004-001.
- DuPaul, G. J., Rutherford, L. E., & Hosterman, S. J. (2008). Attention-deficit/hyperactivity disorder. In R. J. Morris & N. Mather (Eds.), *Evidence-based interventions for students with learning and behavioral challenges*. New York, NY: Routledge.
- DuPaul, G. J. & Jimerson, S.R. (2014). Assessing, understanding, and supporting students with ADHD at school: contemporary science, practice, and policy. *School Psychology Quarterly, 29* (4), 379-384.
- DuPaul. G. J., Volpe, R. J., Jitendra, A. K., Lutz., J. G., Lordh, K. S., & Gniber, R. (2004). Elementary school students with AD/HD: Predictors of academic achievement. *Journal Of School Psychology, 42*, 285-301.
- Dynarski, M., Gleason, P., Rangarajan, A., & Wood, R. (1998). *Impacts of dropout prevention programs*. Washington, DC: U.S. Department of Education.
- Eccles, J. S., & Wang, M. T. (2012). So what is student engagement anyway? Commentary on Section I. In S. Christenson, A. L. Reschy, & C. Wylie (Eds.), *Handbook of research on*

- student engagement*. New York, NY: Springer.
- Eccles, J. S., Roeser, R., Vida, M., Fredricks, J. A., & Wigfield, A. (2006). Motivational and achievement pathways through middle childhood. In L. Balter & C. S. Tamis-LeMonda (Eds.), *Child psychology: A handbook of contemporary issues* (2nd ed., pp. 325–355). New York: Psychology Press.
- Eccles, J. S., Lord, S., & Midgley, C. (1991). What are we doing to early adolescents? The Impact of educational contexts on early adolescents. *American Journal of Education*, 99 (4), 521- 542.
- Egger, H. L., Costello, J. E., & Angold, A. (2003). School refusal and psychiatric disorders: a community study. *Journal of the American Academy of Child & Adolescent Psychiatry*, 42 (7), 797.
- Eggert, L., Thompson, E., Randell, B., & Pike, K. (2002). Preliminary effects of brief school-Based prevention approaches for reducing youth suicide-risk behaviors, depression, and drug involvement. *Journal of Child & Adolescent Psychiatric Nursing*, 15(2), 48–64.
- Eisenberg, N., Cumberland, A., & Spinrad T., et al. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Development*, 72, 1112–1134.
- Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54(1), 5–12. doi: 10.1037/0022-3514.54.1.5.
- Ensminger, M. E., & Slusarcick, A. L. (1992). Paths to high school graduation or dropout: A longitudinal study of a first-grade cohort. *Sociology of Education*, 65(2), 95-113.
- Erath, S.A., Flanagan, K.S., & Bierman, K.L. (2007). Social anxiety and peer relations in early adolescence: Behavioral and cognitive factors. *Journal of Abnormal Child Psychology*, 35, 405–416. DOI 10.1007/s10802-007-9099-2
- Esselmont, C. (2014). Carrying a weapon to school: The roles of bullying victimization and perceived safety. *Deviant Behavior*, 35, 215–232.

- Farrington, D. P. (1989). Early predictors of adolescent aggression and adult violence. *Violence and Victims*, 4(2), 79–100.
- Feldmann, E. & Messerly, C. (1995). Successful transition: The students' perspective in reaching to the future: Boldly facing challenges in rural communities. *Conference Proceedings of the American Council on Rural Special Education*. Las Vegas: NV.
- Field, A. P. (2009). *Discovering statistics using SPSS (3rd ed)*. London: Sage.
- Fergusson, D. M., & Woodward, L. J. (2002). Mental health, educational, and social role outcomes of adolescents with depression. *Archives of General Psychiatry*, 59, 225–231. doi:10.1001/archpsyc.59.3.225
- Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research*, 59, 117–142.
- Finn, J. D. (1993). *School engagement and students at risk*. Washington, DC: National Center for Education Statistics.
- Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, 82 (2), 221-261.
- Fletcher, J. M. (2008). Adolescent depression: Diagnosis, treatment, and educational attainment. *Health Economics*, 17(11), 1215–1235. doi: 10.1002/hec.1319.
- Fortin, L., Royer, E., Potvin, P., Marcotte, D., & Yergeau, E. (2004). La prédiction du risque De décrochage scolaire au secondaire: Facteurs personnels, familiaux et scolaires. *Revue canadienne des sciences du comportement*, 36(3), 219–231.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74, 59–109.
- Garvik, M., Idsoe, T., & Bru, E. (2014). Depression and school engagement among Norwegian upper secondary vocational school students. *Scandinavian Journal of Educational Research*, 58, 592-608.
- Georgiades, K., Boyle, M., Short, K., & Manion, Ian. (2015). *Better together: collaborating for a stronger child & youth mental health system*. Presented at Children's Mental Health

