# Are the kids alright? Toward best practices for students' successful transition to secondary school

**by**

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Thesis Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

in the

School of Criminology

Faculty of Arts and Social Sciences



SIMON FRASER UNIVERSITY

Spring 2024

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# Abstract

Numerous studies have demonstrated that the transition from primary to secondary school can be difficult for students (e.g., Benner et al., 2017). For example, many students are challenged by adjusting to a new school environment, new academic demands, and new social pressures (e.g., Chambers & Coffey, 2019; Jindal-Snape et al., 2020). Overall, there is a pressing need for empirical research to inform interventions for adolescents that can facilitate a smooth transition to high school (Bharara, 2020; Donaldson et al., 2023). To do so, it is important to better understand the challenges experienced by adolescents during the transition to high school, as well as evaluate the effectiveness of existing school transition programs. Using a longitudinal dataset of 798 grade 7 students from metro Vancouver, British Columbia, the three articles presented in this thesis aim to address these gaps by examining the experiences of adolescents as they navigate the primary-secondary school transition. Specifically, this thesis focuses on how students' experiences with the transition to high school differ by gender, and whether participation in the metro Vancouver YWCA Youth Education Program (YEP; an afterschool group mentoring program that focuses on youth's transition to high school) facilitates students' transition from primary to secondary school.

In Study 1, using a mixed-methods approach, students' concerns about high school are examined before and after their transition to secondary school. Study 2 quantitatively examines youths' perceptions of friend support across the primary-secondary school transition. This study also examines if the YEP has a positive impact on students' perceptions of friend support. Last, Study 3 focuses on adolescent delinquency throughout the transition to high school. This study also assesses the impact of the YEP on youths' attitudes toward delinquency and their association with delinquent peers.

Overall, several broad conclusions can be drawn from this thesis regarding youths' experiences with the transition to high school, gender differences in this experience, and the effectiveness of afterschool group mentoring programs, like the YWCA YEP, on youth outcomes. Implications for policy and practice are discussed, and directions for future research are provided.

**Keywords**: youth; high school transition; group mentoring; program evaluation; mixed methods

## Acknowledgements

First and foremost, I am extremely grateful to my senior supervisor, Dr. Jennifer Wong, for her invaluable mentorship, continuous support, and endless patience at every stage of my PhD degree. Jen, I will be forever grateful for the time and energy you have invested in me over the last 12(!) years. You have played a significant role in shaping me into the researcher I am today, and for that, I can never thank you enough. Thank you for everything!

I would also like to thank the members of my examining committee, Dr. Zachary Rowan, Dr. Kevin O'Neill, and Dr. Wendy Hoglund for their time and insightful comments and feedback.

Special thanks to Chelsey, Kelsey, and Vanja for their role in making this study possible. Without their tireless effort, the data collection for this study would not have been as smooth and successful (*also, without you three, travelling to conferences would have been a lot less fun and adventurous!).

Finally, I would like to express my deepest gratitude to my family, friends, and colleagues at NB-IRDT. Without their unwavering encouragement, understanding, and support over the past few years, none of this would have been possible. I feel so lucky to have such an incredible group of people around me. Thank you all from the bottom of my heart!

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# List of Acronyms

| | |
|---|---|
| ASP | After-school program |
| B4R | Boys 4 Real |
| CTL | Control group |
| IPW | Inverse probability weights |
| MLM | Multi-level model |
| PSA | Propensity score analysis |
| TJM | That's Just Me |
| TX | Treatment/intervention group |
| WTML | Welcome To My Life |
| YEP | Youth Education Programs |
| YWCA | Young Women's Christian Association |

# Chapter 1. Introduction

Moving from primary/elementary school to secondary/high school can be both exciting and stressful for adolescents due to the significant changes in their social and academic environments. Researchers have described the primary-secondary school transition period as challenging and difficult for many adolescents, as they face new challenges such as adapting to new environments, educational practices, social pressures, and routines (Benner, 2011; Chambers & Coffey, 2019; Jindal-Snape et al., 2020). For instance, in contrast to primary school where students usually have one teacher for all subjects and stay in the same classroom all day, high school students typically have different teachers for each subject and move to different classrooms throughout the day (Arens et al., 2013; Coelho & Ramao, 2016). As a result, the close-knit and personal environment of primary school is disrupted in high school (Akos & Galassi, 2004a; Chambers & Coffey, 2019; Cook et al., 2008). Consequently, students may experience a more impersonal learning environment as teachers focus more on teaching subject matter and less on class cohesion and individual student needs (Herlihy, 2007; Holcomb-Mcoy, 2007). In addition to changes in the school environment, students may also face new academic structures and expectations, including more challenging coursework, increased responsibility for independent learning, less free time during the school day, a more complicated class schedule, and a shift from qualitative assessments (e.g., “E – Excellent”, “S - Superior”) to numerical grades (e.g., 0-100; Akos & Galassi, 2004a; Brouzos et al., 2020; Cauley & Jovanovich, 2006; Coelho & Ramao, 2016; Ganeson & Ehrich, 2009; Rice et al., 2011).

In addition to a new school/academic environment with increased demands and responsibilities, students must also contend with establishing new social/peer relationships in high school (Benner & Graham, 2009; Cohen & Smerdon, 2009; Grills-Taquechel et al., 2010; Newman et al., 2007; Rice et al., 2011). For instance, in high school, students may not have the same class schedules as their friends, leading to less interaction with close friends and more time spent with unfamiliar students (Felmlee et al., 2018; Ng-Knight et al., 2019). Additionally, during this developmental period, teenagers increasingly desire peer approval and acceptance, making the loss of close friendships distressing and isolating. The changes in youths’ social networks can exacerbate feelings of disconnection and loneliness that are experienced in a new school environment (Curson et al., 2019; Pratt & George, 2005; Weller, 2007).

Many adolescents will have a positive experience transitioning to high school and will learn to adjust to the unfamiliar school environment, increased academic rigor, and new social expectations quickly (e.g., Jindal-Snape & Cantali, 2019; Lester et al., 2019). However, researchers have noted that the simultaneous changes/disruption associated with the move to high school adversely impacts many students in at least some way (Anderson et al., 2000; Cohen & Smerdon, 2009; Evans et al., 2018; Montgomery & Hirth, 2011; Queen, 2002). Further, while attending high school is a normative rite of passage for youth in North America, many students are not sufficiently prepared to navigate the changes and increased demands. This lack of preparation can have negative and long-lasting consequences for youth across various academic (e.g., grades, academic engagement, and motivation) and non-academic outcomes (e.g., depression, anxiety, loneliness; Evans et al., 2018; Jindal-Snape et al., 2020). Empirical research provides ample evidence of adverse impacts of a difficult, stressful, and/or challenging transition from primary to secondary school. According to the literature, students are challenged with adjustment during the move to high school in four key domains: 1) internalizing behaviour, 2) social relationships, 3) academic performance and engagement, and 4) feelings of school connectedness (Benner et al., 2011; Evans et al., 2018; Felmlee et al., 2018; Jindal-Snape et al., 2020; Lester et al., 2019; West et al., 2010). Each domain is discussed briefly below.

## Internalizing Behaviour

As moving to high school requires youth to adapt to a new environment with increased demands and responsibilities, as well as establish new social relationships, it is common for feelings of anxiety and depression to arise before, during, and after the transition period (Benner & Graham, 2009; Cohen & Smerdon, 2009; Newman et al., 2007; Grills-Taquechel et al., 2010; Rice et al., 2011). Significant evidence indicates that the changes associated with the move to high school can have negative impacts on the social, emotional, and psychological well-being of youth (Benner et al., 2011; Chung et al., 2014; Evans et al., 2018; Felmlee et al., 2018; Fite, 2019). For instance, the shift from primary to secondary school has been linked to several challenges, such as an increased risk of developing anxiety (Benner & Graham, 2009; Isakson & Jarvis, 1999; Newman et al., 2007). Failure to manage the environmental stressors associated with attending high school can also increase the risk of developing depression (Benner et al., 2017; Blossom et al., 2020; Newman et al., 2007). The consequences of increased internalizing behaviours (i.e., depressive disorders, anxiety disorders, somatic complaints and teenage suicide; see Liu and colleagues (2011) for more details) during a critical

developmental phase such as the transition to high school can be severe, with disruptions to adolescents' emotional and psychological health resulting in adverse effects that persist over time (Benner & Graham, 2009; Evans et al., 2018; Liu et al., 2011). Further, if youth are not adequately prepared to navigate various internalizing behaviour problems during this period, they may experience negative impacts in other areas, such as a decline in self-esteem and academic performance (Arens et al., 2013; Benner & Graham, 2009; Blackwell, 2008; Coelho et al., 2017; Harter, 2012; Letrello & Miles, 2003; Seidman et al., 1994).

## Social Relationships

The transition to high school coincides with the stage of development in which adolescents focus on gaining independence from parental/familial relationships and the importance of friendships and peer approval intensifies (Cantin & Boivin, 2004; Coffey et al., 2013; Wrzus et al., 2013). The shift to high school can be a challenging time for many adolescents as they navigate the accompanying social upheaval; new friendships, decreased stability and connectedness with old friends, and the stress of trying to maintain existing friendships while also establishing a new peer network can all cause considerable distress for youth (Almeida & Wong 2009; Caspi & Moffitt 1993; Temkin et al., 2018). While research suggests that strong social ties are a protective factor during adolescence, the transition to high school causes considerable disruption to adolescents' social networks (Benner et al., 2017; Kingery & Erdley, 2007; Morin et al., 2013; Ng-Knight et al., 2019; Ueno, 2005).

The move to high school can negatively impact youths' social relationships in a variety of ways. For instance, following the transition to high school adolescents may experience an increased sense of disconnection from others, including increased feelings of loneliness and isolation, an increased sense of anonymity, and a decreased sense of social integration (Benner & Graham, 2009; Benner et al., 2017; Felmlee, 2018; Grills-Taquechel et al., 2010). Youth also experience increased social anxiety and a decreased sense of social acceptance and friend support (Benner et al., 2017; Bialecka-Pikul et al., 2019). The consistent finding of social disconnection following school transition is concerning as the consequences are many and may extend beyond social relationships (Felmlee et al., 2018). For instance, weak social ties in high school reportedly lead to negative school performance, decreased academic engagement, and an increased likelihood of dropping out (Akos & Galassi, 2004a; Fulk, 2003; Benner et al., 2017).

## Academic Performance

Several risk factors to academic success are present following the move to high school, and these can cause considerable disruption to youths' academic performance and engagement. Extant research provides ample evidence to suggest that the move from primary to secondary school has a considerable impact on youths' academic outcomes. For instance, students are more likely to drop out of school the year directly following the transition (Haney et al., 2004; Neild & Farley, 2004). Additionally, academic performance suffers following the move to high school, as students' grades decrease significantly (Adreon & Stella, 2001; Akos & Galassi, 2004a; Benner, 2017; Benner & Graham, 2009; Goldstein et al., 2015; McCallumore & Sparapani, 2010; Sutton et al., 2018; Rice et al., 2011; Rosenblatt & Elias, 2008; Weis & Bearman, 2007). Youth also indicate a greater dislike for school (Akos & Galassi, 2004a), demonstrate lower academic engagement and motivation (Barber & Olsen, 2004; Benner et al., 2017), and a decline in their academic self-concept following the transition to high school (Arens et al., 2013; Cole et al., 2001; Molloy et al., 2011; Zanobini & Usai, 2002). Research suggests that chronic absenteeism is also an increasing concern following the shift to high school, as tardiness, truancy, and attendance problems increase dramatically (Benner & Graham, 2009; Letrello & Miles, 2003; McCallumore & Sparapani, 2010; Rice et al., 2011).

Findings from Benner and Graham (2009) suggest that for many adolescents, the challenges associated with transition disruptions are not just momentary disruptions and may continue throughout high school. Further, because these challenges can offset a student's academic trajectory, these could ultimately influence graduation rates (Benner, 2011; Geltner et al., 2011; Neild, 2009; Weiss & Baker-Smith, 2010).

## School Engagement and Connectedness

The importance of school connectedness is well established in the literature (e.g., see Muscara et al., 2018) and factors related to school engagement such as school satisfaction, connection to people at school, and feelings of belonging are crucial to a successful primary-secondary school transition and students' overall well-being in high school (Duchesne et al., 2017; Gómez et al., 2017; Hidayah et al., 2016; Portwood & Ayers, 2005; Sun, 2016; Wang & Eccles, 2012). Yet, some research suggests that several factors associated with the transition such as increased stress, negative self-perception, independence from parents, and decreased

perception of peer support are linked to a significant decline in school engagement (Akos & Galassi, 2004a; Mizelle, 2005; Oriol et al., 2017; Wang & Eccles, 2012; Wolf et al., 2015).

School engagement is linked to positive psychosocial development, mental health, prosocial behaviour, academic performance, and academic motivation (Demanet & Van Houtte 2012; Eccles & Roeser, 2011; Gillen-O'Neel & Fuligni, 2013; Pittman & Richmond, 2007; Sari, 2012; Tian et al., 2016). For example, students who feel connected to their school and are engaged in learning are more likely to experience positive outcomes such as higher levels of happiness, better psychological functioning and self-esteem, and greater academic motivation and achievement (e.g., Brechwald & Prinstein, 2011; Davis, 2012; Jose et al., 2012; Law et al., 2013). Additionally, students who are engaged with their school are less likely to experience negative outcomes such as dropout, substance use, depression, suicidal thoughts, delinquent and violent behaviours, gang membership, and risky sexual behaviours (e.g., Chapman et al., 2011; Demanet & Van Houtte, 2012; Hanson & Voight, 2014; Hallinan 2008; La Salle et al., 2017; Mann et al., 2015; McWhirter et al., 2018; Neel & Fuligni, 2013; Yang et al., 2014).

## The Role of School Transition Programs in Preparing Students for Secondary School

As demonstrated above, moving from primary to secondary school can be a challenging process for students. High school transition programs aim to facilitate a seamless transition for students by providing activities that help them build knowledge and skills to navigate pertinent challenges (e.g., interpersonal relationships, social skills, academic success, and school procedures), minimize stress/stressors associated with the move to high school, and promote a positive experience (Blackwell, 2008; Roybal et al., 2014). School transition programs vary considerably in format and structure (see Joyner, 2014 for an overview); for instance, programs can vary by:

- type (e.g., bridge programs, orientation nights, student shadowing programs, small learning communities, 9$^{th}$ grade academies, counseling programs, tutoring programs, mentoring programs),
- setting (e.g., school vs. community),
- parental involvement (e.g., information sessions for parents),
- frequency (e.g., single session vs. multi-session),

- timing (e.g., delivered in primary school vs. secondary school),
- focus (e.g., academic reinforcement, social integration, logistical support), and
- scope (e.g., narrow/singular vs. comprehensive/holistic).

Overall, school transition programs aim to ease the move from primary to secondary school, reduce stress, and increase confidence among students by providing necessary support, knowledge, and skills (Roybal et al., 2014).

## Effectiveness of High School Transition Programs

To date, no published research has systematically reviewed and/or meta-analyzed the literature on the effectiveness of high school transition programs for youth. While it is widely recognized that these programs provide essential resources to students, the empirical evidence on their impact on student outcomes is mixed. An overview of some of the most rigorous empirical research on high school transition programs conducted in the last 15 years is provided next.

### *Academic Success*

The impact of high school transition programs on student academic outcomes has been the subject of several empirical studies. While some suggest that such programs have a positive impact on academic performance, others do not. For instance, some studies find that students who participate in school transition programs are less likely to drop out of school and have better attendance rates, fewer course failures, more credits toward graduation, higher test scores in core subjects, higher GPAs, and fewer disciplinary referrals/suspensions (e.g., Corsello et al., 2015; Flynn, 2016; Fulco, 2009; Hoosgstra et al., 2011; Montgomery & Hirth, 2011; Pandina et al., 2015; Rosenblatt & Elias, 2008; Sigler, 2008; Stoddard, 2012; Styron, 2010; VanMetre, 2009). However, other research reports no significant program effects on academic outcomes such as GPA, school attendance, and disciplinary referrals (e.g., George, 2016; Holtcamp, 2014; Honetschlager, 2020; Jewell, 2018; Joyner, 2014; Montgomery, 2013; Snipes, 2015; Somers & Garcia, 2016; Way, 2015).

### *Social Skills*

Although research on the impact of high school transition programs on youths' social skills is limited, the existing empirical evidence suggests that programs can positively influence

students' social development. Specifically, these programs can help students improve their overall social skills, resist negative peer pressure, and enhance pro-social skills such as managing emotions like anger and demonstrating empathy. For example, Pandina and colleagues (2015) reported that such programs can help students resist negative peer influences and become more assertive in social situations. Likewise, Allen and others (2011) noted that high school transition programs can teach students how to better manage their emotions and develop positive social relationships. Collectively, the findings suggest that high school transition programs can play a crucial role in promoting social skills among students, with potential long-term positive impacts on their personal and professional lives.

### *Socio-Emotional Well-Being*

While research on the effects of high school transition programs on students' socio-emotional well-being is relatively limited, a growing body of evidence suggests that these programs can have a positive impact on youth. Studies have shown that youth who take part in school transition programs are more likely to experience a decrease in depressive symptoms (Makover et al., 2019), general anxiety (Vassilopoulos et al., 2018), and social anxiety (Brouzos et al., 2020). Additionally, they are more likely to show increased self-esteem, active coping strategies, and improved problem-solving skills (Brouzos et al., 2020; Pandina et al., 2015). George (2016) also found evidence of a positive impact on students' socio-emotional adjustment and confidence.

### *School Connectedness*

Limited empirical research exists regarding the effectiveness of high school transition programs in promoting school connectedness and engagement among students. Of the studies that have explored this outcome, the results are mixed. For instance, some studies have shown that transition programs are successful in promoting school attachment and increasing student connectedness (e.g., Makover et al., 2019; Honetschlager, 2020; Schietz, 2014), while others have found no significant effect on school and teacher connectedness, or school engagement and belongingness (McQuillin et al., 2011; Srofe, 2009).

### *Attitudes and Behaviours*

During the transition period, significant changes occur in the school’s physical environment and social structure, which can disrupt students’ existing habits and behaviours and allow for the formation of new behavioural patterns. Studies have shown that participating in

a school transition program can lead to increased engagement in pro-social behaviours (Brouzos et al., 2020) and decreased relational aggression (e.g., fighting, bullying; Pandina et al., 2015; Schietz, 2014). Additionally, research has found positive program impacts on attitudes and behaviours concerning substance use. For instance, Pandina and colleagues (2015) found that students who participated in a school transition program showed less intention to use alcohol and consumed less alcohol. The study also found that participation in a transition program decreased students' tolerance of friends' substance use.

### *Limitations of Existing Empirical Evaluations of High School Transition Programs*

After carefully reviewing the literature on high school transition programs, several limitations emerge with respect to existing empirical evaluations. Some key limitations are discussed below.

First, a considerable number of studies do not adhere to rigorous research designs. Specifically, many studies fail to include a comparison group, lack proper participant matching or randomization, and/or have a small sample size. The presence of these flaws can have an adverse impact on the reliability and validity of the study's findings. For example, without a comparison group, it is difficult to determine if observed results are due to the intervention as opposed to extraneous factors. Similarly, small sample sizes may lead to imprecise estimations and may not be representative of the target population. These factors are crucial to consider when evaluating the validity of a study’s findings.

Second, a common drawback of numerous evaluations of high school transition programs is the utilization of a ‘case study’ approach, which restricts their external validity. Such studies focus on the effects of a program at a single school, without accounting for the distinctive contextual factors that may exist at other schools. Further, of the existing evaluations of high school transition programs, most focus on Freshman/Ninth Grade Academies. Therefore, it is crucial to exercise caution when interpreting the findings of these studies and evaluate their external validity carefully.

Third, it is noteworthy that a limited number of longitudinal study designs have been used to evaluate the effectiveness of high school transition programs. Consequently, these studies do not investigate the long-term effects or benefits that such programs can provide to youth. Thus, it is important to take this limitation into account when evaluating the literature on these programs and the conclusions drawn from them.

Fourth, research on high school transition programs has typically focused on overall program effectiveness without exploring sub-group differences between students, such as gender or ethnic identity. The limited number of evaluations that do examine gender or ethnic differences tend to be broad in their scope and fail to provide a detailed analysis of the unique challenges and stressors faced by students during the transition from primary to secondary school.

## Statement of the Problem

Research has shown that many students struggle when transitioning from primary to secondary school, and that the first year of high school is crucial for success (Benner et al., 2017). Without adequate support, the move to high school can adversely impact adolescents' development and high school experience (e.g., see Evans et al., 2018). To date, there has been limited research conducted on gender differences in the challenges faced by adolescents during the transition to high school. It is crucial to understand these differences to better comprehend the overall high school experience for students. While many studies have explored racial and ethnic differences, it is important to also consider other demographic variables such as gender (Benner et al., 2017). Gender can have a significant impact on students' difficulties in school (Akos & Galassi, 2004b; Benner et al., 2017; Crosnoe & Benner, 2015), so it is important to identify any existing gender differences in those difficulties/challenges and use this information when developing policies and programs to support students during the transition to high school. Additionally, there is a lack of methodologically rigorous research that examines the longitudinal impact of school transition programs on youth. Overall, there is a pressing need for more empirical research to inform effective interventions that can facilitate the high school transition experience for adolescents (Bharara, 2020; Donaldson et al., 2023).