- Ontario Annual Conference.
- Glanville, J. L., & Widhagen, T. (2007). Measurement of school engagement: Assessing dimensionality and measurement invariance across race and ethnicity. *Educational and Psychological Measurement, 67*, 1019–1041.
- Gleason, P., & Dynarski, M. (2002). Do we know whom to serve? Issues in using risk factors to identify dropouts. *Journal of Education for Students Placed at Risk, 7*, 25–41.
- Goldstein, S. (1995). *Understanding and managing children's classroom behavior*. New York: Wiley.
- Granot, D., & Mayseless, O. (2001). Attachment security and adjustment to school in middle childhood. *International Journal of Behavioral Development, 25*, 530–541.  
doi:10.1080/016502500 42000366.
- Gresham, F.M., & Elliott, S.N. (2008). *Social skills improvement system rating scales*. Minneapolis, MN: Pearson Assessments.
- Gutman, L. M., & Midgley, C. (2000). The role of protective factors in supporting the academic achievement of poor African American adolescents during the middle school transition. *Journal of Youth and Adolescence, 29*, 223–248. doi: 10.1023/A:1005108700243.
- Guttman-Steinmetz, S., & Crowell, J. (2006). Attachment and externalizing disorders: A developmental psychopathology perspective. *Journal of the American Academy of Child and Adolescent Psychiatry, 45*, 440–451. doi:10.1097/01.chi.00001 96422.42599.63.
- Hammen, C. L., & Rudolph, K. D. (1996). Childhood depression. In E. J. Mash & R. Barkley (Eds.), *Child psychopathology* (pp. 153–195). New York: Guilford Press.
- Haynie, D. L., Nansel, T., Eitel, P., Crump, A. D., Saylor, K., Yu, K., & Simons-Morton, B. (2001). Bullies, victims, and bully/victims: Distinct groups of at-risk youth. *Journal of Early Adolescence, 21*, 29–49.
- Hechtman, L. (1995). Multi-modal treatment programme of ADHD children. Paper presented at the 20th International Conference of Learning Disabilities Association of Quebec.



Montreal, QC.

Henrich, C., Brookmeyer, K., & Shahar, G. (2005). Weapon violence in adolescence: Parent and school connectedness as protective factors. *Journal of Adolescent Health, 37*, 306–312. doi: 10.1016/j.jadohealth.2005.03.022.

Henry, K. L. (2007). Who's skipping school: Characteristics of truants in 8th and 10th grade. *Journal of School Health, 77*, 29–35.

Henry, K.L., Knight, K.E., & Thornberry, T.P. (2012). School disengagement as a predictor of dropout, delinquency, and problem substance use during adolescence and early adulthood. *Journal Youth Adolescence, 41*, 156–166. DOI 10.1007/s10964-011-9665-3.

Hersov, L. (1985). School refusal. In M. Rutter & L. Hersov (Eds.), *Child and adolescent psychiatry: Modern approaches*. Oxford, UK: Blackwell Scientific Publications.

Heyne, D. (2006). School refusal. In J. E. Fischer & W. T. O'Donohue (Eds.), *Practitioner's guide to evidence-based psychotherapy (pp. 600–619)*. New York, NY: Springer.

Hinshaw, S. P. (1992). Externalizing behavior problems and academic underachievement in childhood and adolescence: Causal relationships and underlying mechanisms. *Psychological Bulletin, 111*, 127–155.

Hodges, K. (2000). *Child and adolescent functional assessment scale*. Ypsilanti: Eastern Michigan University.

Hosmer, D. W. & Lemeshow, S. (2000). *Applied logistic regression*. New York: Wiley and Sons Inc.