This thesis examines the experience of a large group of adolescents from metro Vancouver, British Columbia, Canada as they transition from primary school to secondary school. Specifically, this thesis focuses on how students' experiences with the move to high school differ by gender and whether participation in the metro Vancouver YWCA Youth Education Program (YEP; an afterschool group mentoring program that focuses on youth's transition to high school) facilitates students' transition from primary to secondary school. The metro Vancouver YWCA YEP has been providing support to youth for 17 years. However, it has never undergone a formal evaluation.

## Research Contributions

The following is an overview of the three research studies presented in this thesis and the associated research questions and study aims of each chapter.

### Study 1. Now and Then: Examining Students' Concerns About the Primary-Secondary School Transition

When students move from primary to secondary school, they tend to experience a range of apprehensions related to adapting to a new academic, school/environmental, and social setting. Recent studies suggest that school-related fears have a negative and potentially long-lasting impact on students' psychological well-being and school attainment (Evans et al., 2018; Jindal-Snape et al., 2020; Lester et al., 2019; Riglin et al., 2014). Using data collected from a sample of 784 grade 7 students in British Columbia, Canada, this study examines students' concerns about high school before and after their transition to secondary school and whether these concerns differ between boys and girls. The study has three main objectives: (1) using qualitative content analysis, identify and describe the key areas in which students express concerns about the transition to secondary school, (2) quantitatively examine the prevalence of students' concerns in each of the key areas identified in objective 1 *before* they transition to secondary school and explore any associated gender differences, and (3) quantitatively examine the prevalence of students' challenges/difficulties in high school *after* they have made the transition, and investigate differences by gender. Mixed methods were used to answer the following research questions:

*RQ 1: What are the key areas in which students have concerns about high school and do these differ by gender?*

*RQ 2: What are the challenges/difficulties experienced by students after their first semester in high school and do these differ by gender?*

### Study 2. I Get By With a Little Help From my Friends: Examining Youths' Perceptions of Friend Support Throughout the Transition to High School

Adolescents face many difficulties when moving to high school, particularly when it comes to their social circles and maintaining friendships (e.g., Ng-Knight et al., 2019). It is important to consider the effect of school transitions on adolescents' social relationships, as

weak social relationships can increase the risk of a negative experience during high school and supportive and stable friendships during the transition to high school can serve as protective and facilitating factors (Krammer et al., 2023; van Rens et al., 2018). Some research on group mentoring programs have demonstrated positive effects for youth, but limited research exists on the impact of such programs on social outcomes, such as friendships and peer relationships. Evidence concerning the long-term impact of group mentoring programs that focus on the move to high school is also lacking. Using data from 625 grade 7 students in British Columbia, Canada, multi-level models with propensity score weighting were used to answer the following research questions:

*RQ 1: Do youths' perceptions of friend support change throughout the primary-secondary school transition?*

*RQ 2: Do perceptions of friend support vary by gender?*

*RQ 3: What are the short-term and long-term impacts of the YEP on students' perceptions of friend support?*

*RQ 4: Is there an interaction effect of gender and YEP participation on students' perceptions of friend support?*

## Study 3. Navigating the Transition to High School: Investigating Adolescents' Delinquent Attitudes and Association with Delinquent Peers

The adverse impacts of the transition to high school on adolescents' social, emotional, and psychological well-being are well documented (Benner, 2011; Evans et al., 2018; Felmlee et al., 2018; Fite et al., 2019). Yet relatively little is known about the impact of school transitions on students' attitudinal and behavioural outcomes, particularly with respect to deviance and delinquency. Given the number of challenges that coincide with the move to high school and their potential implications on delinquent behaviours, understanding the impact of interventions that aim to promote protective factors and mitigate the risk factors is important. Framed by the existing literature on afterschool programs and mentoring programs for youth, the aim of this study is to examine adolescents' delinquent attitudes and association with delinquent peers throughout the transition to high school and assess the impact of the YEP on these outcomes. Using data from 582 grade 7 students in British Columbia, Canada, multi-level models with propensity score weighting were used to answer the following research questions:

*RQ 1: Do adolescents' attitudes toward delinquency and association with delinquent peers change throughout the transition to high school?*

*RQ 2: What are the short-term and long-term impacts of the YEP on youths' attitudes toward delinquency and association with delinquent peers?*

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# Chapter 2. Method

## The YWCA Youth Education Programs (YEP)

The metro Vancouver YWCA is a non-profit organization that was established in 1897. Partnering with the Vancouver and Surrey School Boards and the University of British Columbia's Learning Exchange, the YWCA created the Youth Education Programs (YEP) as a unique approach to after-school mentoring for youth. The YEP includes three programs: Welcome to My Life (WTML), That's Just Me (TJM), and Boys 4 Real (B4R) (each are described in more detail below), which are funded through a combination of revenue generated by YWCA-owned assets, government grants, and donations from community organizations, individuals, and the private sector. The Vancouver and Surrey school districts are structured such that there is no middle or junior high school. Instead, elementary/primary school includes kindergarten to grade 7, and secondary/high school includes grades 8 to 12. As such, students transfer to high school in grade 8 (at approximately 12-13 years of age). Typically, multiple primary schools feed into one secondary school. The Vancouver school district has 89 elementary schools (approximately 28,000 students) and 18 secondary schools (approximately 19,000 students; Vancouver School Board, 2023). The Surrey school district has 103 elementary schools (approximately 41,000 students) and 21 secondary schools (approximately 32,000 students; Surrey Schools, 2023).

The YEP aims to assist grade 7 students in their transition to high school by promoting healthy self-esteem, relationship skills, and decision-making skills. It also strives to create an environment of mutual respect between boys and girls as equals. The YEP offers after-school group mentoring programs for grade 7 girls (WTLM and TJM) and boys (B4R) that aim to help youth in their transition to high school by connecting them with positive role models, responding to pertinent challenges that youth face during adolescence, and providing the tools youths need to make smart choices (YWCA, 2016). The YEP typically runs twice yearly, once in the Fall and once in the Spring. The nine-week curriculum-based sessions are gender-tailored and are led by an intergenerational team of volunteers. Each session is 2.5 hours (150 minutes), with 100 minutes dedicated to the week's module, which focuses on a specific theme such as self-esteem, friendship, or internet safety. Interactive activities, games, group discussions, and reflection journals are used to teach these themes. After-school snacks are provided to participants before each session, and physical activities/gym games are typically incorporated

into each session. The remaining 50 minutes of the session are dedicated to a Community Service Project, which brings boys and girls together to collaborate on a project that supports the wider community. The Community Service Project is meant to reinforce the ideas and skills introduced in the modules while engaging the participants in a meaningful contribution to their school or community (YWCA, 2016).

When selecting schools to host the YEP, perceived need is the main criterion rather than targeting specific populations of students. The schools identified by the YWCA are typically under-programmed (e.g., lacking after-school and/or extra-curricular activities for their students). Additionally, the families in these areas may have limited resources for youth to participate in extracurricular activities, which can result in fewer opportunities to be involved in the community outside of school. All grade 7 students from the selected schools are welcome to participate and enrol in the program voluntarily. While registration is on a first-come, first-served basis due to limited spots, the YWCA and school administrators collaborate to prioritize vulnerable students (e.g., those from low-income families, newcomers/immigrants, require extra support to integrate with peers) who will benefit from the program the most. To promote the YEP, information sessions are provided in grade 7 classrooms by YEP staff (i.e., program manager, supervisor, or coordinator) through descriptive videos and games. Grade 7 teachers and principals also help to promote the programs to students and parents to encourage a high participation rate. The programs prioritize the enrolment of students who teachers/principles believe would benefit the most from the program; however, joining is ultimately up to the students and their parents. The cost per participant ranges from $0 to $5, depending on the school; this approach helps to increase weekly attendance and the participant's willingness to engage in activities.

Each YEP (i.e., WTML, TJM, B4R) is led by a team of three to five volunteers from different age groups who are the same gender/gender identity as program participants. Three types of volunteers make up the leadership team: (1) High School Ambassadors, (2) Facilitators, and (3) Wisdom Champions. High School Ambassadors are current high school students whose role is to share positive and instructive stories about their own high school experiences to help ease any concerns or fears the YEP participants may have about beginning high school. Facilitators are typically university students and lead the delivery of the program curricula and activities. The Wisdom Champion is an experienced, knowledgeable adult (e.g., graduate student, working professional) who has already established their career and whose role is to provide insight and mentorship to the participants. The Wisdom Champion oversees the program, ensures participants' physical and emotional safety, and purchases the weekly

group snack. Typically, a program has one to two volunteers who are High School Ambassadors, one to two Facilitators, and one Wisdom Champion. The High School Ambassadors, Facilitators, and Wisdom Champion collaborate with each other to offer mentorship to a group of program participants. All volunteers are provided with a detailed program manual, which outlines the weekly modules, activities, and discussion topics. The YEP staff maintain contact with volunteers through weekly reminder emails, and regularly visit program sessions at schools to provide support to volunteers, substitute for absent volunteers or observe module activities (YWCA, 2016).

The YEP volunteers are recruited through various methods such as university volunteer fairs, volunteer-related websites, presentations to university and high school classes, promotion by university and high school partners, and referrals by word-of-mouth. All volunteers undergo an interview and a reference and criminal record check. Volunteers are required to complete a one-hour online training module and attend 16 hours of in-person training. This includes an 8-hour workshop which covers various topics such as facilitation skills, classroom management, diversity training, child protection policies and procedures, team building, an overview of the program modules, and a description of the Community Service Project. Volunteers also attend a 4-hour workshop that provides specialized training specific to each volunteer position (e.g., High School Ambassadors receive additional information on how to relate to the participants, Facilitators receive more training on how to lead discussions and lessons, and Wisdom Champions are given guidance on how to offer support and encourage effective communication in the volunteer team). Additionally, volunteers undergo a 2-hour school orientation before the first session with participants, and a 2-hour follow-up training is provided during the third week of the program to address specific concerns that arise during the initial program sessions.

New volunteers must attend all the mandatory training components, while returning volunteers are only required to complete the school orientation, online training, and a refresher session (but can participate in all training if they wish). All volunteers can also take part in an optional 8-hour Emergency First-Aid training course offered by the YWCA. Altogether, the training sessions aim to prepare volunteers for their roles in leading programs and developing rapport with their team of mentors, ensuring effective teamwork (YWCA, 2016).

Several intended program outcomes have been identified by the YWCA. In the short-term, program participants are expected to have increased knowledge of program module topics, develop the skills needed to experience a positive transition to high school, and assume

responsibility for social and community issues. Long-term outcomes include increased comfort-level with the upcoming transition to high school, increased mutual respect between boys and girls, increased self-confidence and self-esteem, increased skills and knowledge required for developing healthy relationships, increased skills and knowledge required for responsible decision-making, and increased connectedness to the community and willingness to serve others (YWCA, 2016).

## Welcome To My Life/That's Just Me

Welcome To My Life (WTML) and That's Just Me (TJM) are programs designed to assist grade 7 girls in transitioning to high school. WTML was launched in collaboration with the Vancouver School Board in Spring 2006 and is available at certain elementary schools throughout Vancouver. Similarly, TJM has been offered at select schools across Surrey since Spring 2012 in partnership with the Surrey School District. Both programs have the same goals and cover the same topics and modules (YWCA, 2016).

The WTML and TJM programs cover a range of topics that revolve around three key themes: Fostering healthy self-esteem, developing healthy relationship skills, and cultivating responsible decision-making skills (YWCA, 2016). Each of the nine modules comprises various activities and discussions and concludes with reflection time for the participants to journal about what they have learned. See Table 2.1 for a description of the WTML/TJM modules.

**Table 2.1. WTML/TJM Program Description**

| Week | Module | Description |
|---|---|---|
| 1 | '411 on girls' | Introduces the girls to the program and the main themes of healthy self-esteem, healthy relationship skills, and responsible decision-making. |
| 2 | 'Live your best life' | Focuses on making good choices regarding healthy living, including eating well, exercising, and how a healthy body contributes to a healthy mind. |
| 3 | 'What matters' | Helps girls identify and clarify their values and help them consider how their values can influence their decisions and behaviours. |
| 4 | 'That's what friends are for' | Focuses on making friendships and includes discussions on what makes a quality friend and how girls can maintain healthy, positive friendships. |
| 5 | 'Friend or unfriend' | Addresses how girls can handle conflict, including techniques for resolving conflict in a respectful manner. Strategies for overcoming peer pressure are also included. |
| 6 | 'Media madness' | Focuses on self-esteem and body image, and how both are impacted by media manipulation and social expectations. |
| 7 | 'Community service project delivery' | During module 7 the participants implement their community service project (if the B4R and WTML/TJM programs are active at the same school, the community service project is done as a joint activity). |
| 8 | 'Social media smarts' | Includes a series of activities designed to teach participants how to navigate the internet and social media safely and responsibly. |
| 9 | 'Love who you are' | Aims to help girls develop healthy self-esteem and self-worth by identifying their positive attributes. |

A detailed logic model of the WTML/TJM programs, which outlines the program goals, objectives, inputs, activities, outputs, and outcomes is provided in Table 2.8 as a supplementary table at the end of this chapter.

## Boys 4 Real

Boys 4 Real (B4R) is a partnership between the Vancouver School Board and the Surrey School District and has been active in Vancouver since 2008 and in Surrey since 2012 (YWCA, 2016). The B4R program covers a variety of topics through nine program modules; see Table 2.2.

**Table 2.2. B4R Program Description**

| Week | Module | Description |
|---|---|---|
| 1 | 'Kick-off' | Introduces the program and the main themes of choice, challenge, and change. |
| 2 | 'Live your best life' | Focuses on principles of healthy living and teaches boys about making healthy choices. |
| 3 | 'It's my life' | Helps boys to identify their values and think about how they can stay true to their values in difficult situations. |
| 4 | 'RESPECT!' | Focuses on how boys can develop positive relationships with adults and peers and includes topics such as empathy, communication, and trust. |
| 5 | 'Talk it out' | Teaches strategies for resolving conflict peacefully and addresses the negative consequences of conflict and violence. |
| 6 | 'Analyze this' | Helps boys develop critical thinking skills to enable them to analyze messages they see in the media and discuss gender stereotypes presented in the media. |
| 7 | 'Community service project delivery' | During module 7 the participants implement their community service project (if the B4R and WTML/TJM programs are active at the same school, the community service project is done as a joint activity). |
| 8 | 'Social media smarts' | Focuses on teaching boys how to navigate the internet and social media safely and responsibly. |
| 9 | 'High school prep' | Aims to help the boys feel ready for high school by teaching prioritization and time management strategies. |

A detailed logic model of the B4R program, which outlines the program goals, objectives, inputs, activities, outputs, and outcomes is provided in Table 2.9 as a supplementary table at the end of this chapter.

It is worth noting that while boys and girls enrol in different YEPs according to their gender identity, the aims, objectives, and module topics of WTML/TJM and B4R are similar. That is, although the content of each session is gender-tailored, the curriculum modules for both programs focus on the same topic each week. For example, Module 2 of both programs is about making good/healthy choices, Module 3 is about values, Module 4 is about positive friendships/relationships, Module 5 is about healthy conflict, and so on. As such, what differs between the two programs is the incorporation of scenarios, topics, and/or activities that might appeal/resonate more with boys or girls, not the topics of the lessons. The shared focus each week is intentional as, in the last 50 minutes of the program, the boys and girls come together to

work on their community service project and topics that were discussed in that week's module are often discussed with the group.

## Procedure

The research studies in this thesis use primary data that were collected by Dr. Jennifer Wong and a team of trained graduate students. Permission to conduct the study was obtained from the YEP program manager and permission to administer the survey to students was received from the Superintendents of the participating school districts, and the Principal or Vice Principal of each participating school. Ethics approval was also received from the Simon Fraser University Office of Research Ethics.

Request for participation in the study was made to parents of all grade 7 students in the 31 schools in which the YEP was implemented between October 2017 and May 2019. Consent was also requested from the students themselves. Approximately 2,425 students from 93 classrooms[1] were invited to participate in the study between Fall 2017 and Spring 2019.[2]

Approximately three weeks prior to the first YEP session, a member of the research team asked the grade 7 teachers from participating schools to distribute a parent information and consent package to all students in their classroom. The package included an explanation of the study's purpose and nature, confidentiality, voluntary participation, and example survey questions. The parent information package was also translated into languages identified by Principals as important for their schools (Punjabi, Tagalog, Chinese, and Vietnamese), and translated packages were distributed as needed. Parental consent was documented in signed hard copy forms, which were collected by teachers and verified by a member of the research team before the administration of Survey 1. For each student who received parental consent to participate in the study, written informed assent was collected prior to the distribution of Survey

[1] The exact number of grade 7 students in the sampling frame was not recorded. As such, the total number of students in the sampling frame (i.e., who were invited to participate in the study) was inferred from the number of grade 7 classrooms at each school, which typically include 30 students per classroom. Due to this, only an estimate of the total number of students in the sampling frame can be provided.

[2] A total of 52 YEPs were implemented across 31 schools in metro Vancouver between Fall 2017 and Spring 2019 (26 WTML and 26 B4R programs, and a total of 458 program participants (249 girls and 209 boys)).

1. The student-informed consent form explained the study's purpose, voluntary participation, confidentiality, and risks and benefits of participation.

Youth were surveyed at three time points: Twice in their last year of primary school (Surveys 1 and 2) and again six months after the transition to secondary school (Survey 3).[3] All three surveys included the same set of questions, except for demographic information (Survey 1 only) and program satisfaction questions (Survey 2 only). More information about the content of the surveys is provided in the Instrumentation and Measures section of this Chapter.

## Data Collection

Survey 1 and Survey 2 were paper-based questionnaires and were administered during class time. In most cases, the youth completed the survey in their classroom. However, if more than one classroom at a school was scheduled to complete the survey at the same time, students gathered in a large quiet room (such as the school cafeteria). Once participants were gathered, a trained research assistant read aloud a standardized explanation of the content in the student assent form, as well as the different sections in the survey, and provided instructions on how to correctly fill out the survey questions (i.e., yes/no questions versus Likert scales; not circling more than one response). In addition, students were instructed that the survey was not a test and there were no right or wrong answers. Participants were also reminded to complete the survey alone (i.e., talking/sharing answers while filling out the survey was discouraged) and to keep their answers private. In a few cases, students who struggled with a learning disability or poor reading comprehension were assisted by school staff to complete the survey (i.e., staff read the survey questions to the student aloud and recorded participant responses). Throughout survey administration, research assistant(s) were available to answer any questions that arose from participants. Surveys 1 and 2 included closed- and open-ended questions and took students approximately 20-30 minutes to complete. Following both surveys, students were offered a chance to win one of two $20 Amazon.ca gift cards per classroom through a random draw. Additionally, healthy snacks such as granola bars and juice boxes were provided upon completion of each survey.[4] If a student did not have parental consent to participate in the

[3] Notably, as some programs were offered in the Fall semester (i.e., October – December) and some programs were offered in the Spring semester (i.e., February – May), the time to follow-up varied depending on when the program was delivered at the students' school (i.e., if the program was offered at a school in Fall the time to follow-up for students was 14 months; whereas if the program was offered in Spring, the time to follow up was nine months).

[4] For students in cohorts 1 and 2, a pizza party was provided for students who completed the survey.

study, they were asked to quietly read a book or do homework while their classmates completed the survey.

Survey 3 was conducted online using the Survey Monkey survey software. Six months after transitioning to high school, participants were contacted through both mail and e-mail (if available) to request their participation in the follow-up survey. Students were sent an information sheet with the study details and directed to the online survey platform to complete the survey. All participants who completed Survey 3 were rewarded with a $10 e-gift card of their choice to Starbucks, Indigo, or Amazon.ca. See Table 2.3 for the four cohorts of students and the survey administration schedule.

**Table 2.3. Survey Administration Schedule**

| Wave of data collection | Cohort | Survey 1 (pre-test) | Survey 2 (post-test) | Survey 3 (grade 8 follow-up) |
|---|---|---|---|---|
| 1 | Fall 2017 | October 2017 | December 2017 | February 2019 |
| 2 | Spring 2018 | February 2018 | May 2018 | February 2019 |
| 3 | Fall 2018 | October 2018 | December 2018 | February 2020 |
| 4 | Spring 2019 | February 2019 | May 2019 | February 2020 |

## Description of the Study Sample

The study sample consists of a total of 798 students; 281 students who participated in the YEP (the TX group) and 517 students who did not participate in the YEP (the CTL group). Demographic characteristics for the full sample of participants are described here and shown in Table 2.4.

Most of the sample participated in the study in the Fall (64%) and were from a primary school in District 2 (61%). Most of the sample self-identified as female (51%), a visible ethnic minority (79%), and were born in Canada (72%). The majority of participants reported that both of their biological parents lived in the same house (i.e., were married/common law; 82%) and, on average, the participants had one or two siblings or step-siblings ($M$ = 1.52, $SD$ = 1.16). On average, participants changed schools once ($M$ = 0.86, $SD$ = 1.05), participated in extra-curricular activities once per week (e.g., activities that are not organized through the school such as music, art, dance, volunteering; $M$ = 2.84, $SD$ = 1.21), and did not participate in any school-based activities during school hours (e.g., sports, clubs; $M$ = 0.32, $SD$ = 0.77). Approximately half of the students in the sample reported that they were afraid of being bullied

at school (52%). Additionally, students reported studying for an average of one hour on weeknights (*M* = 3.40, *SD* = 1.27) and spending two to three days per week at home without supervision (*M* = 2.23, *SD* = 1.14).