Hospital for Sick Children. (2005). *Early school leavers: Understanding the lived reality of students disengagement from secondary school: Final report*. Toronto, ON: Ontario Ministry of Education and Training, Special Education Branch.

Huddleston, P. & Oh, S.A. (2004). The magic roundabout: Work-related learning within the 14-19 curriculum. *Oxford Review of Education, 30* (1), 83-103. doi:10.1080/0305498042000 190096.

- Hunt, M., & Hopko, D. (2009). Predicting high school truancy among students in the Appalachian south. *The Journal of Primary Prevention*, 30(5), 549-567.
- Individuals with Disabilities Education Improvement Act of 2004*(2004). Pub. L. No. 108-446, 118 Stat. 2647
- Ingoldsby, E. M., & Shaw D. S. (2002). Neighborhood contextual factors and early-starting antisocial pathways. *Child Family Psychology Review*, 5, 21-55.
- Ingul, J.M., Klöckner, C.A., Silverman, W.K., & Nordahl, H. M. (2012). Adolescent school absenteeism: modelling social and individual risk factors. *Child and Adolescent Mental Health*, 17(2), 93-100.
- Jimerson, S. R., & Ferguson, P. (2007). A longitudinal study of grade retention: Academic and behavioral outcomes of retained students through adolescence. *School Psychology Quarterly*, 22, 314-339.
- Jimerson, S. R., Carlson E., Rotert, M., Egeland, B., & Sroufe, L. A. (1997). A prospective, longitudinal study of correlates and consequences of early grade retention. *Journal of School Psychology*, 35, 3-25.
- Kaplan, D., Damphousse, K., & Kaplan, H. (1996). Moderating effects of gender on the relationship between not graduating from high school and psychological dysfunction in young /adulthood. *Journal of Educational Psychology*, 88(4), 760-774.
- Kasen, S., Cohen, P., & Brook, J. (1998). Adolescent school experiences and dropout, Adolescent pregnancy, and young adult deviant behavior. *Journal of Adolescent Research*, 13(1), 49-72.
- Kaufman, P., & Bradby, D. (1992). *Characteristics of at-risk students in the NELS*. Washington, DC: U.S. Government Printing Office.
- Kenny, M. E., Blustein, D. L., Chaves, A., Grossman, J. M., & Gallagher, L.A. (2003). The role of perceived barriers and relational support in the educational and vocational lives of urban high school students. *Journal of Counseling Psychology*, 50, 142 - 155.

- Kenny, M. E., Blustein, D. L., Chaves, A., Grossman, J. M., & Gallagher, L.A. (2003). The role of perceived barriers and relational support in the educational and vocational lives of urban high school students. *Journal of Counseling Psychology, 50*, 142 – 155.
- Kert, A. S., Coddling, R. S., Tryon, G. S., & Shiyko, M. (2010). Impact of the word ‘bully’ on the reported rate of bullying behavior. *Psychology in the Schools, 47*, 193 – 204.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*, 593-602.
- Kim, H.Y., & Page, T. (2013). Emotional bonds with parents, emotional regulation, and school related behavior problems among elementary school truants. *Journal of Child and Family Study, 22*, 869-878.
- Kliewer, W., & Murrelle, L. (2007). Risk and protective factors for adolescent substance use: findings from a study in selected central American countries. *Journal of Adolescent Health, 40*, 448–455.
- Kodjo, C., Auinger, P., & Ryan, S. (2003). Demographic, intrinsic, and extrinsic factors associated with weapon carrying at school. *Archives of Pediatric Adolescent Medicine, 157*, 96–103.
- Kovacs, M., & Goldston, D. (1991). Cognitive and social cognitive development of depressed children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*(3), 388–392.
- Kovacs, M., & Goldstone, D. (1991). Cognitive and social cognitive development of depressed children and adolescents. *Journal for the American Academy of Child and Adolescent Psychiatry, 30*, 388-392. doi:10.1097/00004583-199105000-00006.
- Larsson, H., Dilshad, R., Lichtenstein, P., & Barker, E.,D. (2011). Developmental trajectories of DSM-IV symptoms of attention-deficit/hyperactivity disorder: Genetic effects, family risk and associated psychopathology. *Journal of Child Psychology and Psychiatry, 52*,

954–963.