At baseline, on average, students did not tend to associate with deviant peers (*M* = 11.67, *SD* = 2.57) and did not demonstrate favourable attitudes toward delinquency (*M* = 1.76, *SD* = 2.35). The students also reported a strong sense of school engagement (*M* = 17.82, *SD* = 2.98) and supportive friendships (*M* = 12.45, *SD* = 2.38). Finally, students were moderately confident in their abilities in terms of intellectual and academic tasks (*M* = 9.93, *SD* = 3.25), and reported moderate feelings of anxiousness (*M* = 8.98, *SD* = 3.54).

**Table 2.4. Sample Characteristics**

| | Full sample (N = 798) n (%) | Treatment (n = 281) n (%) | Control (n = 517) n (%) |
|---|---|---|---|
| Program session | | | |
| Fall | 512 (64.2%) | 175 (62.3%) | 337 (65.2%) |
| Spring | 286 (35.8%) | 106 (37.7%) | 180 (34.8%) |
| School district | | | |
| District 1 | 309 (38.7%) | 67 (23.8%) | 242 (46.8%) |
| District 2 | 489 (61.3%) | 214 (76.2%) | 275 (53.2%) |
| Gender | | | |
| Female | 406 (50.9%) | 160 (56.9%) | 246 (47.6%) |
| Male | 388 (48.6%) | 121 (43.1%) | 267 (51.6%) |
| Other | 1 (0.1%) | 0 (0.0%) | 1 (0.2%) |
| Missing | 3 (0.4%) | 0 (0.0%) | 3 (0.6%) |
| Ethnicity | | | |
| Caucasian | 161 (20.2%) | 56 (19.9%) | 105 (20.3%) |
| Visible minority | 628 (78.7%) | 221 (78.7%) | 407 (78.7%) |
| Missing | 9 (1.1%) | 4 (1.4%) | 5 (1.0%) |
| Biological parents live in the same house as you? | | | |
| No | 128 (16.0%) | 43 (15.3%) | 85 (16.4%) |
| Yes | 656 (82.2%) | 233 (82.9%) | 423 (81.8%) |
| Missing | 14 (1.8%) | 5 (1.8%) | 9 (1.8%) |
| Born in Canada? | | | |
| No | 222 (27.8%) | 77 (27.4%) | 145 (28.0%) |
| Yes | 571 (71.6%) | 203 (72.2%) | 368 (71.2%) |
| Missing | 5 (0.6%) | 1 (0.4%) | 4 (0.8%) |
| Are you ever afraid that someone will bully you at school? | | | |
| No | 353 (44.2%) | 114 (40.6%) | 239 (46.2%) |
| Yes | 411 (51.5%) | 158 (56.2%) | 253 (49.0%) |

| | | | |
|---|---|---|---|
| Missing | 34 (4.3%) | 9 (3.2%) | 25 (4.8%) |
| | ***M* (*SD*)** | ***M* (*SD*)** | ***M* (*SD*)** |
| # siblings or step-siblings | 1.52 (1.16) | 1.61 (1.25) | 1.48 (1.11) |
| # times changed schools | 0.86 (1.05) | 0.87 (1.01) | 0.85 (1.07) |
| # days per week in extra-curricular activities | 2.84 (1.21) | 2.81 (1.17) | 2.86 (1.23) |
| # days per week in activities during school hours | 0.32 (0.77) | 0.46 (0.91) | 0.24 (0.67) |
| # days per week at home with no supervision | 2.23 (1.14) | 2.22 (1.13) | 2.24 (1.15) |
| # hours spent studying each school night | 3.40 (1.27) | 3.57 (1.31) | 3.30 (1.24) |
| Friend behavior scale (pre-test) | 11.67 (2.57) | 11.75 (2.64) | 11.63 (2.53) |
| Attitudes toward delinquency scale (pre-test) | 1.76 (2.35) | 2.00 (2.73) | 1.63 (2.10) |
| School satisfaction scale (pre-test) | 17.82 (2.98) | 17.70 (3.23) | 17.89 (2.84) |
| Friend support scale (pre-test) | 12.45 (2.38) | 12.24 (2.51) | 12.57 (2.30) |
| Intelligence and school status scale (pre-test) | 9.93 (3.25) | 9.58 (3.33) | 10.12 (3.20) |
| Freedom from anxiety scale (pre-test) | 8.98 (3.54) | 8.47 (3.58) | 9.26 (3.49) |

## Response Rate and Attrition

The sample consists of 798 students clustered across 31 schools at baseline[5] and 710 students at post-test (89% response rate). Considerable attrition was observed at follow-up. The number of participants who responded to Survey 3 was 205. As such, the participant attrition from Survey 1 to Survey 3 was 74%. See Table 2.5 for an overview of the sample size and attrition rates for each cohort and at each time point.

**Table 2.5. Overview of Sample Attrition**

| Wave of data collection | Cohort | Survey 1 (n) | Survey 2 (n) | Survey 3 (n) |
|---|---|---|---|---|
| 1 | Fall 2017 | 133 | 117 | 31 |
| 2 | Spring 2018 | 44 | 40 | 16 |
| 3 | Fall 2018 | 379 | 348 | 91 |
| 4 | Spring 2019 | 242 | 205 | 67 |
| **Total N** | | **798** | **710** | **205** |
| % attrition from previous time point | | / | 11% | 71% |

[5] Due to incomplete records on the cohorts of students that were reached during data collection (i.e., the sampling frame), the exact response rate is not available. Based on estimations from partial records and information from school/district websites, approximately 2,425 grade 7 students were invited to participate in the study. As such, it is estimated that approximately 33% of students from the sampling frame completed the survey at baseline.

## Instrumentation and Measures

### *Instrumentation*

Self-report questionnaires were used to collect data from participants at all three time points. Survey 1 collected information about participant demographic information and baseline measures of attitudes and behavioural outcomes such as aspects of their school experience, friends and peer relationships, self-esteem/self-concept, fears/concerns about high school, school connectedness, and school satisfaction (described below). Survey 2 contained the same questions as Survey 1, with the addition of a section about program satisfaction (completed by the YEP participants only). Survey 3 contained the same set of attitudinal and behavioural questions as those at Surveys 1 and 2 but focused on the youths' attitudes and behaviours since their transition to high school.

### *Measures*

Several considerations were taken into account when selecting measures for the current study. First, validated instruments with evidence of high reliability and validity were selected whenever possible. In some cases, items from the validated scales were omitted (e.g., at the request of YWCA program staff or a School District's Research and Evaluation Department). The modifications that were made to the validated scales are described below. Second, to facilitate comprehension of survey questions, measures were selected based on developmental appropriateness for youth. Third, to limit the length of the survey, some measures were selected based on the number of items in the scale (e.g., short versus long versions of the same measure).

#### Demographic/Background Variables

Several single-item questions were included in the surveys; each is described below. See Table 2.6 for an overview of the demographic/background variables.

##### YEP Involvement

The assignment of a youth to the treatment (TX) or control (CTL) group was determined by self-report (on survey 2 and/or 3) based on whether the youth indicated that they had participated in the YEP. The TX group consists of all grade 7 students who attended any of the YEPs (i.e., WTML/TJM or B4R) in Fall 2017, Spring 2018, Fall 2018, or Spring 2019. The CTL group consists of students from the same classrooms as the students in the TX group, but who

did not participate in the YEP. Youth in the TX group were coded as 1 and youth in the CTL group were coded as 0.

### Participant Gender

In a closed-ended question, participants were asked to self-report their gender (i.e., female, male, or 'other'). Responses were coded as female = 1, male = 2, other = 3).

### Participant Ethnicity

Based on students' self-reported race/ethnicity, this variable was dichotomized as White = 1 and visible minority = 2.

### Primary School

In an open-ended question, students were asked to indicate the name of the primary school they currently attended. The schools were coded 1 through 31.

### School District

Primary schools in Surrey were coded as 1 and primary schools in Vancouver were coded as 2.

### Family Structure

Students were asked if both their mother and father (biological or adoptive) lived in the same house. This variable was a dichotomized as 'no' (i.e., live in separate houses = 0), and 'yes' (i.e., live together in the same house = 1).

### Student Immigration Status

Student were asked to indicate if they were born in Canada (no = 0; yes = 1).

### Fear of Bullying

Students were asked how often they are afraid that someone will hurt, bother, or bully them at school (1 = never; 2 = sometimes; 3 = often; 4 = always). Due to the positively skewed distribution of the data, for purposes of analysis the variable was dichotomized to 'never' = 0 and 'sometimes', 'often', or 'always' = 1.

### Number of Siblings

In an open-ended question, participants were asked how many siblings and/or stepsiblings (brothers or sisters) they have. Responses were coded verbatim.

### Number of Schools Attended

Participants were asked how many times they had changed schools (0 = none; 1 = once; 2 = twice; 3 = more than twice).

### Afterschool Supervision

Students indicated how often they are left alone at home without adult supervision (e.g., by a parent, older sibling, other family member, babysitter) for more than an hour (0 = not at all; 1 = 1x/week; 2 = 2-3x/week; 3 = 4-5x/week; 4 = 6-7x/week).

### Participation in Extra-Curricular Activities

Students were asked how many days per week they currently participate in extra-curricular activities (e.g., sports, music, art, dance, tutoring, volunteering) that are not organized through their school (1 = not at all; 2 = once per week; 3 = 2-3x per week; 4 = 4-5x per week; 5 = 6-7x per week).

### Participation in School-Based Activities

Students indicated which of the following seven school activities they have participated in, or intend to participate in, during the current school year that is not part of class work (no = 0, yes = 1): (a) sports or athletics, (b) academic or service club (e.g., homework club, environment club, green team, French club), (c) hobby or vocational club (e.g., chess club, drama club, art club), (d) school play or musical, (e) choir/chorus, (f) adult supervised youth group, and (g) other type of school activity). Students were instructed to 'select all that apply'. The scores across the seven items were summed, with higher scores indicating greater involvement (or anticipated involvement) in school-based activities.

### Number of Hours Spent Studying

Students were asked to indicate, on average, how many hours they usually spend studying or doing homework each school night (Sunday-Thursday) in the last month. Responses were coded as follows: 1 = none, 2 = less than 1 hour, 3 = about 1 hour, 4 = about 2 hours, 5 = about 3 hours, 6 = more than 3 hours.

### Parents' Immigration Status

In two separate questions, students were asked if their mother was born in Canada (no = 0, yes = 1) and if their father was born in Canada (no = 0, yes = 1). Students' responses were combined into a composite score to indicate parent immigration status, where responses were coded as 0 if both parents immigrated to Canada and 1 if at least one parent was born in Canada.

### Primary Language Spoken at Home

This item asked students to indicate whether they speak mostly English or mostly another language at home (1 = mostly English; 2 = mostly non-English).

### Screen Time

This question asked students to indicate, on average, how many hours per day they spend watching TV, YouTube, or playing video games (1 = 'less than 1 hour', 2 = '1 hour', 3 = '2 hours', 4 = '3 hours', 5 = 'more than 3 hours').

### Grades

Student grades were measured by the participants' self-report of grades they typically received on their most recent report card. The 6-point scale is coded such that lower scores equal higher grades (1 = mostly As and Bs; 2 = mostly Bs and Cs; 3 = mostly Cs; 4 = mostly Cs and Ds; 5 = mostly Ds and Fs).

**Table 2.6. Overview of Demographic Variables**

| Variable | Survey question | Code |
|---|---|---|
| YEP involvement | Did you participate in the YWCA afterschool program? | Control group = 0<br>Intervention group = 1 |
| School district | n/a | District 1 (Surrey) = 1<br>District 2 (Vancouver) = 2 |
| Primary school | School name | Coded 1-31 |
| Gender | Gender | Female = 1<br>Male = 2<br>Other = 3 |
| Ethnicity | Race/Ethnicity (check as many as apply) | White = 1<br>Visible minority = 2 |
| Family structure | Do both your mother and your father (biological or adoptive) live in the same household? | No = 0; Yes = 1 |
| Immigration status | Were you born in Canada? | No = 0; Yes = 1 |
| Fear of bullying | Are you ever afraid that someone will bully you at school? | No = 0; Yes = 1 |
| # siblings | How many siblings or stepsiblings do you have? | Continuous |
| # schools attended | How many times have you changed schools? | 0 = none<br>1 = once<br>2 = twice<br>3 = more than twice |
| Extra-curricular activities | How many times per week do you participate in extra-curricular activities (e.g., sports, music, art, dance, tutoring, volunteering that are not organized through your school)? | 1 = not at all<br>2 = once per week<br>3 = 2-3x per week<br>4 = 4-5x per week<br>5 = 6-7x per week |
| School-based activities | Indicate the school activities that you have or will have participated in during the current school year that are not part of class work (Mark all that apply) | Composite score:<br>Continuous (0-7) |
| # hrs spent studying | During the past month, about how many hours did you usually spend studying or doing homework each school night (Sunday-Thursday)? | 1 = none<br>2 = less than 1 hour<br>3 = about 1 hour<br>4 = about 2 hours<br>5 – about 3 hours<br>6 = more than 3hrs |
| At-home supervision | How often are you left alone at home without any supervision (e.g., parent, older sibling, other family member, babysitter) for more than an hour? | 0 = not at all<br>1 = once/week<br>2 = 2-3x/week<br>3 = 4-5x/week<br>4 = 6-7x/week |
| Parents' immigration status | a) Was your mother born in Canada? (No = 0; Yes = 1) | Composite score:<br>0 = both parents immigrated |

| Variable | Survey question | Code |
|---|---|---|
| | b) Was your father born in Canada? (No = 0; Yes = 1) | 1 = at least one parent was born in Canada |
| Primary language spoken at home | What language do you speak most often at home? | 1 = mostly English<br>2 = mostly a language other than English |
| Screen time | How many hours per day do you usually spend watching TV, YouTube, or playing video games? | 1 = less than 1 hour<br>2 = 1 hour<br>3 = 2 hours<br>4 = 3 hours<br>5 = more than 3 hours |
| Grades | What kind of grades did you typically make on your last report card? Choose the one that applies most of the time. | 1 = Mostly A's and B's<br>2 = Mostly B's and C's<br>3 = Mostly C's<br>4 = Mostly C's and D's<br>5 = Mostly D's and F's |

## Validated Measurement Instruments

The following section describes the validated instruments that were included in the surveys. Details are provided with respect to the source from which the scales were derived and the scale's original use, the number of items in each scale, types of questions, response categories, and internal consistency reliability (Cronbach's alpha; from previous studies and the current study). Where applicable, any modifications made to the scale for the purpose of the current study are also described. See Table 2.7 for an overview of the scales used in the study.

### Pittsburgh Youth Study (PYS)

The Pittsburgh Youth Study (PYS) is a longitudinal study that focused on male youth from the first, fourth, and seventh grades in public schools. The study aimed to understand the development of delinquent and antisocial behaviour from childhood to early adulthood, identify potential risk factors, and examine the boys' development of alcohol and drug use and internalizing problems (University of Pittsburgh, 2022). Throughout the study, hundreds of measures were administered to study participants (Loeber et al., 2012). These include constructs such as academic achievement, attitudes toward school, attitudes toward substance use and abuse, attitudes toward delinquency, gang membership, relationships with peers, physical health, prosocial behaviour, and sexual activity (Loeber & Farrington, 2011; Loeber, et al., 1998; Loeber et al., 2007).

### *PYS Attitudes Toward Delinquency Scale*

The PYS Attitudes Toward Delinquency scale, developed by Loeber and colleagues (1998), is an 11-item scale used to assess students' acceptance of engaging in delinquent behaviours in grades 1, 4 and 7, and into adulthood (Dahlberg et al., 2005). The scale is used to assess respondents' beliefs, attitudes, and/or approval toward how wrong it is to commit certain acts (e.g., truancy, bullying, lying) on a four-point Likert scale with responses labelled 1 = very wrong, 2 = wrong, 3 = a little wrong, 4 = not at all wrong. The responses to the 11 items are summed to create a score ranging from 11 to 44, with higher scores indicating greater acceptance of delinquency. Prior studies report the Cronbach's alpha for internal consistency as 0.91 for delinquent attitudes (Dahlberg et al., 2005), 0.79 for attitudes approving of violence for ages 13–18 (White et al., 2010), and 0.84 for adolescents' attitudes toward violence (Allegra, 2012).

#### Modifications

The present study uses a modified version of the Attitudes Toward Delinquency scale. Specifically, two items ("go in a building to steal something" (item #7) and "go joyriding, that is, take a motor vehicle such as a car or motorcycle for a ride or drive without the owner's permission" (item #8)) are dropped from the scale at the request of YWCA program staff and one of the school districts' Research and Evaluation Department. As such, the modified scale in the present study includes a total of nine items (instead of 11). Additionally, the term "strong arm methods" in item #9 (i.e., "use a weapon, force, or **strong-arm methods** to get money or things from people") is replaced with "bully". On the survey, youth are asked to indicate how wrong they think it is for someone their age to engage in the following delinquent behaviours: (a) skip school without an excuse, (b) lie, disobey, or talk back to adults such as parents, teachers, or others, (c) purposely damage or destroy property that does not belong to them, (d) steal something worth less than $5, (e) steal something worth more than $50, (f) steal something worth $100, (g) hit someone with the intention to hurt that person, (h) attack someone with a weapon or thought of seriously hurting that person, and (i) use a weapon, force, or bully to get money or things from people. Responses were recorded on a three-point Likert scale (0 = very wrong, 1 = somewhat wrong, 2 = not at all wrong).[6] The scale score is computed by summing scores from all nine items. Scale scores range from 0 to 18; higher scores indicating greater

[6] For purposes of analysis, the response categories "wrong" and "a little wrong" from the original scale were merged into "somewhat wrong".

acceptance of delinquency. In the present study, the scale reliability coefficient (Cronbach's alpha) is 0.84.

### School Success Profile (SSP)

The School Success Profile (SSP), developed by Gary Bowen and Jack Richman, is a validated questionnaire for middle and high school students used to assess 15 core dimensions of students' attitudes and beliefs about their social environment (e.g., neighbourhood, school, friends, family). The SSP was developed from the school success literature and includes various scales that were created to measure risk and protective factors for youth across six dimensions: About You (6 items), Neighborhood (26 items), School (54 items), Friends (25 items), Family (45 items), and Health and Well-Being (39 items); each of which are considered important dimensions for youth healthy development and school success.

#### *SSP School Satisfaction Scale*

The seven-item SSP School Satisfaction scale (Bowen & Richman, 2008) is used to assess sense of school satisfaction by measuring students' emotional engagement in various school experiences. Students are asked to describe how well each of the following statements describes them: (a) I enjoy going to this school, (b) I get along well with other students at this school, (c) I feel close to other students at this school, (d) I get along well with teachers at this school, (e) I am getting a good education at this school, (f) I feel like I belong at this school, and (g) I am happy that I attend this school. Response options are provided in a three-point format: 1 = not like me; 2 = a little like me; 3 = a lot like me. Previous studies have reported good internal consistency, with Cronbach's alphas ranging between 0.75-0.80 (Bowen et al., 2005). In the current study, Cronbach's alpha was measured as 0.84. The scale score is computed by summing scores from all seven items in the inventory. Scale scores range from 7 to 21, with higher score indicating greater school satisfaction.

#### *SSP Friend Support Scale*

Friend support is assessed in the SSP by measuring youth's perception of their friends as "trustworthy and supportive and as responsive to their needs and feelings" (Bowen & Richman, 2007, p.10). Five statements are used to assess friend support. Students are asked (a) I can trust my friends, (b) I am able to tell my problems to my friends, (c) I feel close to my friends, (d) I can count on my friends for support, and (e) I can talk to my friends about things that bother me. A three-point Likert scale is used to measure the level of trust and closeness

they feel toward their friends (i.e., 1 = not like me, 2 = a little like me, 3 = a lot like me). Scores are summed across the five items, with higher scores indicating greater perception of supportive friendships. Scores range from a minimum of 5 to a maximum of 15. Various psychometric testing has supported the validity and reliability of the Friend Support scale (e.g., Bowen et al., 2005; Haragus et al., 2010; Rusu & Bejenaru, 2010). Cronbach's alpha for this current study is measured as 0.80.

#### *SSP Friend Behavior Scale*

The SSP Friend Behavior scale is a nine-item inventory designed to assess whether youth have law-abiding friends, who do well in school, and who graduate from high school (Bowen & Richman, 2008) and is used in the current study to measure friend behaviour. This scale has demonstrated good internal consistency in other studies (e.g., alpha = .87; Bowen & Richman, 2008).

#### Modification

In the current study, the scale is modified to include an item pertaining to the use of cigarettes (i.e., "I have friends who smoke cigarettes"). As such, the scale used in the current study includes a total of 10 items (instead of nine), and the Cronbach's alpha is measured as 0.81. The modified 10-item inventory asks youth to indicate on a three-point Likert scale (i.e., 1 = not like me, 2 = a little like me, 3 = a lot like me) how likely they are to associate with deviant peers: (a) I have friends who get in trouble with the police, (b) I have friends who smoke cigarettes, (c) I have friends who use drugs (e.g., marijuana), (d) I have friends who belong to gangs, (e) I have friends who drink alcoholic beverages (beer, wine, liquor), (f) I have friends who cut classes/skip school, (g) I have friends who carry a weapon such as a knife, gun, or club, (h) I have friends who make bad grades in school, (i) I have friends who get in trouble at school, and (j) I have friends who probably will not graduate from high school. Scores were summed across the 10 items and range from a minimum of 10 to a maximum of 30. Higher scores on the scale indicate greater association with deviant peers.

### Piers-Harris Self-Concept Scale for Children II (PH2)

The Piers-Harris Self-Concept Scale for Children 2 (PH2; Piers et al., 2002) is one of the most widely used scales in self-concept research with children (Guerin & Tatlow-Golden, 2019). The 60-item scale is designed to aid in the assessment of self-concept in youth aged 7-18 years and consists of six subscales in the following domains: Behavioural Adjustment, Intellectual and

School Status, Physical Appearance and Attributes, Freedom from Anxiety, Popularity, and Happiness and Satisfaction. Respondents indicate whether each statement is 'true' or 'not true' of themselves (Community-University Partnership for the Study of Children, Youth, and Families, 2011). The full PH2 scale has demonstrated strong internal consistency (Cronbach's alpha = 0.91; Guerin & Tatlow-Golden, 2019; Piers et al., 2002). See Piers and colleagues (2002) for an in-depth overview of additional validity and reliability testing.

### *PH2 Intellectual and School Status Scale*

Intellectual and school status is assessed in the PH2 by measuring participants' self-evaluation of their own abilities in terms of intellectual and academic tasks (Community-University Partnership for the Study of Children, Youth, and Families, 2011). The 16 items in the scale cover general satisfaction with school and future expectations about achievement on a dichotomized scale (i.e., 0 = not true, 1 = true) to create an index ranging from 0 to 16. Prior studies report Cronbach's alphas for this scale ranging between 0.72 to 0.81 (Community-University Partnership for the Study of Children, Youth, and Families, 2011; Guerin & Tatlow-Golden, 2019; Piers et al., 2002).

#### Modification

In the current study, one item (#43: "I am dumb about most things") is dropped (at the request of YWCA YEP staff), resulting in a modified scale of 15 items. To assess participants' self-concept around intellect and school status, participants are asked to indicate whether they agree or disagree with the following statements: (a) I am smart, (b) I get nervous when the teacher calls on me, (c) I am well behaved in school, (d) I am an important member of my family, (e) I am good in my schoolwork, (f) I am slow in finishing my homework, (g) I am an important member in my class, (h) I can give a good report in front of the class, (i) In school I am a dreamer, (j) My friends like my ideas, (k) I often volunteer in school, (l) My classmates in school think I have good ideas, (m) When I grow up, I will be an important person, (n) I forget what I learn, and (o) I am a good reader. Items were coded dichotomously (0 = no; 1 = yes), and four items (b, f, i, and n) were reverse coded so that all 15 items could be summed into an index score (min. = 0, max. = 15), with higher scores indicating greater self-perception of achieving intellectual and school-related tasks. The modified scale demonstrated good ratings of internal consistency, with a Cronbach's alpha of 0.75.

### *PH2 Freedom from Anxiety Scale*

The PH2 Freedom from Anxiety scale is a 14-item scale that asks students to reflect on a variety of specific emotions, including worry, nervousness, shyness, sadness, fear, and a general feeling of being left out of things and is used to assess anxiety and mood dysphoria (Piers et al., 2002). The 14 items include: (a) I am often sad, (b) I am shy, (c) I get nervous when the teacher calls on me, (d) My looks bother me, (e ) I get worried when we have tests in school, (f) I give up easily, (g) I am nervous, (h) I worry a lot, (i) I like being the way I am, (j) I feel left out of things, (k) I wish I were different, (l) I am unhappy, (m) I am often afraid, and (n) I cry easily. All items except for item "I" were reverse-coded so that higher scores on the index scale would indicate more freedom from anxiety (i.e., low feelings of anxiousness). The dichotomized response to each item (0 = no, 1 = yes) is summed to create an index score that ranges from 0 to 14. Prior studies report Cronbach's alpha as 0.82 (Guerin & Tatlow-Golden, 2019; Piers et al., 2002). In the present study the scale also demonstrates good reliability, with a Cronbach's alpha of 0.82.

**Table 2.7. Overview of Validated Scales**

| Scale | Developer | Original # items | Is the scale original or modified? | Revised # items | Scale score range (min.–max.) | Reliability (Cronbach's alpha) | Is a high scale score positive? |
|---|---|---|---|---|---|---|---|
| Pittsburgh Youth Study | | | | | | | |
| Attitudes Toward Delinquency | Loeber et al., 1998 | 11 | Modified - two items were dropped, and the term "strong arm methods" in item "i" was replaced with "bully" | 9 | 0 - 18 | 0.84 | No, higher scores indicate greater acceptance of delinquency. |
| School Success Profile | | | | | | | |
| School Satisfaction | Bowen & Richman, 2008 | 7 | Original | 7 | 7 - 21 | 0.84 | Yes, higher scores indicate greater school engagement. |
| Friend Behavior | | 9 | Modified - an item pertaining to the use of cigarettes was added | 10 | 10 - 30 | 0.82 | No, higher scores indicate greater association with deviant peers. |
| Friend Support | | 5 | Original | 5 | 5 - 15 | 0.80 | Yes, higher scores indicate a greater perception of supportive friendships. |
| Piers-Harris II | | | | | | | |
| Freedom from Anxiety | Piers et al., 2002 | 14 | Original | 14 | 0 - 14 | 0.82 | Yes, higher scores indicate more freedom from anxiety (low feelings of anxiousness). |
| Intellectual and School Status | | 16 | Modified - one item was dropped | 15 | 0 - 15 | 0.75 | Yes, higher scores indicate a greater self-perception of achieving intellectual and school-related tasks. |

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## Supplementary Tables: Logic Models

**Table 2.8. Welcome to My Life/That's Just Me**

| Welcome to My Life/That's Just Me Logic Model | | | | |
|---|---|---|---|---|
| **GOALS AND THEORETICAL APPROACH** | **INPUTS** | **ACTIVITIES** | **OUTCOMES** | |
| | | **What we do** | **Short-term** | **Long-term** |
| **Program goals:**<br>• Support grade 7 girls in their transition to high school<br>• Promote resilience by developing participant's healthy self-esteem, healthy relationship skills, and responsible decision-making skills<br>• Foster mutual respect between boys and girls as equals<br>• Practice skills learned in the program by planning and implementing a project that will benefit their school and/or community<br>**Theoretical approach:**<br>• Developed based on the Search Institute's Developmental Assets, BC Ministry of Education's Integrated Resource Package, and the prescribed learning outcomes for grade 7 health and career education | **Staff:**<br>• Program manager<br>• Program supervisor<br>• Program coordinator<br>• Volunteers<br><br>**Training:**<br>• Volunteer training sessions<br><br>**Location:**<br>• Physical space at the school (such as a classroom)<br><br>**Materials:**<br>• Program manuals for volunteers<br>• Snacks for participants (i.e., distributed each week)<br>• Art/craft supplies (e.g., markers, glue, construction paper, stickers)<br>• Journals for participants<br>• Equipment for gym/outdoor games (e.g., balls, frisbees, jump rope) | **Format:**<br>• 9 weeks; 2.5 hours per week (150 min.)<br>• 100 minutes dedicated to the module content consisting of discussion, games, and activities<br>• 50 minutes dedicated to planning the community service project<br><br>**Program modules:**<br>1. **411 on Girls:** Introduces the program and key themes<br>2. **Live your best life:** Focuses on healthy living<br>3. **What matters:** Helps participants identify and clarify their values<br>4. **That's what friends are for:** Focuses on developing and maintaining positive friendships<br>5. **Friend or unfriend:** Addresses how to handle conflict and peer pressure<br>6. **Media madness:** Focuses on how the media can impact self-esteem and body image<br>7. **Community service project delivery:** Participants implement their community service project<br>8. **Social media smarts:** Teaches how to navigate the internet and social media responsibly<br>9. **Love who you are:** Aims to help participants develop healthy ideas of self-worth by identifying their positive attributes | • Increased knowledge on program topics.<br>• Develop the skills needed to experience a positive transition to high school.<br>• Increased knowledge and skills to develop strong self-esteem, peer relationships, decision-making skills.<br>• Assume responsibility for social and community issues. | • Increased comfort-level with the transition to high school.<br>• Learn to work together with boys as equals.<br>• Increased level of self-confidence and self-esteem.<br>• Increased skills and knowledge required for developing healthy relationships.<br>• Increase skills and knowledge required for responsible decision-making.<br>• Increase connectedness to the community and willingness to serve others. |

**Table 2.9. Boys 4 Real**

| Boys 4 Real Logic Model | | | | |
|---|---|---|---|---|
| **GOALS AND THEORETICAL APPROACH** | **INPUTS** | **ACTIVITIES** | **OUTCOMES** | |
| | | **What we do** | **Short-term** | **Long-term** |
| **Program goals:**<br>• Promote self-awareness and self-esteem amongst boys<br>• Encourage mutual respect between boys and girls as equals<br>• Encourage boys and girls to work together to assume responsibility for social and community issues<br>• Prepare boys for the transition to high school<br><br>**Theoretical approach:**<br>• Developed based on the Search Institute's Developmental Assets, BC Ministry of Education's Integrated Resource Package, and the prescribed learning outcomes for grade 7 health and career education | **Staff:**<br>• Program manager<br>• Program supervisor<br>• Program coordinator<br>• Volunteers<br><br>**Training:**<br>• Volunteer training sessions<br><br>**Location:**<br>• Physical space at the school (such as a classroom)<br><br>**Materials:**<br>• Program manuals for volunteers<br>• Snacks for participants (i.e., distributed each week)<br>• Art/craft supplies (e.g., markers, glue, construction paper, stickers)<br>• Journals for participants<br>• Equipment for gym/outdoor games (e.g., balls, frisbees, jump rope) | **Format:**<br>• 9 weeks; 2.5 hours per week (150 min.)<br>• 100 minutes dedicated to the module content consisting of discussion, games, and activities<br>• 50 minutes dedicated to planning the community service project<br><br>**Program modules:**<br>1. **Kick-off:** Introduces the program and key themes<br>2. **Live your best life:** Focuses on principles of healthy living and making healthy choices.<br>3. **It's my life:** Helps participants identify and understand their values<br>4. **RESPECT!:** Teaches participants key factors in developing positive relationships<br>5. **Talk it out:** Teaches strategies for conflict resolution<br>6. **Analyze this:** Examines how the media can impact self-image and attitudes regarding masculinity<br>7. **Community service project delivery:** Participants implement their community service project<br>8. **Social media smarts:** Teaches participants how to navigate the internet and social media responsibly<br>9. **High school prep:** focuses on prioritization and time management strategies for use in high school | • Increased knowledge on program topics.<br>• Develop the skills needed to experience a positive transition to high school.<br>• Learn to cope with issues surrounding choice, challenge, and change as they move through adolescence.<br>• Assume responsibility for social and community issues. | • Increased comfort-level with the transition to high school.<br>• Learn to work together with boys as equals.<br>• Increased level of self-confidence and self-esteem.<br>• Increased skills and knowledge required for developing healthy relationships.<br>• Increase skills and knowledge required for responsible decision-making.<br>• Increase connectedness to the community and willingness to serve others. |

# Chapter 3. Now and Then: Examining Students' Concerns About the Primary-Secondary School Transition

## Introduction

The transition from primary to secondary school is a period of mixed emotions for adolescents (Topping, 2011). On the one hand, it is an exciting time full of new people, possibilities, and experiences (Lester et al., 2013). On the other hand, many students also experience at least some feelings of anxiety, stress, apprehension, and/or fear (Benner, 2011; West et al., 2010). As students transition to high school, they face numerous challenges in adapting to a new academic, social, and school environment (Elias, 2001; Rice et al., 2011). Some studies suggest that adolescents encounter significant hurdles when moving to secondary school and that a difficult transition experience can have lasting negative impacts on their well-being (e.g., decreased sense of school connectedness, poorer social and emotional health; see Jindal-Snape et al. (2020) for a comprehensive review). Conversely, students who experience a smoother transition have fewer negative outcomes such as loneliness, anxiety, victimization, and problems with their peers (Waters et al., 2012; West et al., 2010). While teachers and parents may try to help prepare youth for high school, even those who are well-prepared to handle the new school demands can have fears and anxieties (Rice et al., 2011). Using a mixed methods approach, this study examines the concerns that adolescents have about high school and the challenges they encounter after their transition to secondary school.

### The Transition from Primary to Secondary School

The move from primary to secondary school is considered the most difficult transition in formal education and can have both short-term and long-term effects on adolescents' emotional, social, and academic well-being if not navigated successfully (Evans et al., 2018; Lester et al., 2019; Vaz, 2010). The move to high school is particularly challenging as it involves changes in school environments, social dynamics/relationships, and academic structures/expectations (Anderson et al., 2000; Sirsch, 2003). For instance, students must adapt to a new, often larger, school building and a different educational environment (Arens et al., 2013; Coelho & Ramao, 2016). At the same time, students are faced with a new social environment that requires them to make new friends, form new relationships, and contend with new social dynamics (Felmlee et

al., 2018; Ng-Knight et al., 2019; van Rens et al., 2019). Additionally, adolescents must adjust to a more complex curriculum, manage their time more effectively, and cope with the pressures of increased academic expectations (Chambers & Coffey, 2019). These changes can be difficult for students to navigate and may require significant effort to adapt to (Brouzos et al., 2019; Coelho & Ramao, 2016; Ganeson & Ehrich, 2009; Rice et al., 2011).

## Students' Apprehensions About Secondary School

Several studies have examined students' thoughts and experiences during the transition to high school. Prior research indicates that when students move from primary to secondary school, they experience a range of apprehensions related to adapting to their new academic, school/environmental, and social setting (e.g., see Jindal-Snape et al. (2020) for a review). Most commonly, students are concerned about the continuity of friendships (e.g., maintaining existing friendships, forming new friendships; Bagnall, 2020; Pratt & George, 2005; van Rens et al., 2019) and their social environment (e.g., new social connections, bullying, social status; Bagnall, 2020; Pratt & George, 2005; Rice et al., 2011; Stiehl et al., 2023; van Rens et al., 2019; Zeedyk et al., 2003). Research has also shown that students worry about adjusting to a new school environment, including the prospect of a larger building, the presence of older students, changing classes, and getting lost (Anderson et al., 2000; Rice et al., 2011; van Rens et al., 2019; Zeedyk et al., 2003). Additionally, students have apprehensions about the expectations for academic performance, including the possibility of an increased workload (Anderson et al. 2000; Rice et al., 2011; Stiehl et al., 2023; Zeedyk et al., 2003).

Some early studies argued that student concerns and anxieties about transitioning to secondary school are exaggerated in the academic literature, as these fears and concerns are relatively short-lived (e.g., Galton et al., 1999; 2003; 2000) and can potentially be positive for youth development in terms of learning to adapt and how to cope with change (Lucey & Reay, 2000). Although some recent studies support the finding that students' worries are often temporary and dissipate relatively quickly during the first year of high school (e.g., Jindal-Snape & Cantali, 2019; Lester et al., 2019), many recent studies also suggest that the presence of secondary school-related fears in primary school can have a negative impact on students' well-being. A review by Evans and colleagues (2018) on the psychological impact of the primary-secondary school transition concluded that "adolescents who express more worries regarding the transition are more likely to suffer poorer transitions compared to their peers" (p. 1489). Research also suggests that adolescents' heightened concerns about moving to high school

lead to elevated levels of stress and anxiety in primary school (Lester et al., 2019). Additionally, the symptoms associated with anxiety and school-related concerns can be long-lasting and detrimental to students' psychological wellbeing, school engagement and academic achievement (Evans et al., 2018; Grills-Taquechel et al., 2010; Jindal-Snape et al., 2020; Lester et al., 2019; Rice et al., 2011; Riglin et al., 2014; West et al., 2010).

### *Gender Differences in Students' Apprehensions About Secondary School*

Students' fears about secondary school vary widely depending on personal factors, including gender (Anderson et al., 2000; Graham & Hill, 2003; Qualter et al., 2007; Rice et al., 2011; Vanlede et al., 2006). Some studies have shown that girls have more concerns than boys both pre-school transition and post-school transition (e.g., Anderson et al., 2000; Rice et al., 2011; van Rens et al., 2019). Additionally, findings from van Rens and colleagues (2019) suggest that, before shifting to secondary school, girls and boys emphasize different fears. Specifically, boys are more concerned about friendships and knowing someone in high school, while girls are most concerned about the general social environment, such as learning to make new friends and being accepted by others. Some research also suggests that compared to boys, girls are better at coping with the transition to secondary school (McGee et al., 2004).

## Current Study

Using data collected from a sample of 784 grade 7 students in British Columbia, Canada, this study aims to examine students' concerns about high school before and after their transition to secondary school and whether these concerns differ between boys and girls. The study has three main objectives: (1) using qualitative content analysis, identify and describe the key areas in which students express concerns about the transition to secondary school, (2) quantitatively examine the prevalence of students' concerns in each of the key areas identified in objective 1 *before* they transition to secondary school and explore any associated gender differences, and (3) quantitatively examine the prevalence of students' expressed challenges/difficulties in high school *after* they have made the transition to secondary school and investigate differences by gender.

# Method

## Procedure

Participants for the current study were sampled from 31 primary schools (approximately 93 classrooms) in metro Vancouver, British Columbia, Canada between Fall 2017 and Spring 2019. All grade 7 students in the 31 schools (~2,425 students) were invited to participate in the study and were given a parent information package to take home. The package provided details such as data confidentiality, voluntary participation, example survey questions, and a parental consent form. A repeated measures design was used to collect self-reported questionnaires from students at three time points: Twice in their last year of primary school (Surveys 1 and 2) and again six months after the transition to secondary school (Survey 3). For the purposes of this study, only data from Surveys 1 and 3 were used for the analysis.

Refer to Chapter 2 for more detailed information about the procedure, survey administration and data collection.

## Participants and Response Rate

A total of 798 students participated in the baseline (Survey 1) phase of the data collection.[7] In the follow-up phase of the study (Survey 3), 205 students completed a survey, representing a 74% attrition rate from Survey 1 to Survey 3. Table 1 below provides information about the four cohorts of students and the schedule of survey administration and sample size for each cohort. The analytic sample used in the current study includes only those participants who responded to an open-ended question pertaining to their concerns about high school (described below). The demographics for the sample of 784 students[8] who were included in the analysis are provided in the Results section.

[7] Due to incomplete records about the sampling frame (e.g., total number of grade 7 students across the 31 schools, how many classrooms that students were recruited from), the exact response rate is not available. Based on estimations from partial records and information from school/district websites, approximately 2,425 grade 7 students were recruited to participate in the study. As such, it is estimated that approximately 33% of the sampling frame completed the survey at baseline.

[8] Two students in the sample only completed Survey 3. As such, although 782 students are included in the Survey 1 sample, a total of 784 individuals are included in the study.

**Table 3.1. Survey Administration Schedule and Sample Size for Each Cohort**

| Wave of data collection | Survey 1 | | Survey 3 | |
|---|---|---|---|---|
| | Administration | Sample size (n) | Administration | Sample size (n) |
| 1 | October 2017 | 133 | February 2019 | 31 |
| 2 | February 2018 | 44 | February 2019 | 16 |
| 3 | October 2018 | 379 | February 2020 | 91 |
| 4 | February 2019 | 242 | February 2020 | 67 |

## Measures

Several demographic questions regarding students' gender, ethnicity, family structure, and participation in extra-curricular activities were collected in Survey 1; see Table 2.6 in Chapter 2 for a description of each measure. Qualitative data were collected through an open-ended question, with the aim of understanding students' concerns about secondary school. Survey 1 asked students to "Please rank (in order) your biggest worries/concerns about high school" and Survey 3 asked students to indicate "What are the 3 most difficult parts about high school?".

## Analytic Approach

### *Student Demographics*

Frequency counts and percentages were calculated for the demographic questionnaire items. Descriptive statistics were also calculated separately for boys and girls. Pearson's chi-squared tests and independent-samples t-tests were used to determine whether there were statistically significant differences between boys and girls on any of the demographic questionnaire items (using a $p < 0.05$ significance level). Additionally, Pearson's chi-squared tests and independent-samples t-tests were used to examine between-group differences in characteristics of the sample of students who completed Survey 3 ('completers') and those who did not ('non-completers').