- Lessard, A., Fortin, L., Joly, J., Royer, E., & Blaya, C. (2004). Students at-risk for dropping out of school: Are there gender differences among personal, family and school factors? *Journal of At-Risk Issues*, 10, 91–27.
- Lewinsohn, P. M., & Hops, H. (1993). Adolescent psychopathology: Prevalence and incidence of depression and other DSM-III-R. *Journal of Abnormal Psychology*, 102(1), 133.
- Li, Y., & Lerner, R. M. (2011). Developmental trajectories of school engagement across adolescence: Implications for academic achievement, substance use, depression, and delinquency. *Developmental Psychology*, 47, 233–247.
- Liu, Chen, & Lewis, G. (2011). Childhood internalizing behaviour: analysis and implications. *Journal of Psychiatric and Mental Health Nursing*, 18, 884–894.
- Lochner, L., & Moretti, E. (2004). The effect of education on crime: Evidence from prison inmates, arrests, and self-reports. *American Economic Review*, 94 (1), 155–189.
- Loe, I. M., & Feldman, H. M. (2007). Academic and educational outcomes of children with ADHD. *Journal of Pediatric Psychology*, 32, 643–654. doi:10.1093/jpepsy/jsl054.
- Loeber, R., Farrington, D., & Petechuk, D. (2003). *Child Delinquency*. Bulletin. Washington DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.
- Loukas, A., Suzuki, R., & Horton, K. (2006). Examining school connectedness as a mediator of school climate effects. *Journal of Research on Adolescence*, 16, 491–502. doi: 10.1111/j.1532-7795.
- Lyon, A. R., & Cotler, S. (2007). Toward reduced bias and increased utility in the assessment of school refusal behavior: the case for diverse samples and evaluations of context. *Psychology in the Schools*, 44 (6), 551–565.
- Manly, J. T., Cicchetti, D., & Barnett, D. (1994). The impact of subtype, frequency, chronicity, and severity of child maltreatment on social competence and behavior problems.

- Development and Psychopathology*, 6, 121–143.
- Mannuzza, S., Klein, R. G., Bessler, A., Malloy, P., LaPadula, M. (1993). Adult outcome of hyperactive boys. Educational achievement, occupational rank, and psychiatric status. *Archives of General Psychiatry*, 50(7), 565–576.
- Mannuzza, S., Klein, R. G., & Moulton, J. L. (2002). Young adult outcome of children with “situational” hyperactivity: A prospective, controlled follow-up study. *Journal of Abnormal Child Psychology*, 30(2), 191-198.
- Manion, I., Short, K. H., & Ferguson, B. (2012). A snapshot of school-based mental health and substance abuse in Canada: where we are and where it leads. *Canadian Journal of School Psychology*, 28(1), 119–135.
- Mazzeo, J., Carlson, J. E., Voelkl, K. E., & Lutkus, A. D. (2000). *Increasing the participation of special needs students in NAEP: A report on 1996 NAEP research activities (NCES 2000–473)*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Educational Statistics.
- McAra, L. (2004). *The Edinburgh study of youth transitions and crime: Number 4 - Truancy, School exclusion and substance misuse*. Edinburgh: Centre for Law and Society, the University of Edinburgh.
- McCarthy, C. A., Mason, W. A., Kosterman, R., Hawkins, J. D., Lengua, L. J., & McCauley, E. (2008). Adolescent school failure predicts later depression among girls. *Journal of Adolescent Health*, 43(2), 180–187.
- McCluskey, C.P., Krohn, M.D, Lizotte, A. J, & Rodriguez, M.L.(2002).Early substance use and school achievement: An examination of Latino, White, and African American Youth. *Journal of Drug Issues*, 32, 3.
- Menard, S. (1995). Applied logistic regression analysis. Sage university paper series on quantitative applications in the social sciences, 07-106. *Thousand Oak, CA: Sage*.
- Menard, S., & Grottpeter, J. K. (2011). Peer influence, social bonding, physical and

- relational aggression: Perpetration and victimization in an elementary school sample. *Victims & Offenders*, 6, 181–206.
- Merikangas, K. R., He, J.-P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., et al. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*, 49(10), 980–989.
- Miech, R. A., Caspi, A., Moffitt, T. E., Wright, B. R. E., & Silva, P. A. (1999). Low socioeconomic status and mental disorders: A longitudinal study of selection and causation during young adulthood. *American Journal of Sociology*, 104, 1096–1131.  
doi:10.1086/210137
- Monroe, C., Borzi, M. G., & Burrell, R. D. (1992). Communication apprehension among high school dropouts. *The School Counselor*, 39, 273–280.
- Morrison, F. J., Griffith, E. M., & Alberts, D. M. (1997). Nature–nurture in the classroom: Entrance age, school readiness, and learning in children. *Developmental Psychology*, 33, 254–262.
- Moss, E., & St-Laurent, D. (2001). Attachment at school age and academic performance. *Developmental Psychology*, 37, 863–874. doi:10.1037/0012-1649.37.6.863.
- Mrug, S., Gaines, J., Su, W., & Windle, M. (2010). School-level substance use: effects on early adolescents' alcohol, tobacco, and marijuana use. *Journal of Studies on Alcohol and Drugs*, 71(4), 488-95.
- Myers, R. (1990). *Classical and modern regression with applications (2nd ed)*. Boston, MA: Duxbury.
- National Dropout Prevention Center/Network. (2009). *Economic impacts of dropouts*. Retrieved from <http://www.dropoutprevention.org/ndpcdefault.htm>
- Newcomb, M. D., Abbott, R. D., Catalano, R. F., Hawkins, J. D., Battin Pearson, S., & Hill, K. (2002). Mediational and deviance theories of late high school failure: Process roles of

- structural strains, academic competence, and general versus specific problem behavior. *Journal of Counseling Psychology*, 49(2), 172–186.
- Nigg, J. T. (2001). Is ADHD an inhibitory disorder? *Psychological Bulletin*, 127, 571–598.  
doi:10.1037/0033-2909.127.5.571
- Nolen-Hoeksema, S., Girgus, J. S., & Seligman, M. E. P. (1992). Predictors and consequences of childhood depressive symptoms: A 5-year longitudinal study. *Journal of Abnormal Psychology*, 101, 405–422. Doi: 10.1037/0021-843X.101.3.405
- O'Malley, P. M., Johnston, L. D., Bachman, J. G., Schulenberg, J. E., & Kumar, R. (2006). How substance use differs among American secondary schools. *Prevention Science*, 7, 409-420.
- Ontario Education Act*, R.S.O. (1990). c.E2.
- Oreopoulos, P. & Salvanes, K. G. (2011). Priceless: The nonpecuniary benefits of schooling. *Journal of Economic Perspectives*, 25 (1), 159–184.
- Olweus, Dan. (1995). Bullying or peer abuse at school: Facts and intervention. *Current Directions in Psychological Science*, 4, 196–200.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin*, 102, 357–389.
- Patchin, J. W. & Hinduja, S. (2011). Traditional and non-traditional bullying among youth: A test of general strain theory. *Youth & Society*, 43, 727–751.
- Pathammavong, R., Leatherdale, S. T., Ahmed, R., Griffith, J., Nowatzki, J., & Manske, S. (2011). Examining the link between education related outcomes and student health risk Behaviours among Canadian youth: Data from the 2006 National Youth Smoking Survey. *Canadian Journal of Education*, 34, 215–247.
- Perra, O., Fletcher, A., Bonell, C., Higgins, K., & McCrystal, P. (2012). School-related predictors of smoking, drinking and drug use: Evidence from the Belfast Youth Development Study. *Journal of Adolescence*, 35(2), 315-324.