### *Data Preparation and Analysis*

#### Thematic Content Analysis

Student responses were recorded verbatim in a Microsoft Excel spreadsheet. Responses were coded inductively, and text classification was used to categorize the data and

subsequently identify dominant themes and sub-themes across participant responses (Braun & Clarke, 2006). In an iterative process, one researcher structured and coded the data, refined the sub-themes, and identified overarching themes. This stage of the coding used a constant comparative method (Glaser & Strauss, 1967) to classify the responses into meaningful categories and focused on the manifest content. To ensure the accuracy and consistency of the coding, a second researcher reviewed and validated the coding of themes and sub-themes with respect to content and coherence. In the event of any disagreements, both reviewers deliberated until a consensus was reached. As a final validity check, both reviewers randomly selected 20% of the rows in the Excel spreadsheet and reviewed/validated the codes.

Student responses were analyzed through text analysis, a technique used to gain insights into the properties of written content (Frey et al., 1999). This approach involves methods such as word frequency and text categorization, with the aim of observing, describing, and interpreting the information conveyed through text (Frey et al., 1999). In the current study, text analysis was used to examine the frequency with which participants referenced sub-themes and themes.

#### Students' Concerns/Difficulties with Secondary School Before and After the Transition

Pearson's chi-squared tests and Fisher's exact tests (when cell counts were $\leq 5$) were conducted to examine whether any significant differences ($p < .05$) could be identified between genders with respect to concerns about/difficulties with secondary school. To be included in the analysis, a minimum level of saturation was required for each sub-theme (i.e., at least 10 mentions of a certain fear/concern at one of the time points (i.e., either pre-test or follow-up)). Additionally, Wilcoxon rank-sum tests (for unmatched, non-normally distributed continuous data) were used to compare the mean number of total concerns for each theme ($p < .05$) between genders. All analyses were conducted using Stata/SE 17.

# Results

## Participant Characteristics

Participants' demographic information is presented in Table 3.2 for the sample of 782 students who completed Survey 1. Table 3.2 also provides descriptive statistics by gender. A little more than half of the students in the sample identified as female (52%) and the majority belonged to a visible ethnic minority (79%). Most participants reported being born in Canada

(72%), having both biological parents in the same house (i.e., were married/common law; 83%) and having one or two siblings/step-siblings ($M$ = 1.54, $SD$ = 1.16). On average, participants had changed elementary schools once ($M$ = 0.86; $SD$ = 1.05) and participated in extra-curricular activities once per week[9] ($M$ = 2.84; $SD$ = 1.21). Over half of the students reported they were worried about being bullied at school (52%). Students also reported studying for an average of one hour on weeknights[10] ($M$ = 3.40; $SD$ = 1.27).

Participant characteristics were similar between genders for most demographic items; however, some significant differences were noted. Significantly more boys said they were born in Canada ($p < .05$), more girls reported they were afraid of being bullied at school ($p < .001$) and girls spent more hours studying during the school week ($p < .05$).

[9] Participants' responses were coded such that 1 = not at all, 2 = once per week, 3 = 2-3x per week, 4 = 4-5x per week, and 5 = 6-7x per week.

[10] Participants' responses were coded such that 1 = none, 2 = less than 1 hour, 3 = about 1 hour, 4 = about 2 hours, 5 = about 3 hours, and 6 = more than 3 hours.

**Table 3.2. Sample Characteristics**

| Variable | Survey 1 (N = 782) n (%) | Girls (n = 405) n (%) | Boys (n = 377) n (%) | $X^2$, p-value | Survey 3 (N = 205) n (%) | Girls (n = 139) n (%) | Boys (n = 66) n (%) | $X^2$, p-value |
|---|---|---|---|---|---|---|---|---|
| Gender | | | | | | | | |
| Female | 405 (51.8%) | | | | 139 (67.8%) | | | |
| Male | 377 (48.2%) | | | | 66 (32.2%) | | | |
| *Missing* | 0 (0.0%) | ----- | ----- | ----- | 0 (0.0%) | ----- | ----- | ----- |
| Ethnicity | | | | | | | | |
| White | 160 (20.5%) | 85 (21.0%) | 75 (19.9%) | | 41 (20.0%) | 32 (23.0%) | 9 (13.6%) | |
| Visible minority | 617 (78.9%) | 315 (77.8%) | 302 (80.1%) | $X^2 = 0.22$, | 162 (79.0%) | 105 (75.5%) | 57 (86.4%) | $X^2 = 2.61$, |
| *Missing* | 5 (0.6%) | 5 (1.2%) | 0 (0.0%) | n.s. | 2 (1.0%) | 2 (1.5%) | 0 (0.0%) | n.s. |
| Biological parents live in the same house as you? | | | | | | | | |
| No | 122 (15.6%) | 60 (14.8%) | 62 (16.5%) | | 23 (11.2%) | 15 (140.8%) | 8 (12.1%) | |
| Yes | 648 (82.9%) | 338 (83.5%) | 310 (82.2%) | $X^2 = 0.37$, | 180 (87.8%) | 122 (87.8%) | 58 (87.9%) | $X^2 = 0.06$, |
| *Missing* | 12 (1.5%) | 7 (1.7%) | 5 (1.3%) | n.s. | 2 (1.0%) | 2 (1.4%) | 0 (0.0%) | n.s. |
| Were you born in Canada? | | | | | | | | |
| No | 215 (27.5%) | 125 (30.9%) | 90 (23.9%) | | 47 (22.9%) | 39 (28.1%) | 8 (12.1%) | |
| Yes | 565 (72.3%) | 278 (68.6%) | 287 (76.1%) | $X^2 = 4.98$, | 157 (76.6%) | 99 (71.2%) | 58 (87.9%) | $X^2 = 6.56$, |
| *Missing* | 2 (0.3%) | 2 (0.5%) | 0 (0.0%) | $p = 0.03$* | 1 (0.5%) | 1 (0.7%) | 0 (0.0%) | $p = 0.01$* |
| Are you ever afraid that someone will bully you at school? | | | | | | | | |
| No | 348 (44.5%) | 144 (35.6%) | 204 (54.1%) | | 85 (41.4%) | 51 (36.7%) | 34 (51.5%) | |
| Yes | 404 (51.7%) | 251 (62.0%) | 153 (40.6%) | $X^2 = 32.28$, | 117 (57.1%) | 88 (63.3%) | 29 (43.9%) | $X^2 = 5.31$, |
| *Missing* | 30 (3.8%) | 10 (2.5%) | 20 (5.3%) | $p = 0.000$*** | 3 (1.5%) | 0 (0.0%) | 3 (4.6%) | $p = 0.02$* |

| Variable | Survey 1 (N = 782) n (%) | Girls (n = 405) n (%) | Boys (n = 377) n (%) | t, p-value | Survey 3 (N = 205) n (%) | Girls (n = 139) n (%) | Boys (n = 66) n (%) | t, p-value |
|---|---|---|---|---|---|---|---|---|
| | ***M* (*SD*)** | ***M* (*SD*)** | ***M* (*SD*)** | --- | ***M* (*SD*)** | ***M* (*SD*)** | ***M* (*SD*)** | --- |
| # siblings or step-siblings | 1.54 (1.16) | 1.55 (1.14) | 1.52 (1.19) | $t$ = 0.42, n.s. | 1.29 (1.07) | 1.39 (1.04) | 1.38 (1.13) | $t$ = 0.10, n.s. |
| # times changed schools | 0.86 (1.05) | 0.89 (1.04) | 0.83 (1.06) | $t$ = 0.71, n.s. | 0.81 (1.00) | 0.85 (1.02) | 0.73 (0.95) | $t$ = 0.81, n.s. |
| # days/week in extra-curricular activities | 2.84 (1.21) | 2.79 (1.21) | 2.90 (1.21) | $t$ = -1.33, n.s. | 3.00 (1.19) | 2.94 (1.16) | 3.14 (1.26) | $t$ = 1.09, n.s. |
| # hours/day studying | 3.40 (1.27) | 3.51 (1.26) | 3.29 (1.27) | $t$ = 2.41, $p$ = 0.02* | 3.37 (1.20) | 3.45 (1.19) | 3.19 (1.19) | $t$ = 1.45, n.s. |

*$p$ < .05, ***$p$ < .001

Similar demographics and gender differences were observed in the sample of students who completed Survey 3. Notably, some significant differences were observed in the characteristics of those who completed Survey 3 and those who did not. See Table 3.3. For instance, more girls completed the follow-up survey ($p < .001$), those who completed the follow-up survey had fewer siblings or step-siblings ($p < .05$), and students who completed Survey 3 participated in extra-curricular activities in primary school significantly more days per week than those who did not complete the follow-up survey ($p < .001$).

**Table 3.3. Difference Between Study 3 Completers and Non-Completers**

| | Full sample (*N* = 784) | Completed FU survey (*n* = 205) | Non-completers (*n* = 579) | Difference between completers and non-completers | |
|---|---|---|---|---|---|
| | | | | Test statistic | p-value |
| Gender | | | | | |
| Female | 406 (51.8%) | 139 (67.8%) | 267 (46.1%) | | |
| Male | 378 (48.2%) | 66 (32.2%) | 312 (53.9%) | $\chi^2$ = 28.529 | 0.000*** |
| Ethnicity | | | | | |
| White | 160 (20.4%) | 41 (20.0%) | 119 (20.6%) | | |
| Visible minority | 619 (79.0%) | 162 (79.0%) | 457 (78.9%) | | |
| *Missing* | 5 (0.6%) | 2 (1.0%) | 3 (0.5%) | $\chi^2$ = 0.020 | 0.888 |
| Biological parents live in the same house as you? | | | | | |
| No | 122 (15.6%) | 23 (11.2%) | 99 (17.1%) | | |
| Yes | 650 (82.9%) | 180 (87.8%) | 470 (81.2%) | | |
| *Missing* | 12 (1.5%) | 2 (1.0%) | 10 (1.7%) | $\chi^2$ = 4.142 | 0.042* |
| Were you born in Canada? | | | | | |
| No | 216 (27.6%) | 47 (22.9%) | 169 (29.2%) | | |
| Yes | 566 (72.3%) | 157 (76.6%) | 409 (70.6%) | | |
| *Missing* | 2 (0.3%) | 1 (0.5%) | 1 (0.2%) | $\chi^2$ = 2.899 | 0.089 |
| Are you ever afraid that someone will bully you at school? | | | | | |
| No | 349 (44.5%) | 85 (41.4%) | 264 (45.6%) | | |
| Yes | 405 (51.7%) | 117 (57.1%) | 288 (49.7%) | | |
| *Missing* | 30 (3.8%) | 3 (1.5%) | 27 (4.7%) | $\chi^2$ = 1.965 | 0.161 |
| | ***M* (*SD*)** | ***M* (*SD*)** | ***M* (*SD*)** | **---** | **---** |
| # siblings or step-siblings | 1.53 (1.16) | 1.39 (1.07) | 1.59 (1.19) | *t* = 2.073 | 0.039* |
| # times you have changed schools | 0.86 (1.05) | 0.81 (1.00) | 0.88 (1.07) | *t* = 0.805 | 0.421 |
| # days per week in extra-curricular activities | 2.84 (1.21) | 3.00 (1.19) | 2.78 (1.21) | *t* = -2.288 | 0.022* |
| # hours/day studying | 3.40 (1.27) | 3.37 (1.20) | 3.41 (1.29) | *t* = 0.397 | 0.692 |

[a] Two students only completed Survey 3, as such, the total number of students in the full sample is 784.

*$p < .05$, ***$p < .001$

## Students' Concerns About Secondary School

Several common thematic groupings of students' concerns about secondary school emerged from the survey. Responses were classified into six main themes (1) friendships, (2) social dynamics, (3) academics, (4) school environment, (5) crime/delinquency, and (6) managing time and priorities. Each theme is briefly described below.[11] Table 3.4 displays the themes, subthemes, and example responses provided by participants.

### *Friendships*

The Friendships theme centers around the various worries that students have about their friends or social circle. The theme comprises five sub-themes, which relate to concerns about losing friends, making new friends, being separated from existing friends due to different schools or classes, and dealing with drama and gossip within their friend group.

### *Social Dynamics*

The theme of Social Dynamics revolves around the general environment related to the social realm of high school. Seven sub-themes exemplify the various concerns that students have about their social life during high school. These sub-themes include peer pressure, fitting in, being alone or lonely, bullying, popularity, socializing or meeting new people, and other students at the school (e.g., older students).

### *Academics*

The Academics theme covers student responses regarding their schoolwork and academic performance. Nine sub-themes were identified in the data, including the amount of homework or difficulty of the workload, conducting group projects, academic success or failure (e.g., getting good grades, failing), the number of tests and studying for tests, difficulty understanding the class material, focusing in class, presentations and public speaking, academic performance expectations derived from peers, parents, or teachers, and planning for the future (e.g., students' views on their future academic and career plans).

[11] Students' responses that were related to a theme but did not fit into any of the theme's sub-thematic categories were included in a category named 'other'. See Table 3.4.

### *School Environment*

The theme of School Environment reflects students' concerns regarding the environmental context of high school. There are seven sub-themes, which include being exposed to mean or strict teachers, locating classes or getting lost, problems unlocking their locker, adapting to the structure of high school (e.g., transitioning between classes, block rotations), participating in extra-curricular activities (e.g., being selected for the basketball team), and facing disciplinary consequences.

### *Crime/Delinquency*

The theme of Crime/Delinquency covers five sub-themes related to deviance and safety in high school. The sub-themes involve fights/violence (e.g., physical altercations), substance use (e.g., drugs, alcohol, smoking/vaping), the presence of gangs and/or gang-related activities, theft of personal belongings, and safety while traveling to and from school.

### *Managing Time and Priorities*

This theme focuses on students' concerns regarding time management and prioritization in high school. It encompasses various sub-themes, including the stress and anxiety associated with keeping up with the demands of high school, the challenges of staying organized and managing time effectively to meet deadlines and complete tasks, the struggle to balance schoolwork with extracurricular activities, the importance of getting enough sleep and waking up early, and arriving to school on time for classes.

**Table 3.4. Thematic Groupings of Students' Worries/Concerns About Secondary School**

| Theme | Sub-theme | Example responses |
|---|---|---|
| **Friendships** | Friends (unspecified) | Friends[a] |
| | Losing friends | Losing the friends I have; I'm scared that I'll lose the friends I have |
| | Making friends | Making new friends; I'm worried about how I'll make friends |
| | Being split up from friends | Most of my friends are going to different schools; Being in the same class as my friends; Being separated from my friends[b] |
| | Drama | Drama/gossiping; Getting into "drama" |
| | Other | Friend problems; Not having a strong bond with my friends; Friends changing their personality |
| **Social Dynamics** | Peer pressure | Pressure into smoking or doing drugs; Pressure from my peers |
| | Fitting in | Fitting in with other students; Not fitting in |
| | Being alone | Being by myself; Being lonely/loneliness |
| | Bullying | Being bullied; Bullies |
| | Popularity | Being cool/popular |
| | Socializing/meeting new people | My sociability; Meeting new people |
| | Other students at the school | Upperclassmen; Weird students |
| | Other | Embarrassing myself in front of the class; Social life |
| **Academics** | Homework/workload | A lot of homework; More challenging homework |
| | Group projects | Doing group projects |
| | Grades/failing | Not getting good grades; I'm worried I'll fail a class/test |
| | Tests/studying | Lots of tests; Studying for tests |
| | Classes | Classes; Understanding math and other subjects |
| | Paying attention in class | Focusing in class; Staying on task[c] |
| | Presentations/public speaking | Talking in front of the class; Doing presentations |
| | Pressure/expectations to do well | Pressure to get good grades; Expectations from my teachers to be smart |
| | Planning for future (e.g., university) | Grade 12; That I won't learn enough to be successful; When I graduate I won't know what to do with my life |
| | Other | Getting into mini school; My work ethic |

| Theme | Sub-theme | Example responses |
|---|---|---|
| **School Environment** | Teachers (unspecified) | Teachers[d] |
| | Strict/mean teachers | Mean teachers; Strict teachers |
| | Finding classes/getting lost | Getting lost in school; Not being able to find my classes |
| | Locker | Not knowing how to use the lockers; Locker combination/locks |
| | Adjusting to high school environment | Transitioning classes; Getting used to block rotations |
| | Extra-curricular activities | Not making a sports team; Not being able to participate in sports |
| | Getting in trouble | Getting kicked out of class; Detention |
| | Other | The bathrooms; Lockdowns; Consequences |
| **Crime/Delinquency** | Fights/violence | Getting into fights; Getting jumped/robbed |
| | Substance use | Drugs; Vaping; Drinking |
| | Gangs | Gangs; Someone asking me to join a gang |
| | Theft | People stealing my stuff; Things getting stolen |
| | Safety walking to school | Walking to school by myself and someone talking to me; Riding my bike to school alone |
| | Other | Getting kidnapped; Rape |
| **Managing Time and Priorities** | Stress/anxiety | The amount of stress I'm going to have; How stressed I will get in school because of the workload |
| | Organization/time management | Getting all my work done on time; Organizing my things |
| | Balancing school with activities | Balancing homework and extra-curricular activities |
| | Sleep/waking up early | Waking up on time; Getting up early in the morning; Lack of sleep |
| | Being late | Being late for class; Getting to school on time |
| | Other | Schedule conflicts; Making sure I have everything I need |

[a] Student responses just noted 'friends' as their concern and did not elaborate. As there was no specific indication of what aspect of friends that these students were concerned about, these responses were coded as their own sub-theme.
[b] As opposed to the sub-theme 'losing friends', responses in this sub-theme were specifically centered around students' concerns about being split up from their friends (i.e., going to a different school, being in different classes). These responses were markedly different than the general responses about losing friends, which were more centered around the loss of friendships or having a smaller network of close friends in high school and/or a shifting network of close friends.
[c] In this sub-theme, students expressed concerns about staying focused and paying attention in class, rather than the content of the classes themselves. This is different from the general responses about classes, which focused more on the content of courses and their ability to understand the course content.
[d] Student responses just noted 'teachers' as their concern and did not elaborate. As there was no indication of the specifics about teachers with which students were concerned about in high school, these responses were coded as their own sub-theme.

## Students' Concerns About Secondary School Before the Transition

Across the group of 782 participants who completed Survey 1, students reported the highest mean number of concerns in the Academics domain (*M(SD)* = 1.22(0.84)). This indicates that, on average, every student in the sample identified at least one of the Academics sub-themes as a top area of concern. Additionally, the sub-thematic concerns most frequently cited by students include the amount/difficulty of homework (60%), grades/failing (35%), bullying (25%), making friends (23%) and losing friends (19%). See Table 3.5.

### *Gender Differences in Students' Concerns Before the Transition*

Several statistically significant differences in students' concerns about secondary school were observed between boys and girls; see Table 3.5. With respect to the Friendships domain, more girls than boys reported being worried about losing friends in secondary school (23% vs. 15%; $\chi^2 = 9.41$, $p < .01$), as well as making new friends (27% vs. 18%; $\chi^2 = 10.93$, $p < .01$). The mean number of total concerns about the Friendships domain was also significantly higher for girls ($z = -5.24$, $p < .001$). Regarding Social Dynamics, significantly more girls said they were concerned about fitting in (15% vs. 10%; $\chi^2 = 5.33$, $p < .05$) and being alone (17% vs. 8%; $\chi^2 = 13.90$, $p < .001$) in secondary school compared to boys. For Academics, more boys were concerned about the homework/workload (67% vs. 54%; $\chi^2 = 14.45$, $p < .001$), while significantly more girls reported that they were worried about their grades/failing (39% vs. 31%; $\chi^2 = 5.41$, $p < .05$).

With respect to the School Environment, more boys than girls were worried about high school teachers[12] (10% vs. 4%; $\chi^2 = 9.33$, $p < .01$) and extra-curricular activities (3% vs. 1%; $\chi^2 = 4.70$, $p < .05$). The mean number of total concerns about the School Environment was also

[12] These students just noted 'teachers' as their concern and did not elaborate.

significantly higher for boys ($z = 2.01$, $p < .05$). Within the Crime/Delinquency theme, more boys were concerned about fights/violence (7% vs. 3%; $\chi^2 = 6.06$, $p = .01$), while for the theme of Managing Time and Priorities, more girls were worried about organization/time management (3% vs. 1%; Fishers' Exact $p = .01$).[13]

Overall, these results offer insight into the distinct concerns and priorities of male and female students shortly before their transition to secondary school. The data shows that girls' concerns are mostly centered around their social life and relationships with peers, while boys' concerns are more varied. These findings highlight the importance of recognizing gender differences and how they influence students' expectations of secondary school.

[13] Some students completed the survey in the Fall semester of grade 7 (October) while some completed the survey in the Spring semester of grade 7 (February). Supplementary analyses uncovered a significant difference in the frequency of students' concerns in some of the sub-thematic areas depending on whether they completed the surveys in the Fall or the Spring (see the note in Table 3.5).