- Phillips, C. D., Patnaik, A., Moudouni, D. K., Naiser, E., Dyer, J. A., Hawes, C., Fournier, C., Miller, T. R., & Elliott, T. R. (2012). Summarizing activity limitations in children with chronic illnesses living in the community: A measurement study of scales using supplemented interRAI items. *BMC Health Services Research*, 12(19).
- Place, M., Hulsmeier, J., Davis, S., & Taylor, E. (2000). School refusal: a changing problem which requires a change of approach? *Clinical Child Psychology and Psychiatry*, 5(3), 345–355.
- Pliszka, S.R. (2009). *Treating ADHD and comorbid disorders: Psychosocial and psychopharmacological interventions*. New York, NY: Guilford Press.
- Pliszka, S. (2000). Patterns of psychiatric comorbidity with attention-deficit/hyperactivity disorder. *Child and Adolescent Psychiatric Clinics of North American*, 9, 525-540.
- Pomerantz, E. M., & Rudolph, K. D. (2003). What ensues from emotional distress? Implications for competence estimation. *Child Development*, 74(2), 329–345. doi: 10.1111/1467-8624.7402001.
- Purdie, N., Hattie, J., & Carroll, A. (2002). A review of the research on interventions for attention deficit hyperactivity disorder: What works best? *Review of Educational Research*, 72, 61–99. doi:10.3102/00346543072001061.
- Quiroga, C. V., Janosz, M., Lyons, J. S., & Morin, A. J. S. (2012). Grade retention and seventh-grade depression symptoms in the course of school dropout among high-risk adolescents. *Psychology*, 3, 749–755. doi:10.4236/psych.2012.329113.
- Quiroga, C.V, Janosz, M, Bisset, S. & Morin, A.J.S (2013). Early adolescent depression symptoms and school dropout: mediating processes involving self-reported academic competence and achievement. *Journal of Educational Psychology*, 105(2), 552–560.
- Reschly, D. J., & Ysseldyke, J. E. (1995). School psychology paradigm shift. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology-111* (pp. 17-31). Washington, DC: National Association of School Psychologists.



- Roderick, M., Arney, M., Axelman, M., DaCosta, K., Steiger, C., Stone, S., Villarreal-Sosa, L., & Waxman, E. (1997). Habits hard to break: A new look at truancy in Chicago's public high schools. *Research Brief*. Chicago, IL: University of Chicago School of Social Service Administration.
- Roeser, R. W., Eccles, J. S., & Sameroff, A. J. (2000). School as a context of early adolescents' academic and social-emotional development: A summary of research findings. *The Elementary School Journal*, 100(5), 443–471.
- Rumberger, R. W. (1995). Dropping out of middle school: A multilevel analysis of students and schools. *American Educational Research Journal*, 32, 583-625.
- Rumberger, R. W. (2011). *Dropping out: Why students drop out of school and what can be Done about it*. Cambridge: Harvard University Press.
- Rumberger, R.W. (2004). Why students drop out of school? In: *Orfield G (Ed) dropouts in America: Confronting the graduation rate crises*. Cambridge, MA, Harvard Education Press.
- Rumberger, R.W., & Arellano, B. (2007). *Student and school predictors of high school graduation in California*. Santa Barbara: California Dropout Research Project, University of California.
- Sandhu, D. S., Arora, M., & Sandhu, V. S. (2001). School violence: Risk factors, psychological correlates, prevention and intervention strategies. In *D. S. Sandhu (Ed.), Faces of violence: Psychological correlates, concepts, and intervention strategies (pp. 45–71)*. Huntington, NY: Nova Science Publishers.
- Sharkey, J.d., You, S., & Schnoebelen, K. (2008). Relations among school assets, individual resilience, and student engagement for youth grouped by level of family functioning. *Psychology in the Schools*, 45(5).
- Short, K., Ferguson, B., & Santor, D. (2009). *Scanning the practice landscape in school-based mental health in Ontario* (Paper commissioned by the Ontario Centre of Excellence for

- Child and Youth Mental Health). Ottawa, Ontario, Canada: Ontario Centre of Excellence for Child and Youth Mental Health.
- Sigrun, H., Sigrun, J., & Halldor, S. G. (2015). Understanding resilience in learning difficulties: unheard voices of secondary school students. *Child and Adolescent Social Work Journal*, DOI 10.1007/s10560-014-0373-1.
- Sirin, S. R., & Rogers-Sirin, L. (2005). Components of school engagement among African American adolescents. *Applied Developmental Science*, 9, 5 – 13.
- Smith, A., Stewart, D., Peled, M., Poon, C., Saewyc, E., & McCreary Centre Society. (2010). *A picture of health: Highlights from the 2008 BC adolescent health survey*. Vancouver, B.C.: McCreary Centre Society.
- Soyama, K., Honma, E., & Yaguchi K. (2004). Self-Esteem, Social Skills, and Stress Response: School Refusers. *Japanese Journal of Special Education*, 42 (1), 23–33.
- Spence, S. H., Donovan, C., & Brechman-Toussaint, M. (1999). Social skills, social outcomes, and cognitive features of childhood social phobia. *Journal of Abnormal Psychology*, 108, 211–221.
- Spinath, B., Eckert, C. & Steinmayr, R. (2014). Gender differences in school success: what are the roles of students' intelligence, personality and motivation? *Educational Research*, 56 (2), 230–243.
- Statistics Canada. (2006). *Census of Population*. Ottawa, ON: Statistics Canada.
- Statistics Canada. (2008). *Community Profiles*. Retrieved from <http://www.statcan.ca>.
- Stewart S. L., Hirdes, J. P., Curtin-Telegdi, N., Perlman, C., MacLeod, K., Ninan, A., Hall, M., Currie, M., Carson, S., Morris, J.N., Berg, K., Björkgren, M., Declercq, A., Finne-Soveri, H., Fries, B.E., Gray, L., Head, M., Hirdes, J.P., James, M., Ljunggren, G., Meehan, B., Smith, T., Steel, K., Szczerbinska, K., Topinková, E. (2015). *InterRAI Child and Youth Mental Health (ChYMH) Assessment Form and User's Manual*. Version 1. Washington, DC: interRAI.

- Stewart, S. L., & Klassen, J. & Tohvner, G. (2015). *The interRAI School Disruption Scale: A New scale to measure school engagement and disruption*. 2015 American Psychological Association Annual Meeting, Toronto, ON & International Society for the Study of Individual Differences Conference, London, ON.
- Stewart, S. L., Baiden, P., Ninan, A. (2013). *The Aggressive Behavior Scale and predicting control interventions among youth*. The 33rd Annual Meeting of the Canadian Academy of Child and Adolescent Psychiatry (CACAP). Vancouver, BC, Canada.
- Stewart, S. L., Klassen, J., & Tohvner, G. (2015). *The interRAI school disruption scale: a new scale to measure school engagement and disruption*. Poster presented at the International Society for the Study of Individual Differences Conference, London, ON.
- Stewart, S. L., Klassen, J., & Hamza, C. (submitted). *Emerging mental health diagnoses and school disruption: An examination among clinically referred children and youth*. Manuscript submitted to Exceptionality Education International.
- Stewart, S. L., & Hamza, C. (manuscript in preparation). Construct validation of interRAI Child and Youth Mental Health Scales.
- Stewart, S. L., Currie, M., Arbeau, K., Leschied, A., & Kerry, A. (in press). Assessment and planning for community and custodial services: The Application of interRAI assessment in the Youth Justice System. In R. Corrado & A. Leschied (Eds.), *Serious and Violent Young Offenders and Youth Criminal Justice: A Canadian Perspective*.
- Swadi, H. (1992). Psychiatric symptoms in drug abusing adolescents. *Drug & Alcohol Dependence*, 31, 77-83.
- Sweeten, G., Bushway, S.D., & Paternoster, R. (2009). Does dropping out of school mean dropping into delinquency? *Criminology*, 47, 47-88.
- U.S. Census Bureau. (2011). *School enrollment in the United States: 2008*. Available at <http://www.census.gov/prod/2011pubs/p20-564.pdf>.
- U.S. Department of Education. (2002). *Twenty-fourth annual report to Congress on the*

- implementation of the Individuals with Disabilities Education Act*. Retrieved from <http://www.ed.gov/about/offices/list/osers/osep/research.html>
- U.S. Department of Education. (2003). *Status and trends in the education of Hispanics*. Washington, DC: National Center for Education Statistics.
- U.S. Department of Health & Human Services (USDHHS) (1999). *Mental health: A report of the surgeon general*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse & Mental Health Services Administration, Center for Mental Health Services. U.S. General Accounting Office.
- Van der Aa, N., Rebollo-Mesa, I., Willemsen, G., Boomsma, D. I., & Bartels, M. (2009). Frequency of truancy at high school: Evidence for genetic and twin specific shared environmental influences. *The Journal of Adolescent Health, 45*, 579-586.
- Vaughn, M. G., Salas-Wright, C. P., & Maynard, B. R. (2014). Dropping out of school and chronic disease in the United States. *Journal of Public Health, 22*, 265–270.
- Vaughn, M.G., Maynard, B.R., Salas-Wright, C.P, Perron, B.E., & Abdon, A. (2013). Prevalence and correlates of truancy in the US: results from a national sample. *Journal of Adolescence, 36*(4), 767-76. doi: 10.1016/j.adolescence.2013.03.015.
- Vaughn, .M.G, Wexler, J., Beaver, K.M., Perron, B.E., Roberts, G., & Fu, Q. (2011). Psychiatric correlates of behavioral indicators of school disengagement in the United States. *Psychiatry Q, 82*,191–206. DOI: 10.1007/s11126-010-9160-0.
- Vile Junod, R. E., DuPaul, G. J., Jitendra, A. K., Volpe, R. J., & Cleary, K. S. (2006). Classroom observations of students with and without ADHD: Differences across types of engagement. *Journal of School Psychology, 44*, 87–104. doi:10.1016/j.jsp.2005.12.004
- Visser, M., Kunnen, S. E., & Van Geert, P. L. C. (2010). The impact of context on the development of aggressive behavior in special elementary school children. *Mind, Brain, and Education, 4*, 34–43.
- Vitaro, F., Brendgen, M., & Tremblay, R. E. (1999). Prevention of school dropout through