**Table 3.5. Students' Worries/Concerns About Secondary School Before the Transition**

| Theme | Sub-theme | Full sample (N = 782) | Boys (n = 377) | Girls (n = 405) | Pearson's chi-squared/Wilcoxon rank-sum (*p*-value) |
|---|---|---|---|---|---|
| **Friendships** | Friends (unspecified) | 21 (2.7%) | 10 (2.7%) | 11 (2.7%) | $\chi^2$ = 0.00, n.s. |
| | Losing friends | 149 (19.1%) | 55 (14.6%) | 94 (23.2%) | **$\chi^2$ = 9.41, *p* = .002**** |
| | Making friends | 177 (22.6%) | 66 (17.5%) | 111 (27.4%) | **$\chi^2$ = 10.93, *p* = .001**** |
| | Being split up from friends | 14 (1.8%) | 6 (1.6%) | 8 (2.0%) | $\chi^2$ = 0.16, n.s. |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *0.483 (0.59)*<br>*0-4* | *0.377 (0.57)*<br>*0-4* | *0.588 (0.60)*<br>*0-2* | ***z = -5.236, p = .000****** |
| **Social Dynamics** | Peer pressure | 109 (13.9%) | 53 (14.1%) | 56 (13.8%) | $\chi^2$ = 0.01, n.s. |
| | Fitting in | 99 (12.7%) | 37 (9.8%) | 63 (15.3%) | **$\chi^2$ = 5.33, *p* = .02*** |
| | Being alone | 98 (12.5%) | 30 (8.0%) | 68 (16.8%) | **$\chi^2$ = 13.90, *p* = .000***[a]** |
| | Bullying | 196 (25.1%) | 106 (28.1%) | 90 (22.2%) | $\chi^2$ = 3.61, n.s. |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *0.668 (0.72)*<br>*0-3* | *0.621 (0.70)*<br>*0-3* | *0.711 (0.74)*<br>*0-3* | *z = -1.647, n.s.* |
| **Academics** | Homework/workload | 473 (60.5%) | 254 (67.4%) | 219 (54.1%) | **$\chi^2$ = 14.45, *p* = .000***[a]** |
| | Grades/failing | 277 (35.4%) | 118 (31.3%) | 159 (39.3%) | **$\chi^2$ = 5.41, *p* = .02*** |
| | Tests/studying | 128 (16.4%) | 64 (17.0%) | 64 (15.8%) | $\chi^2$ = 0.20, n.s. |
| | Classes | 49 (6.3%) | 26 (6.9%) | 23 (5.7%) | $\chi^2$ = 0.49, n.s.[a] |
| | Paying attention in class | 1 (0.1%) | 0 (0.0%) | 1 (0.3%) | Fisher's Exact, *p* = 1.00 |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *1.22 (0.84)*<br>*0-4* | *1.260 (0.85)*<br>*0-4* | *1.178 (0.82)*<br>*0-4* | *z = 1.233, n.s.* |
| **School Environment** | Teachers (unspecified) | 56 (7.2%) | 38 (10.1%) | 18 (4.4%) | **$\chi^2$ = 9.33, *p* = .002**** |
| | Mean/strict teachers | 10 (1.3%) | 4 (1.1%) | 6 (1.5%) | Fisher's Exact, *p* = .75 |
| | Finding classes/getting lost | 97 (12.4%) | 41 (10.9%) | 56 (13.8%) | $\chi^2$ = 1.57, n.s. |
| | Locker | 65 (8.3%) | 32 (8.5%) | 33 (8.2%) | $\chi^2$ = 0.03, n.s. |
| | Adjusting to high school environment | 23 (2.9%) | 13 (3.5%) | 10 (2.5%) | $\chi^2$ = 0.66, n.s. |
| | Extra-curricular activities | 16 (2.1%) | 12 (3.2%) | 4 (1.0%) | **$\chi^2$ = 4.70, *p* = .03*** |
| | *M concerns (SD)* | *0.362 (0.58)* | *0.403 (0.60)* | *0.323 (0.56)* | ***z = 2.008, p = .04**[a]** |

| Theme | Sub-theme | Full sample (N = 782) | Boys (n = 377) | Girls (n = 405) | Pearson's chi-squared/Wilcoxon rank-sum (*p*-value) |
|---|---|---|---|---|---|
| | *Range (min.-max.)* | *0-3* | *0-3* | *0-3* | |
| **Crime/Delinquency** | Fights/violence | 42 (5.4%) | 28 (7.4%) | 14 (3.5%) | **$\chi^2$ = 6.06, *p* = .01**** |
| | Substance use | 16 (2.1%) | 4 (1.1%) | 12 (3.0%) | Fisher's Exact, p = .08 [a] |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *0.092 (0.30)*<br>*0-2* | *0.103 (0.32)*<br>*0-2* | *0.081 (0.28)*<br>*0-2* | *z = 0.950, n.s.*[a] |
| **Managing Time and Priorities** | Stress/anxiety | 11 (1.4%) | 6 (1.6%) | 5 (1.2%) | Fisher's Exact, *p* = .77 |
| | Organization/time management | 14 (1.8%) | 2 (0.5%) | 12 (3.0%) | ***Fisher's Exact, p = .01**** |
| | Being late | 27 (3.5%) | 12 (3.2%) | 15 (3.7%) | $\chi^2$ = 0.16, n.s. |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *0.072 (0.27)*<br>*0-2* | *0.053 (0.22)*<br>*0-1* | *0.089 (0.31)*<br>*0-2* | *z = -1.579, n.s.* |

[a] There is a significant difference (p < .05) between students who completed the survey in the Fall versus the Spring.
*p < .05, **p < .01, ***p < .001

## Students' Difficulties with Secondary School After the Transition

A total of 205 students completed the survey after they transitioned to secondary school. After reflecting on their first semester of high school, a considerable number of students indicated that Academics were the most difficult/challenging. In particular, 52% of students thought the homework/workload was the most difficult thing about high school, 37% noted tests/studying, and 33% said getting good grades/failing. See Table 3.6.

### *Gender Differences in Students' Difficulties After the Transition*

No statistically significant differences were observed between genders, except for the sub-theme of 'paying attention in class'. Compared to girls, significantly more boys reported finding it difficult to stay focused or pay attention in class (11% vs. 2%; Fisher's exact $p = .01$). Overall, these findings suggest that male and female students face similar challenges during their first semester of secondary school. These findings imply that the difficulties experienced by students after they move to secondary school may be attributed to factors other than gender, such as the school environment, teaching methods, or other individual-level factors, such as school engagement (e.g., see Evans et al., 2018). However, it is possible that the sample sizes were too small to accurately determine the differences in difficulties or challenges experienced by boys and girls.

**Table 3.6. Students' Difficulties/Concerns with Secondary School After the Transition**

| Theme | Sub-theme | Full sample (N = 205) | Girls (n = 139) | Boys (n = 66) | Pearson's chi-squared/Wilcoxon rank-sum, p-value |
|---|---|---|---|---|---|
| **Friendships** | Friends (unspecified) | 10 (4.9%) | 6 (4.3%) | 4 (6.1%) | Fisher's exact $p = 0.73$ |
| | Losing friends | 32 (15.6%) | 20 (14.4%) | 12 (18.2%) | $\chi^2 = 0.49$, n.s. |
| | Making friends | 38 (18.5%) | 28 (20.1%) | 10 (15.2%) | $\chi^2 = 0.74$, n.s. |
| | Being split up from friends | 2 (1.0%) | 1 (0.7%) | 1 (1.5%) | Fisher's exact $p = 0.54$ |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *0.449 (0.56)*<br>*0-2* | *0.453 (0.55)*<br>*0-2* | *0.439 (0.59)*<br>*0-2* | $z = -0.302$, n.s. |
| **Social Dynamics** | Peer pressure | 16 (7.8%) | 11 (7.9%) | 5 (7.6%) | Fisher's exact $p = 1.00$ |
| | Fitting in | 27 (13.2%) | 21 (15.1%) | 6 (9.1%) | $\chi^2 = 1.42$, n.s. |
| | Being alone | 20 (9.8%) | 14 (10.1%) | 6 (9.1%) | $\chi^2 = 0.49$, n.s. |
| | Bullying | 8 (3.9%) | 5 (3.6%) | 3 (4.6%) | Fisher's exact $p = .71$ |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *0.424 (0.59)*<br>*0-2* | *0.446 (0.59)*<br>*0-2* | *0.379 (0.58)*<br>*0-2* | $z = -0.832$, n.s. |
| **Academics** | Homework/workload | 107 (52.2%) | 70 (50.4%) | 37 (56.1%) | $\chi^2 = 0.58$, n.s. |
| | Grades/failing | 68 (33.2%) | 49 (35.3%) | 19 (28.8%) | $\chi^2 = 0.84$, n.s. |
| | Tests/studying | 75 (36.6%) | 54 (38.9%) | 21 (31.8%) | $\chi^2 = 0.95$, n.s. |
| | Classes | 15 (7.3%) | 8 (5.8%) | 7 (10.6%) | $\chi^2 = 1.55$, n.s. |
| | Paying attention in class | 10 (4.9%) | 3 (2.2%) | 7 (10.6%) | **Fisher's exact $p = 0.01$*** |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *1.410 (0.91)*<br>*0-3* | *1.410 (0.88)*<br>*0-3* | *1.409 (0.98)*<br>*0-3* | $z = -0.009$, n.s. |
| **School Environment** | Teachers (unspecified) | 22 (10.7%) | 16 (11.5%) | 6 (9.1%) | $\chi^2 = 0.27$, n.s. |
| | Strict/mean teachers | 9 (4.4%) | 6 (4.3%) | 3 (4.6%) | Fisher's exact $p = 1.00$ |
| | Finding classes/getting lost | 9 (4.4%) | 6 (4.3%) | 3 (4.6%) | Fisher's exact $p = 1.00$ |
| | Locker | 12 (5.9%) | 7 (5.0%) | 5 (7.6%) | Fisher's exact $p = 0.53$ |
| | Adjusting to high school environment | 17 (8.3%) | 11 (7.9%) | 6 (9.1%) | $\chi^2 = 0.08$, n.s. |

| Theme | Sub-theme | Full sample (N = 205) | Girls (n = 139) | Boys (n = 66) | Pearson's chi-squared/Wilcoxon rank-sum, p-value |
|---|---|---|---|---|---|
| | Extra-curricular activities | 1 (0.5%) | 1 (0.7%) | 0 (0.0%) | Fisher's exact $p = 1.00$ |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *0.356 (0.59)*<br>*0-2* | *0.360 (0.61)*<br>*0-2* | *0.348 (0.54)*<br>*0-2* | $z = 0.235$, n.s. |
| **Crime/ Delinquency** | Fights/violence | 4 (2.0%) | 1 (0.7%) | 3 (4.6%) | Fisher's exact $p = 0.10$ |
| | Substance use | 4 (2.0%) | 1 (0.7%) | 3 (4.6%) | Fisher's exact $p = 0.10$ |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *0.044 (0.23)*<br>*0-2* | *0.022 (0.15)*<br>*0-1* | *0.091 (0.34)*<br>*0-2* | $z = 1.878$, n.s. |
| **Managing time and priorities** | Stress/anxiety | 10 (4.9%) | 7 (5.0%) | 3 (4.6%) | Fisher's exact $p = 1.00$ |
| | Organization/time management | 24 (11.7%) | 17 (12.2%) | 7 (10.6%) | $X^2 = 0.11$, n.s. |
| | Being late | 3 (1.5%) | 2 (1.4%) | 1 (1.5%) | Fisher's exact $p = 1.00$ |
| | *M concerns (SD)*<br>*Range (min.-max.)* | *0.268 (0.54)*<br>*0-3* | *0.273 (0.49)*<br>*0-2* | *0.258 (0.64)*<br>*0-3* | $z = -0.977$, n.s. |

*$p < .05$

## Discussion

For most Canadian adolescents, transitioning to a new school for secondary education is a typical experience. Though common, this change can be daunting and result in challenges or anxieties as students navigate new academic, structural, and social environments. This study analyzed data from 782 Canadian primary school students regarding their concerns about secondary school and assessed a subset of 205 students about the difficulties they were experiencing after their first semester of high school. Results highlight six key areas in which students had concerns: (1) friendships, (2) social dynamics, (3) academics, (4) school environment, (5) crime/delinquency, and (6) managing time and priorities. These findings are consistent with research about students' fears and concerns regarding high school (e.g., see Jindal-Snape et al. (2020) for a comprehensive review). The study's results are an important contribution to the literature as, to the best of my knowledge, no published research has investigated Canadian students' concerns about high school. Additionally, the school transition context in this study (i.e., in which students move directly from elementary school to high school in grade 8), is less common than in most of the existing literature on school transition in North America, in which students typically transfer to high school in grade 9 (e.g., see Honetschlager, 2020; Jewell, 2018; Pandina et al., 2015). As such, these findings offer valuable insight into the experience of students within this specific school structure.

The findings from the text analysis show that primary school students have varying concerns about high school, with some worries being more prevalent than others. Before making the transition, students are most worried about academics and friend-related issues in high school, with few concerns about crime and delinquency-related issues or about managing their time and priorities. While it is important to identify and examine the areas in which students express the most concern, it may be equally important to understand what students are *not* overly worried about. For example, if an intervention program aims to address primary students' concerns about high school, these findings suggest that it may not be useful to focus on topics of crime/delinquency, as students are generally not very worried about these issues (e.g., $\leq$ 5% of the sample expressed concerns about this topic). Alternatively, knowing what students are not concerned about can also highlight areas that need attention before students move to high school. For example, the analysis shows that in primary school, many students did not express concerns about organization and time management in high school. While it is possible that students were not concerned about this topic because they were confident in their organization

and time management skills, it is also possible that the limited concern is due to a lack of awareness of the increased need for better skills in these areas in high school. Overall, knowing the nature and prevalence of students' concerns about high school can be useful to inform the promotion of the YEP. That is, if the YWCA staff know what boys and girls are typically concerned about, their recruiting/promotional materials can be used to appeal to those students. Additionally, these findings can also be used for developing interventions that can more effectively help students anticipate what to expect in high school, prepare them with appropriate skills and coping strategies, decrease anxieties and worries, and ultimately lead to a more positive high school transition experience.

The between-gender analyses of students' concerns about secondary school before the transition yielded several notable findings. For instance, the findings suggest that girls put greater emphasis on concerns about friendships (i.e., making friends, losing friends), social relationships (i.e., fitting in, being alone), managing time/priorities (i.e., being organized and managing their time), and some aspects of academics (i.e., grades/failing) compared to boys. Conversely, boys tend to prioritize concerns about the school environment (i.e., teachers, extra-curricular activities), crime/delinquency (i.e., fights/violence), and some aspects of academics (i.e., homework/workload) at higher rates than girls. The finding that some concerns about secondary school vary significantly by gender is notable because previous claims about gender differences with respect to students' fears/concerns about high school have not been supported by empirical analyses. These results also underscore the importance of considering the unique gendered experiences of students when addressing the primary-secondary school transition. Considering these findings, future research should explore gender-specific factors that may impact students' experiences with the transition to secondary school. For example, research could examine how social context and gendered expectations may shape the way male and female students perceive and navigate the transition to secondary school. By doing so, the gendered experiences of students can be better understood and addressed in intervention programming.

Altogether, recognizing the worries that primary students have about high school is important, as research has shown that adolescents who express a higher degree of worry and anxiety about the transition to high school are more likely to experience a poorer transition compared to their peers (Evans et al., 2018). This could be due to several reasons, such as a lack of coping mechanisms to deal with change, a lack of support from family and friends, or difficulty adjusting to new surroundings or routines. Addressing these concerns may facilitate a

smoother and more successful transition for adolescents. In addition, by pinpointing the unique concerns of students of different genders/gender identities, steps can be taken to address these issues appropriately for each group.

The findings also show that many students find it challenging to adapt to the academic demands of high school. These demands include getting good grades, dealing with an increased workload, understanding difficult homework, and studying for several tests each week. These findings are consistent with existing research which indicates that (1) many students are not adequately prepared to handle the academic demands of secondary school (Elias, 2002; West et al., 2010) and (2) students experience a decline in academic growth/attainment immediately following the transition to secondary school (e.g., Evans et al., 2018). These findings highlight the importance of equipping students with the academic skills and work habits necessary to make a successful transition to secondary education, as they often face significant academic challenges after their first semester of secondary school. A growing body of research indicates a correlation between coping skills and adolescents' behavioural and academic adjustment in school. For instance, good coping skills have been significantly linked to improvements in academic and behavioural adjustment at school (Chua et al., 2015; Skinner et al., 2016). Considering the potentially negative of academic challenges in high school (e.g., see Evans et al., 2018), it is important to help students successfully navigate and cope with the academic demands of secondary school and avoid negative consequences of academic disengagement such as reduced engagement in learning, increased absenteeism, and drop out (Evans et al., 2018).

Duchesne and colleagues (2012) purport that providing adolescents with support and resources to transition into secondary school is essential for their successful social, academic, and emotional adaptation. High school transition programs are one such resource. These programs aim to ease the move from primary to secondary school by providing activities that help students navigate the challenges associated with transition (Blackwell, 2008). School transition programs typically include activities for youth that address pertinent challenges/common stressors experienced by adolescents during the shift to high school, such as interpersonal relationships, social skills, academic success, and school procedures (e.g., see Joyner (2014) and Roybal and colleagues (2014) for an overview). Some research suggests that providing students with adequate support and resources, such as transition programs, can help them adjust to the new environment and navigate through the changes and challenges that come with transitioning to secondary schools (e.g., Topping et al., 2011). However, little is

known about the extent to which the content of transition programs is evidence-based. This information gap is concerning, as these interventions may not be appropriately targeting students' greatest needs. Overall, there is a pressing need for information about the extent to which the content of transition programs is based on evidence (rather than theory or ideology), as well as direction toward best practices on strategies to alleviate students' concerns about high school.

Future research should examine the extent to which students' concerns about secondary school, and the subsequent difficulties that they experience post-transition, are influenced by person-level factors other than gender (e.g., peer relationships, school engagement, academic self-efficacy), as well as environmental-level factors (e.g., teachers, classroom climate, school structure, parental support; see Evans et al., 2018). Additionally, as research indicates that non-binary and gender minority youths encounter more difficulties with social and academic adjustment (Colvin et al., 2019; Durbeej et al., 2019; Kelley et al., 2022; Kosciw et al., 2018), future research should include other genders in their examination of students' concerns about school and the difficulties they encounter after the move to secondary school. Finally, research is needed to investigate whether transition programs (or other interventions that support students' transition to high school) can effectively address and alleviate students' concerns about high school.

## Limitations

There are some limitations associated with the data used in the current study. First, the responses from the open-ended survey questions were brief. For instance, many students provided one-word responses (e.g., "bullying", "friends", "grades") and did not elaborate on why they were concerned about these topics. As such, a rich description of adolescents' concerns about secondary school was not possible.

Second, the study sample is restricted to the experiences of adolescents in metro Vancouver who generally make the transition from primary to secondary education after the 7th grade (i.e., 12 to 13 years of age). This may limit the external generalizability of the findings to other populations, such as those students who transfer to secondary school in the 9th grade. Additionally, only two students who participated in the study identified as a gender other than male or female, and analyses were not possible for this group given the tiny sample size. It is

important to acknowledge that the findings presented in this study may not be applicable to youth of all genders.

Third, with respect to response rates, due to the attrition from Survey 1 to Survey 3, the analyses herein were not conducted on a matched sample of participants. Although it would have been interesting to compare students' pre-transition concerns with their post-transition experiences in high school, and subsequently examine whether there was consistency in students' ratings of problems before the transition and after the transition, this would have only been possible with a small subset of the sample. Relatedly, a limitation of the quantitative analysis is that some of the sub-group analyses are based on small cell counts, particularly for Survey 3. As such, it is possible that some analyses did not have enough statistical power to discern differences between boys and girls.

Additionally, with respect to the high rate of non-response/attrition on Survey 3, upon conducting comparative analyses, some significant differences were found in the characteristics of those who completed Survey 3 and those who did not. Although the impact of these differences on the findings is unknown (e.g., students who completed Survey 3 participated in extra-curricular activities in primary school significantly more days per week, however it is not clear what impact participating in extra-curricular activities might have on students concerns about high school), it is possible that some the findings of the post-transition difficulties with high school can be attributed to attrition bias. Tt would have also been interesting to analyze if there was a correlation between participant responses in Survey 1 and the likelihood of a participant not completing Survey 3. These findings could provide insights into what factors may contribute to survey fatigue or disengagement and help improve the design of future studies. In the absence of such an analysis, it is difficult to say for certain what factors may have played a role in participants not completing all the surveys.

Last, students completed their surveys during different times in the school year; approximately half of the sample (two cohorts) completed Survey 1 in the Fall semester of grade 7 and two cohorts completed Survey 1 in the Spring semester of grade 7. The survey administration schedule may have impacted what students reported as their top concerns about secondary school.

## Conclusion

The transition from primary to secondary school is often a challenging experience for students. According to some studies, many students still struggle with secondary school after the first year (Jindal-Snape & Foggie, 2008; Rice et al., 2011; West et al., 2010). This can lead to a range of academic and motivational issues, as well as disconnection from peers and disengagement from school altogether (Anderson et al., 2000; Bru et al., 2010; Waters et al., 2012). When students transition from primary to secondary school, they encounter unfamiliar academic structures, expectations, and social dynamics with both teachers and peers (Elias, 2001; Rice et al., 2011). As demonstrated in the current study, the prospect of transitioning to secondary school leads to some feelings of anxiety and apprehension for most students. Further, some of these apprehensions vary significantly between boys and girls. Offering various resources and supports to students in advance of the transition to high school can help students overcome their apprehensions and adjust to the new high school environment (Andrews & Bishop, 2012). The current findings are consistent with previous research, which suggests that high school comes with increased academic demands, which can be overwhelming for many students if they are not adequately prepared (Elias, 2002; Evans et al., 2018; West et al., 2010). Providing students with academic assistance, such as tutoring or mentorship programs, to help them develop skills and strategies for academic success may help students better navigate these challenges and thrive academically. Schools may also implement strategies to help students understand what to expect in high school (e.g., practice tests, booster classes; see Topping et al., 2011).