- the reduction of disruptive behaviors and school. *Journal of School Psychology*, 37(2), 205–226.
- Wade, T.J., Cairney, J., & Pevalin, D.J. (2002). Emergence of gender differences in depression during adolescence: National panel results from three countries. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41,190-98.
- Wagner, M., Kutash, K., Duchnowski, A. J., Epstein, M. H., & Sumi, C. W. (2005). The children and youth we serve: A national picture of the characteristics of students with emotional disturbances receiving special education. *Journal of Emotional and Behavioral Disorders*, 13, 79–96. doi:10.1177/10634266050130020201.
- Wang, M.T, Willett, J.B., & Eccles, J.S. (2011). The assessment of school engagement: Examining dimensionality and measurement invariance by gender and race/ethnicity. *Journal of School Psychology*, 49(4), 465–480.
- Wang, M.-T., & Holcombe, R. (2010). Adolescents' perceptions of classroom environment, School engagement, and academic achievement. *American Educational Research Journal*, 47, 633–662. doi:10.3102/0002831209361209.
- Wang, M-T & Peck, S. C. (2013). Adolescent educational success and mental health vary across school engagement profiles. *Developmental Psychology*, 49(7), 1266-1276
- Weiss, G., & Hechtman, L. (1986). *Hyperactive children grown up*. New York: Guilford Press.
- Wexler, M. (1975). Personality characteristics of marijuana users and non-users in a suburban high school. *Cornell Journal of Social Relations*, 10, 267-282.
- Wilkins, J. (2008). School characteristics that influence student attendance: experiences of Students in a school avoidance program. *The High School Journal*, 12–24.
- Willcutt, E. G. (2012). The prevalence of DSM–IV attention-deficit/hyperactivity disorder: A meta-analytic review. *Neurotherapeutics: The Journal of the American Society for Experimental Neuro-Therapeutics*, 9, 490–499.
- Williams, R.J., Zolner, T., Bertrand, L.D., & Davis, R.M. (2004).Mental health status of

- infrequent adolescent substance users. *Journal of Child & Adolescent Substance Abuse*, 14(2), 41-60.
- Willms, J. D. (2003). *Student engagement at school: A sense of belonging and participation*. Paris: Organisation for Economic Co-operation and Development.
- Worswick, C. (2001). Early school leaving among immigrants in Toronto secondary schools PAUL ANISEF. *School Performance of the Children of Immigrants in Canada, 1994–98*. Ottawa, ON: Statistics Canada.
- Zins, J. E., Kratochwill, T. R., & Elliott, S. N. (1993). Current status of the field. In J. E. Zins, T. R. Kratochwill, & S. N. Elliott (Eds.). *Handbook of Consultation Services for Children* (pp. 1- 12). San Francisco: Jossey-Bass.
- Zimmerman, B. J. (2000). Self-efficacy: an essential motive to learn. *Contemporary Educational Psychology*, 25, 82–91. doi: 10.1006/ceps.1999.1016.
- Zucker, M., Morris, M. K., Ingram, S. M., Morris, R. D., & Bakeman, R. (2002). Concordance of self- and informant ratings of adults' current and childhood attention-deficit/hyperactivity disorder symptoms. *Psychological Assessment*, 14(4), 379-389.

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## PUBLICATIONS

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### PAPERS

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