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# Chapter 4. I Get by With a Little Help From my Friends: Examining Youths' Perceptions of Friend Support Throughout the Transition to High School

## Introduction

Throughout adolescence, building genuine and trusting friendships with peers is vital for personal growth and development (Cantin & Boivin, 2014; Wrzus et al., 2013). Supportive peer connections are crucial for adolescents as they offer a sense of belonging, acceptance, and reassurance (Benner et al., 2017; Morin et al., 2013). However, adolescents have a greater sensitivity to risks and rewards, especially those related to social and emotional experiences (e.g., Duell et al., 2018; van Duijvenvoorde et al., 2022). Youth also tend to participate in more frequent risky behaviours when they are with their peers (Chein et al., 2011; Gardner & Steinberg, 2005). As such, adolescents' heightened sensitivity to social influence and peer approval can shape their behaviour and decision-making process (e.g., Blakemore & Mills, 2014; Foulkes & Blakemore, 2016). Recent studies have highlighted the vital role that friendships play in adolescent development, especially with respect to navigating the social realm in high school (e.g., Benner et al., 2017; Felmlee et al., 2018; van Rens et al., 2019).

When transitioning to high school, teenagers experience considerable disruption in their social networks and may face difficulties maintaining friendships (Ng-Knight et al., 2019). This is partly because, unlike in elementary school, high school students may not have the same class schedule as their friends. Consequently, they have less interaction with their close friends during the day and spend most of their time with a constantly changing group of unfamiliar students (Akos & Galassi, 2004; Felmlee et al., 2018). As a result, adolescents' friendship structures shift during the transition to high school, and their central network of peers becomes smaller (Felmlee et al., 2018; Ng-Knight et al., 2019). Studies have shown that many high school freshmen struggle to adapt socially (Pratt & George, 2005; van Rens et al., 2019). Experts in the field have repeatedly emphasized the need for effective interventions to help students transition to high school (e.g., Benner & Graham, 2009; Krammer et al., 2023, Rice et al., 2011). The YWCA Youth Education Programs (YEP) offer gender-specific after-school group mentoring programs for 7th grade students, which focus on helping adolescents navigate the upcoming transition to high school, including fostering healthy relationships with their peers. The current study explores adolescents' perceptions of friend support as they transition to high

school and examines the impact of participation in the YEP on students' perceptions of friend support.

## The Impact of School Transition on Adolescents' Social Relationships

Studies have consistently found that moving to high school can negatively impact adolescents' social outcomes (Benner et al., 2011; Felmlee et al., 2018; Ng-Knight et al., 2019). Research has shown that after this transition, teenagers tend to feel more lonely, isolated, disconnected, and anxious in social situations (e.g., Benner et al., 2017; Felmlee et al., 2018). They also may experience decreased social acceptance, support from friends, and healthy peer relationships (Benner & Graham, 2009; Benner et al., 2017; Felmlee et al., 2018). On the other hand, having strong social connections during the teenage years and throughout high school can have a beneficial effect on youth's emotional and social well-being (Benner et al., 2017; Morin et al., 2013). In addition, having stable friendships and peer networks can lead to better academic outcomes, including increased engagement at school, academic success, and a reduced likelihood of dropping out (Benner et al., 2017; Carbonaro & Workman, 2013).

### *Differences Between Boys and Girls*

While school transitions can have an adverse impact on students regardless of their demographics (e.g., race/ethnicity, gender, socioeconomic status), the experience of transitioning to high school is not homogeneous. Some subgroups of students have been found to have a disproportionately higher risk of negative outcomes after the transition to high school, although results from empirical studies are mixed. For instance, some research suggests that girls experience more disruptions to their socio-emotional well-being than their male classmates (Benner & Graham, 2009; Grills-Taquechel et al., 2010), while other findings suggest that boys are not exempt from disruptions to socio-emotional well-being (Benner et al., 2017).

Regarding social outcomes, some research suggests that girls can find it more challenging than boys to adapt to changes in their friendship circles in high school. This is because girls tend to have, and place a higher value on, meaningful affective peer relationships during this developmental stage (Anderson et al., 2000; Delgado et al., 2022; Rudolph & Dodson, 2022). Some studies also suggest that girls express more concerns about the social environment during middle school (Anderson et al., 2000; Rice et al., 2011; van Rens et al., 2019), but it remains unclear whether this translates into different social experiences in high school. While studies have been conducted on gender differences in friendship patterns

throughout adolescence (e.g., see Davis, 2019), there is a dearth of empirical research that examines the varying social outcomes for boys and girls specifically after transitioning to high school.

## Interventions that Support Adolescents' Social Development

Research on positive youth development and educational transitions consistently supports providing youth with programs that help them navigate the challenges associated with the transition to high school (Bharara, 2020; Donaldson et al., 2023). In recent years, afterschool programs (ASPs) have evolved to supplement the school day by providing youth with prosocial opportunities to develop skills related to their social well-being (e.g., communication, relationships, connectedness). In addition to these skills, afterschool programs play a crucial role in supporting youth in their social and emotional development. These programs provide an opportunity for participants to develop their social and emotional intelligence, interpersonal and intrapersonal skills, and social competencies that are essential for youths' social development (Durlak et al., 2010; 2011; Himmelrich, 2012; Pelcher & Rajan, 2016).

One popular form of afterschool programming that promotes adolescents' social and emotional development is group mentoring. According to the 2016 Mentoring Program Survey, group-based mentoring models are more common than traditional one-to-one (1:1) mentoring programs (Garringer et al., 2017). Group mentoring models typically involve two to three mentors and 5 to 20 mentees (Kuperminc & Deutsh, 2021). While the programs often do not have a specific therapeutic focus, the general aim is to strengthen relationships, both interpersonal and intrapersonal (Cawood & Wood, 2014), and special attention is given to fostering supportive relationships between the mentors and mentees (Kuperminc, 2016). The group context is theorized to offer considerable benefits to youth, especially for social skills and relationships. First, because youth can engage with several mentors and mentees, they are not solely reliant on the relationship with one mentor to reap positive program benefits (Haddock et al., 2020). Through the act of interacting with other youth their age, the group context is anticipated to foster meaningful relationships, which in turn creates a sense of belonging and connectedness (Skudrzyk et al., 2009). Second, scholars argue that the group context strengthens key social processes that are essential for positive youth development, such as positive interpersonal connections with peers and a sense of belonging to a group; both of which are important to overcoming common challenges that arise during adolescence (Karcher

et al., 2006; Ma & Huebner, 2008). In group mentoring, participants are often encouraged to talk about personal struggles and issues that are common during this stage of life, such as values, relationships, and boundaries. Participating in these activities promotes positive social interactions and the development of meaningful peer relationships (Kuperminc et al., 2020).

## *Effectiveness of Youth Mentoring Programs on Social Outcomes*

A substantial body of summative research suggests that formal community-based youth mentoring programs are a promising intervention for the promotion of positive developmental outcomes for youth (e.g., psychological, social, academic). Meta-analytic studies have examined the impact of 1:1 youth mentoring programs on various outcomes and, with few exceptions, are consistent in their demonstration of conventionally small, positive, and statistically significant overall effects on youth (i.e., Burton, 2020; Christensen et al., 2020; DuBois et al., 2011; Eby et al., 2008; Raposa et al., 2019; Tolan et al., 2014). One-to-one youth mentoring programs have demonstrated effectiveness across several social domains such as improved social competence, social skills, social support, and interpersonal relationships (Burton, 2020; Christensen et al., 2020; DuBois et al., 2011; Raposa et al., 2019).

### Effects of Group-Based Mentoring

Kuperminc and Deutsh (2021) reviewed mentoring programs for youth in the U.S. and identified several positive short-term outcomes for group-based programs. In particular, the benefits of group mentoring were noted for social and relational outcomes such as group cohesion, a sense of belonging, and positive peer interactions, both within the youths' mentoring group as well as in their general social networks. Two recent meta-analyses considered the impact of program format (e.g., 1:1 mentoring, group-based mentoring) on youth outcomes and found that group mentoring has a positive impact on various aspects of youth's social development and functioning (Burton, 2020; Poon et al., 2021). However, Burton (2020) examined the combined impact of individual and group-based mentoring, while Poon and colleagues (2021) assessed the impact of group mentoring on youth in foster care. As such, the effectiveness of group-based mentoring as a standalone intervention on a more general population of youth (i.e., not limited to high-risk or vulnerable adolescents) is not well known. Additionally, it is unclear whether these positive impacts extend primarily to the youth's mentoring group or apply to their general social context. Further, very little is known about any differential impact of group mentoring programs by gender (Liang et al., 2013).

## Current Study

The purpose of the current study is to explore adolescents' perceptions of friend support as they transition to high school and examine the impact of the YEP on youths' perceptions of friend support. Specifically, the study seeks to answer the following research questions: (1) Do youth's perceptions of friend support change throughout the primary-secondary school transition? (2) Do perceptions of friend support vary by gender? (3) What are the short-term and long-term impacts of the YEP on students' perceptions of friend support? and (4) Is there an interaction effect of gender and YEP participation on students' perceptions of friend support?

As one of the key objectives of the YEP is to promote the development of skills and knowledge required for developing healthy relationships, I hypothesized that the YEP would have a positive effect on participants' perceptions of friend support. Additionally, I hypothesized that program outcomes would differ between boys and girls in the TX and CTL groups. Group mentoring programs have shown positive effects for youth, but limited research exists on the long-term and gendered impacts of such interventions, particularly with respect to friendships and peer relationships. Additionally, although some research suggests there may be differences in the transition experiences of girls and boys, little research has explored the potential gender differences in social outcomes post-transition.

# Method

## Procedure

The sampling frame includes all 7th grade students from the 31 schools that offered the YEP between Fall 2017 and Spring 2019 (approximately 2,425 students from 93 classrooms were approached to participate in the study). Youth were surveyed at three time points: Approximately two weeks before the YEP start date (Time 1; grade 7 pre-test), approximately two weeks after the YEP end date (Time 2; grade 7 post-test) and six months following the youth's transition to high school (Time 3; grade 8 follow-up).[14] All three surveys included the same set of open- and closed-ended questions, other than demographic/background

[14] Notably, as some programs were offered in the Fall semester (i.e., October – December) and some programs were offered in the Spring semester (i.e., February – May), the time to follow-up varied for students in the sample depending on when the program was delivered in a particular school (e.g., if the program was offered in the Fall, the time to follow-up for students was 14 months; whereas if the program was offered in the Spring, the time to follow up was nine months).

information (Survey 1 only) and program satisfaction questions (Survey 2 only). Survey 1 (grade 7 pre-test) and Survey 2 (grade 7 post-test) were administered in-person during class time, while Survey 3 (grade 8 follow-up) was administered online.

Refer to Chapter 2 for a detailed description of the YEP and Methods (i.e., study design, procedure, recruitment, data collection).

## Participants and Response Rate

Data were collected from 31 schools across metro Vancouver, and baseline (pre-test) surveys were completed by 798 students.[15] Post-test surveys were collected from 710 students (89% response rate from pre-test to post-test), and follow-up surveys from 205 students (74% attrition from pre-test to follow-up; intervention group 67% attrition; control group 88% attrition). See Table 4.1 for an overview of the sample size and attrition rates for each cohort, each treatment condition, and at each time point.

**Table 4.1. Survey Administration Schedule and Overview of Study Attrition**

| Wave of data collection | Cohort | Survey 1 (pre-test) n | Survey 2 (post-test) n | Survey 3 (follow-up) n |
|---|---|---|---|---|
| 1 | Fall 2017 | TX: 57<br>CTL: 76 | TX: 51<br>CTL: 66 | TX: 16<br>CTL: 15 |
| 2 | Spring 2018 | TX: 23<br>CTL: 21 | TX: 21<br>CTL: 19 | TX: 14<br>CTL: 2 |
| 3 | Fall 2018 | TX: 118<br>CTL: 261 | TX: 109<br>CTL: 239 | TX: 38<br>CTL: 53 |
| 4 | Spring 2019 | TX: 83<br>CTL: 159 | TX: 68<br>CTL: 137 | TX: 24<br>CTL: 43 |
| **Total N by group** | | **TX: 281<br>CTL: 517** | **TX: 249<br>CTL: 461** | **TX: 92<br>CTL: 113** |
| **Total N** | | **798** | **710** | **205** |
| **% attrition from previous time point** | | **/** | **11%** | **71%** |

[15] Regrettably, I do not have access to the exact response rate as complete records of the cohorts of students reached during data collection are unavailable. The total number of grade 7 students across the 31 schools and the number of classrooms from which the students were sampled remains unknown. Nonetheless, using partial records and data obtained from school/district websites, I estimate that approximately 2,425 grade 7 students were invited to take part in the study. Thus, the baseline response rate is approximated to be around 33%.

The analytic sample used in the current study includes the participants who responded to the School Success Profile (SSP) Friend Support scale and were missing ≤ 30% of the items on that scale. Baseline data for the (unadjusted) sample of 625 students who were included in the analysis are provided in the Results section.

## Measures

### *Dependent Variable*

#### Perceptions of Friend Support

The School Success Profile (SSP), developed by Gary Bowen and Jack Richman, is a validated questionnaire for middle and high school students. The Friend Support scale of the SSP is used to assess 15 core dimensions of students' attitudes and beliefs about their social environment (e.g., neighbourhood, school, friends, family) that are important dimensions for a youth's healthy development and school success. Various psychometric testing has supported the validity and reliability of the Friend Support scale (e.g., Bowen et al., 2005; Haragus et al., 2010; Rusu & Bejenaru, 2010).

Friend support is assessed by five items that examine youths' perceptions of their friends as "trustworthy and supportive and as responsive to their needs and feelings" (Bowen & Richman, 2007, p. 10). The survey items include: (a) I can trust my friends, (b) I am able to tell my problems to my friends, (c) I feel close to my friends, (d) I can count on my friends for support, and (e) I can talk to my friends about things that bother me. Students are asked to describe the level of trust and closeness they feel toward their friends on a three-point Likert scale (i.e., 1 = not like me, 2 = a little like me, 3 = a lot like me). Scores are summed across the five items, with high scores indicating a greater perception of supportive friendships; the minimum score is 5 and the maximum score is 15. The Cronbach's alpha for the current study is measured as 0.80.

In the current study, the dependent variable is set as a time series/time varying variable (Allison, 2017). As a time series variable, the dependent variable's association with past values (e.g., the pre-test score) is accounted for without adjusting/controlling for it in the model.

## *Independent Variables*

### YEP Involvement

Those who took part in the YEP program (i.e., the treatment (TX) group) were assigned a code of 1, and youth who did not participate in the program (i.e., the control (CTL) group) were coded as 0.

### Participant Gender

Participants were coded according to their self-reported gender (female = 1; male = 2).

### Time

Short-term outcomes assessed change in adolescents' perceptions of friend support from pre-test (Time 1) to post-test (Time 2). In the short-term analyses, time was specified as a discreet variable. For long-term outcomes, change in the outcome was examined over three time points (Time 1 = pre-test, Time 2 = post-test, Time 3 = follow-up), and time was specified as a continuous variable to account for the unevenly spaced time periods.

## *Control Variables*

To better understand the relationship between the independent and dependent variables, demographic variables were included as control variables in the analytic models. These include ethnicity, immigration status, school district, number of times the student has changed schools, family structure, number of siblings, participation in school-based activities, involvement in extra-curricular activities, and fear of being bullied. Baseline scores from four validated scales were also used: The Friend Behavior scale and the School Satisfaction Scale from the SSP (Bowen & Richman, 2007), as well as the Freedom from Anxiety scale and the Intellection and School Status scale from the Piers-Harris Self-Concept Scale for Children 2 (Piers & Herzberg, 2002). See Table 4.2 below for an overview of the control variables or refer to Chapter 2 for a detailed narrative description of each variable.

**Table 4.2. Description of Control Variables**

| Variable | Survey question | Code |
|---|---|---|
| School district | n/a | District 1 = 0; District 2 = 1 |
| Ethnicity | Race/Ethnicity (check as many as apply) | White = 1<br>Mix/visible minority = 2 |
| Family structure | Do both your mother and your father (biological or adoptive) live in the same house with you? | No = 0; Yes = 1 |
| Student immigration status | Were you born in Canada? | No = 0; Yes = 1 |
| Fear of being bullied | Are you ever afraid that someone will hurt, bother, or bully you at school? | No = 0; Yes = 1[a] |
| # siblings | How many siblings or step-siblings do you have? | Continuous |
| # schools attended | How many times have you changed schools? | 0 = never<br>1 = once<br>2 = twice<br>3 = more than twice |
| Extra-curricular activities | How many days per week do you participate in extra-curricular activities (e.g., sports, music, art, dance, tutoring, volunteering) that are not organized through your school? | 1 = not at all<br>2 = once per week<br>3 = 2-3x per week<br>4 = 4-5x per week<br>5 = 6-7x per week |
| School-based activities | Please indicate the school activities that you have or will have participated in during the current school year that are not part of class work (mark all that apply) | Composite count score: Continuous |
| # hrs spent studying | During the past month, about how many hours did you usually spend studying or doing homework each school night (Sunday-Thursday)? | 1 = none<br>2 = less than 1 hour<br>3 = about 1 hour<br>4 = about 2 hours<br>5 = about 3 hours<br>6 = more than 3 hours |
| Friend Behavior | Adapted from the School Success Profile (Bowen & Richman, 2008) | Composite score (range: 10-30): Continuous[b] |
| Freedom from Anxiety | Piers-Harris Self-Concept Scale for Children 2 (Piers & Herzberg, 2002) | Composite score (range: 0-14): Continuous[c] |
| School Satisfaction | School Success Profile (Bowen & Richman, 2008) | Composite score (range: 7-21): Continuous[d] |
| Intellectual and School Status | Adapted from the Piers-Harris Self-Concept Scale for Children 2 (Piers & Herzberg, 2002) | Composite score (range: 0-15): Continuous[e] |

[a] The survey question asked students to indicate fear of being bullied on a four-point scale (1 = never; 2 = sometimes; 3 = often; 4 = always). For the purpose of analysis, the variable was dichotomized.
[b] Higher scores indicate greater association with deviant peers.
[c] Higher scores indicate more freedom from anxiety (low feelings of anxiousness).
[d] Higher scores indicate greater school engagement.
[e] Higher scores indicate a greater self-perception of achieving tasks related to intellect and school-related tasks.

## Analytic Approach

Data entry and coding were completed in Microsoft Excel and exported into Stata. All analyses were conducted using Stata/SE 17.0.

### *Student Demographics*

Descriptive statistics were calculated for the TX group and CTL group and the full sample of students. Pearson's chi-squared tests and independent-samples t-tests were used to determine whether there were statistically significant differences in the demographics of the students who completed Survey 3 ('completers') and those who did not ('non-completers').

### *Missing Data Analysis and Imputation*

An important practical issue to consider with survey data is the occurrence of missing values in the dataset. Missing values on the validated scales was a concern, as item-nonresponse on a multi-item scale would lead to undercounted scale scores. Various descriptive procedures were used to investigate the amount of missingness in the dataset. First, the number of missing values per observation was examined, and patterns of missing values were examined for each of the multi-item scale variables. Overall, the level of missingness in the multi-item scales was low; the amount of missing data on each of the multi-item scales varied between 0% and 5%. While complete case analysis was considered (Harrell, 2001), to preserve the sample size, I opted to impute missing values for the multi-item scales. The imputation of missing values was approached cautiously; I opted to impute values for a respondent only in cases where $\leq$ 30% of the scale items were missing.[16] Little's test of missing completely at random (MCAR) was conducted for each validated scale and the missing data points were determined to be MCAR.

### *Imputing Missing Scale Items*

The imputation of missing data was first attempted using Multiple Imputation by Chained Equations (MICE); this method of imputation is generally considered to be the most rigorous approach to imputation available in Stata. Despite extensive efforts, the structure of the dataset

[16] E.g., if a respondent answered 3 of the 5 items on the Friend Support scale, the two missing values were imputed. If a respondent only answered 1 of the 5 scale items, the remaining missing values were not imputed, and that observation was subject to listwise deletion.

used in the current study was not amenable to MICE. [17] See the supplemental information provided on p. 123 for a detailed overview of the approaches to multiple imputation that were attempted. Although rigorous imputation methods (e.g., multiple imputation) are typically recommended, such approaches are generally only necessary when the proportion of missing data in a dataset is greater than 15% (Harrell, 2001). Harrell (2001) provides rough guidelines for imputation and suggests that when the proportion of missing data is less than 5%, single imputation is a viable option. Prior to calculating total scores for the validated measures, items with missing values were imputed through random hotdeck procedures (Schonlau, 2006). In random hotdecking, observations with missing data (recipients) are matched to similar observations that have no missing values (donors). This is achieved by selecting categorical variables that are known for both recipient and donor (e.g., demographic characteristics) as class variables, and creating a 'donor pool' of exact matches on the selected class variables (Andridge & Little, 2010; Lavrakas, 2008). A donor is then randomly selected from the donor pool and imputation is carried out whereby the recipient's missing values are replaced with the selected donor's observed values (Lavrakas, 2008). In the current study, recipients and donors were matched on four classification variables: Gender, ethnicity, student immigration status, and treatment condition (see Chapter 2 for a description of these variables).

### *Propensity Score Analysis*

In the absence of random assignment, researchers must consider the impact of selection bias on treatment effects (Craig, 2020). Selection bias is a major threat to the internal validity of observational studies because the comparison of TX and CTL groups (and subsequent claims about the causal inference of the program on participant outcomes) are complicated by selection effects and pre-treatment differences. In the current study, youth voluntarily opt to participate in the YEP, leading to potential selection bias. As such, without

[17] In particular, imputation at the item level (rather than at the scale score level) before calculating scale scores is recommended as the best practice (Eekhout et al., 2014; Gottschall et al., 2012). However, item-level imputation is not always possible/practically feasible (e.g., Mainzer et al., 2021; Newman, 2014; Rombach et al., 2018) and there were many problems with non-convergence when attempting MICE on the validated scales in the current study. The literature suggests that item-level imputation may fail due to computational infeasibility (e.g., too many variables in the model leading to failed model convergence), or numerical problems caused by perfect prediction or collinearity. Further, the scales in the current study were ordinal and the literature suggests that scales with ordinal response categories are well-known to suffer from problems with non-convergence (e.g., as illustrated by large simulation studies in which models with ordinal data failed to converge; e.g., Rombach et al., 2018). Such problems are commonly encountered in practice when imputing items in large-scale longitudinal studies because of the need to fit imputation models that contain a large number of highly correlated variables. Due to several issues with non-convergence, MICE was not a viable option in the current study.

adjusting for baseline differences, any subsequent differences in the outcome of interest between the TX and CTL group could be attributed to pre-treatment differences rather than participation in the program itself.

Propensity score analysis (PSA) is a statistical analysis technique for non-experimental data that is used to estimate the effect of a treatment while reducing selection bias (Rosenbaum & Rubin, 1983). The goal of PSA is to balance the TX and CTL group on a set of observable variables that are thought to impact selection bias so that causal inference of a program's impact can be made with more certainty (Rosenbaum & Rubin, 1983). Cham and West (2016) argue that "a successful propensity score analysis reduces bias in the estimate of the average treatment effect in a nonrandomized study, making the estimate more comparable with that obtained from a randomized experiment" (p. 427). PSA entails the use of a propensity score, which is "the conditional probability of assignment to a particular treatment given a vector of observed covariates" (Rosenbaum & Rubin, 1983, p. 41). In other words, it is the predicted probability of group membership to either the TX or CTL group based on a respondent's observed covariates such as demographic variables, baseline characteristics, or other pre-treatment factors (Baser, 2006). The following covariates were used to estimate propensity scores in the current study: Program session (i.e., Fall vs. Spring), school district, participant gender, participant ethnicity, student immigration status, family structure, # siblings, # schools attended, participation in extra-curricular activities, participation in school-based activities, # hours spent studying, fear of bullying, afterschool supervision, and screentime. See Chapter 2 for more details on each variable.

Due to the presence of missing covariate values in the dataset, several methods for handling missing data in the context of propensity score analysis with partially observed covariates were examined (e.g., imputation with constant plus missingness indicators, logistic regression, general location modeling, classification tress, random forests, generalized boosted modeling; see Cham & West, 2016). The strategy of 'imputation with constant plus missingness indicators' was used in the current study to impute missing covariates for propensity score estimation (Cham & West, 2016). Using this method, missing covariate values are imputed using arbitrary constant values (in this case, the mean of the variable). Additionally, because the *pattern* of missing covariates may be predictive of treatment assignment, distinct missingness indicators are also included in the estimation model (Cham & West, 2016; Rosenbaum, 2010; Rosenbaum & Rubin, 1984). The values of the propensity scores are then estimated with logistic regression using the imputed covariates and the missingness indicators (Cham & West,

2016; Rosenbaum, 2010). Stuart (2010) suggests that although this approach is “generally not appropriate for handling missing data, it is appropriate in the context of propensity score estimation” (p. 14). In the context of propensity score estimation, this approach has been shown to perform well in reducing the imbalance in covariates (Cham & West, 2016).

Next, propensity scores were calculated. A variety of techniques can be used to estimate propensity scores (see Austin, 2009; Stuart, 2010); however, the most frequent approach used is logistic regression (Austin, 2009). When logistic regression is used to estimate propensity scores, a binary outcome (e.g., intervention (TX = 1) or no intervention (CTL = 0)) is predicted from a set of covariates that are theorized to influence group membership (Craig, 2020). The resulting propensity score is the estimated probability that an individual will be exposed to the treatment (e.g., the program/intervention). Propensity scores range between 0 and 1; scores closer to 1 indicate a higher probability of an individual being in the treatment group.

**Inverse Probability Treatment Weights (IPTWT)**

In the current study, propensity score weighting was used to rule out any systematic pre-treatment differences between the TX and CTL groups. By weighting each observation by the inverse of their probability of receiving treatment, systematic differences in observed baseline covariates are reduced or eliminated between TX and CTL groups (Chesnaye et al., 2022). Inverse probability treatment weights (IPTWTs) were calculated for each participant with Stata’s doubly robust estimation command, wherein IPTWTs were calculated as $1/e$ (where $e$ is the estimated propensity score) for the TX group and $1/(1-e)$ for the CTL group (Lunceford & Davidian, 2004). When using IPTWTs, the influence of extreme weights on the analysis is an important methodological consideration, as participants with very large or very small weights can exert a disproportionate influence and impact the precision of effect estimates (Chesnaye et al., 2022). In the current study, IPTWTs were truncated at the 1$^{st}$ and 99$^{th}$ percentile to trim weights at the extreme ends of the distribution (Chesnaye et al., 2022).

**Balance Diagnostics**

To assess the comparability of youth in the TX and CTL groups after weighting, several diagnostic tests were conducted to check that balancing properties were satisfied. The balance diagnostics included comparing the standardized mean differences (SMD) of covariates before and after weighting to assess whether the groups were statistically balanced (Austin, 2009; Stuart, 2010). Variables were deemed well-balanced if they had an SMD < 0.20, which is

conventionally considered a ‘negligible’ amount of imbalance (Rubin, 2001; Stuart, 2010). A visual examination of box plots and kernel density plots was also conducted to compare the distributions of continuous variables before and after weighting (Austin & Stuart, 2015; Chesnaye et al., 2022; Garrido et al., 2014). See the supplementary table provided at the end of this chapter for the output of the SMD balance diagnostics. For the sample of 625 students, all baseline differences were less than 0.20 standardized differences after weighting.

### *Multilevel Modelling*

Multilevel data structures, in which units of analysis are clustered within one another, are common in longitudinal school-based research (e.g., data are collected from students within schools and/or over multiple points in time; Peugh, 2010). Statistically, the clustered structure of multilevel data is problematic because it violates the assumption of independent errors; an assumption that is crucial in common data analysis models such as ordinary least squares regression and analysis of variance (Steenbergen & Jones, 2002). Ignoring the correlation between errors can result in smaller standard errors and an increased probability of Type 1 errors; both of which may result in inaccurate conclusions about treatment effects (Hair & Favero, 2019; Steenbergen & Jones, 2002). Multilevel modelling (MLM) is a regression-based approach used to model the relationship between dependent and independent variables while accounting for the correlated nature of the data. In the current study, change in the outcome measure was evaluated through three-level multilevel regression models. Specifically, the models were used to account for correlated residuals across time points (Level 1). Additionally, because students completed multiple surveys (and students’ pre-test responses are likely to be correlated with their responses at subsequent time points), the clustering of repeated measures within each student was accounted for in Level 2. Finally, the clustering of students within their elementary school was accounted for in Level 3. Accounting for clustering at the school level is important because school-level factors such as teachers, school climate, similar classmates, etc., may result in student responses in School A being more similar than student responses at School B and School C, etc. If this clustering is not accounted for in the model, the correlation of data points will not be captured, and the model estimates will be inaccurate. IPTWTs were included in the MLMs to reduce systematic baseline differences between the TX and CTL groups. To mitigate lingering confounding bias following the use of propensity scores, a double-robust adjustment approach was used, which entails the use of covariates in the regression model and offers the possibility of enhancing the precision of causal inference in observational studies (Nguyen et al., 2017). For the modelling of short-term outcomes, an exchangeable

correlation structure was specified to account for the correlation of residuals across time points (i.e., repeated measures on one individual), and a first-order autoregression correlation structure was used to model the long-term outcomes (which includes three time points (pre-test, post-test, and follow-up)). Before implementing the MLM regressions, all model assumptions were checked and satisfied.

# Results

## Descriptive Statistics and Correlations

Table 4.3 shows the descriptive statistics for the analytic sample. Of the 625 students in the sample, 216 students participated in the YEP (TX group) and 409 students were in the CTL group. Most of the study sample was female (53%), identified as a visible ethnic minority (81%) and was born in Canada (73%). On average students had one or two siblings or step-siblings ($M$ = 1.53, $SD$ = 1.18) and reported that both of their biological parents lived in the same house (i.e., were married/common law; 84%). In terms of the school setting, the majority of students had changed schools one time ($M$ = 0.81, $SD$ = 1.03) and 44% said they were afraid that someone at school would bully them. With respect to organized activities, the sample seldom participated in school-based activities during school hours ($M$ = 0.30, $SD$ = 0.76) but participated in extra-curricular activities once per week ($M$ = 2.87, $SD$ = 1.21).[18] After weighting, all baseline differences between the TX and CTL groups were less than 0.20 standardized differences. The assessment of all other balance diagnostics was satisfactory, indicating that the TX group and CTL group can essentially be considered equivalent at baseline. See the supplementary table provided at the end of this chapter for the comparative balance analysis on the unadjusted and adjusted (weighted and trimmed) sample and a description of the weighted sample used in the analyses.[19]

[18] 1 = not at all; 2 = once per week; 3 = 2-3x per week; 4 = 4-5x per week; 5 = 6-7x per week.

[19] The long-term outcomes were conducted on the subset of participants who completed the follow-up survey after transitioning to high school (grade 8). For this subsample of 185 students, all baseline differences were less than 0.20 standardized differences after weighting, except for one variable (SSP Friend Support), which was slightly unbalanced after weighting (SMD = 0.326).

**Table 4.3. Sample Characteristics**

| | Full sample (*N* = 625) *n* (%) | Intervention group (*n* = 216) *n* (%) | Control group (*n* = 409) *n* (%) | Standardized mean difference | |
|---|---|---|---|---|---|
| | | | | Before weighting | After weighting |
| Gender | | | | | |
| Female | 330 (52.8%) | 129 (59.7%) | 201 (49.1%) | | |
| Male | 295 (47.2%) | 87 (40.3%) | 208 (50.9%) | 0.181 | 0.070 |
| Ethnicity | | | | | |
| White | 119 (19.0%) | 35 (16.2%) | 84 (20.5%) | | |
| Visible minority | 506 (81.0%) | 181 (83.8%) | 325 (79.5%) | 0.095 | 0.016 |
| Biological parents live in the same house as you? | | | | | |
| No | 100 (16.0%) | 31 (14.3%) | 69 (16.9%) | | |
| Yes | 525 (84.0%) | 185 (85.7%) | 340 (83.1%) | 0.073 | 0.008 |
| Were you born in Canada? | | | | | |
| No | 166 (26.6%) | 56 (25.9%) | 110 (26.9%) | | |
| Yes | 459 (73.4%) | 160 (74.1%) | 299 (73.1%) | 0.044 | 0.041 |
| Are you ever afraid that someone will bully you at school? | | | | | |
| No | 349 (55.8%) | 114 (52.8%) | 235 (57.5%) | | |
| Yes | 276 (44.2%) | 102 (47.2%) | 174 (42.5%) | 0.086 | 0.024 |
| | *M* (*SD*) | *M* (*SD*) | *M* (*SD*) | --- | --- |
| # siblings or step-siblings | 1.53 (1.18) | 1.62 (1.21) | 1.48 (1.16) | -0.132 | -0.076 |
| # times you have changed schools | 0.81 (1.03) | 0.80 (1.01) | 0.82 (1.05) | 0.016 | -0.011 |
| # days per week in extra-curricular activities | 2.87 (1.21) | 2.81 (1.19) | 2.89 (1.22) | 0.021 | 0.039 |
| # days per week in activities during school hours | 0.30 (0.76) | 0.46 (0.92) | 0.21 (0.69) | -0.285 | -0.030 |

There were some notable differences in the demographics of those who completed the follow-up survey and those who did not. Specifically, the sample of ‘completers’ had significantly more females ($p < .001$) and more students who completed the follow-up survey reported that their parents were either married or common-law ($p < .05$). Additionally, in elementary school, completers had fewer siblings/step-siblings ($p < .05$), spent more days per week in extra-curricular activities ($p < .05$) and more days/week in activities during school hours ($p < .05$). See Table 4.4 for details.

**Table 4.4. Difference Between Completers and Non-Completers of the Follow-Up Survey**

| | Full sample (*N* = 625) *n* (%) | Completers (*n* = 185) *n* (%) | Non-completers (*n* = 440) *n* (%) | Difference between completers and non-completers | |
|---|---|---|---|---|---|
| | | | | Test statistic | p-value |
| Gender | | | | | |
| Female | 330 (52.8%) | 123 (66.5%) | 207 (47.1%) | $X^2$ = 19.752 | 0.000*** |
| Male | 295 (47.2%) | 62 (33.5%) | 233 (52.9%) | | |
| Ethnicity | | | | | |
| Caucasian | 119 (19.0%) | 37 (20.0%) | 82 (18.6%) | $X^2$ = 0.157 | 0.692 |
| Visible minority | 506 (81.0%) | 148 (80.0%) | 358 (81.4%) | | |
| Biological parents live in the same house as you? | | | | $X^2$ = 4.225 | 0.040* |
| No | 100 (16.0%) | 41 (22.2%) | 125 (28.4%) | | |
| Yes | 525 (84.0%) | 144 (77.8%) | 315 (71.6%) | | |
| Born in Canada? | | | | | |
| No | 166 (26.6%) | 21 (11.3%) | 79 (17.9%) | $X^2$ = 2.606 | 0.106 |
| Yes | 459 (73.4%) | 164 (88.7%) | 361 (82.1%) | | |
| Are you ever afraid that someone will bully you at school? | | | | $X^2$ = 0.876 | 0.349 |
| No | 349 (55.8%) | 98 (53.0%) | 251 (57.1%) | | |
| Yes | 276 (44.2%) | 87 (47.0%) | 189 (42.9%) | | |
| | ***M* (*SD*)** | ***M* (*SD*)** | ***M* (*SD*)** | **---** | **---** |
| Number siblings or step-siblings | 1.53 (1.18) | 1.37 (1.08) | 1.60 (1.21) | t = 2.242 | 0.025* |
| Number times changed schools | 0.81 (1.03) | 0.81 (1.02) | 0.81 (1.04) | t = -0.019 | 0.985 |
| Number days per week in extra-curricular activities | 2.87 (1.21) | 3.02 (1.18) | 2.80 (1.22) | t = -2.024 | 0.044* |
| Number days per week in activities during school hours | 0.30 (0.76) | 0.41 (0.93) | 0.23 (0.67) | t = -2.401 | 0.017* |
| Friend support (pre-test) | 12.47 (2.37) | 12.62 (2.23) | 12.41 (2.48) | t = -0.999 | 0.318 |
| Friend support (post-test) | 12.60 (2.50) | 12.77 (2.52) | 12.53 (2.48) | t = -1.124 | 0.262 |

The preliminary correlation analysis revealed several small significant correlations between many of the variables that were included in the analysis (including those that were used for propensity score estimation). See Table 4.5 for detailed information on the bivariate correlations.

**Table 4.5. Bivariate Correlations for Perceptions of Friend Support**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SSPfrd1 | 1.0000 | | | | | | | | | | | |
| SSPfrd2 | 0.5288* | 1.0000 | | | | | | | | | | |
| SSPfrd3 | 0.3649* | 0.5346* | 1.0000 | | | | | | | | | |
| TxCtr | -0.0553 | 0.0060 | 0.0655 | 1.0000 | | | | | | | | |
| Session | -0.0133 | 0.0676 | -0.0552 | 0.0289 | 1.0000 | | | | | | | |
| District | -0.0013 | 0.0585 | 0.0718 | 0.2279* | -0.1626* | 1.0000 | | | | | | |
| Gender | -0.1111* | -0.0466 | -0.0950 | -0.0860* | 0.0064 | -0.0000 | 1.0000 | | | | | |
| Ethnicity | 0.0329 | -0.0091 | -0.0337 | 0.0039 | -0.1601* | 0.2778* | 0.0187 | 1.0000 | | | | |
| BornCan | 0.0611 | 0.1124* | 0.0159 | 0.0067 | 0.1028* | -0.0286 | 0.0683 | -0.2597* | 1.0000 | | | |
| FamStruc | 0.0745* | 0.1043* | 0.0064 | 0.0153 | -0.0556 | 0.0010 | -0.0367 | 0.0989* | -0.0296 | 1.0000 | | |
| #sibs | -0.0102 | 0.0047 | 0.0199 | 0.0556 | -0.0203 | -0.1049* | -0.0215 | -0.0331 | -0.0091 | -0.1027* | 1.0000 | |
| #schools | -0.0098 | -0.0510 | -0.0891 | 0.0054 | -0.0453 | 0.0510 | -0.0224 | 0.0807* | -0.2994* | -0.0971* | 0.1058* | 1.0000 |
| Excurrics | 0.1218* | 0.1602* | -0.0058 | -0.0197 | 0.1003* | 0.0053 | 0.0465 | -0.0646 | 0.1915* | 0.1102* | -0.1427* | -0.0809* |
| Bully | -0.1156* | -0.1277* | -0.1926* | 0.0649 | 0.0093 | 0.0852* | -0.2059* | 0.0798* | -0.1099* | -0.0096 | 0.0120 | 0.0668 |
| Supervision | -0.0325 | -0.0480 | -0.0838 | -0.0103 | 0.1290* | -0.0806* | 0.0347 | -0.2229* | 0.0616 | -0.1208* | -0.0779* | 0.0499 |
| #hrs study | 0.0308 | -0.0541 | 0.1069 | 0.1024* | -0.0190 | 0.1791* | -0.0907* | 0.1149* | -0.0121 | 0.0646 | -0.0370 | 0.0074 |
| #hrs screen | -0.0692 | -0.1173* | -0.0071 | -0.0026 | -0.0049 | 0.0391 | 0.1117* | 0.0279 | -0.0222 | -0.0233 | 0.0160 | -0.0403 |
| SSPschool | 0.4181* | 0.3218* | 0.2157* | -0.0232 | -0.0293 | -0.0679 | -0.0564 | 0.0380 | 0.0778* | 0.0892* | -0.0140 | -0.0263 |
| SSPfrdbeh | -0.0684 | -0.0448 | -0.0967 | 0.0192 | 0.1155* | 0.0507 | 0.1506* | -0.1068* | -0.0154 | -0.0740* | 0.0485 | 0.0710* |
| PHanxiety | 0.1707* | 0.1717* | 0.1607* | -0.0756* | -0.0198 | -0.1549* | 0.2544* | -0.0098 | 0.1036* | 0.0750* | -0.0225 | -0.0483 |
| PHintell | 0.2893* | 0.2801* | 0.2272* | -0.0987* | 0.0192 | -0.1369* | 0.0272 | -0.0463 | 0.1011* | 0.1156* | -0.0324 | 0.0052 |
| School activities | 0.1161* | 0.0878* | -0.0444 | 0.1365* | 0.0122 | 0.3329* | -0.0446 | 0.0616 | 0.0242 | -0.0103 | -0.0507 | 0.0257 |

| | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Excurrics | 1.0000 | | | | | | | | | |
| Bully | -0.0833* | 1.0000 | | | | | | | | |
| Supervision | 0.0477 | -0.0546 | 1.0000 | | | | | | | |
| #hrs study | 0.0095 | 0.1011* | -0.0103 | 1.0000 | | | | | | |
| #hrs screen | -0.2039* | 0.0552 | 0.0887* | -0.0105 | 1.0000 | | | | | |
| SSPschool | 0.1716* | -0.1412* | -0.0250 | 0.0062 | -0.1682* | 1.0000 | | | | |
| SSPfrdbeh | 0.0160 | 0.0220 | 0.1311* | -0.0020 | 0.1824* | -0.1357* | 1.0000 | | | |
| PHanxiety | 0.1822* | -0.4051* | -0.0524 | -0.0745* | -0.1883* | 0.3486* | -0.0898* | 1.0000 | | |
| PHintell | 0.2272* | -0.2211* | -0.0095 | 0.0144 | -0.2745* | 0.4716* | -0.1311* | 0.5265* | 1.0000 | |
| School activities | 0.0490 | 0.0104 | 0.0084 | 0.0864* | 0.0079 | 0.0518 | -0.0748* | -0.0133 | 0.0065 | 1.0000 |

Note: SSPfrd1 = Friend support scale pre-test; SSPfrd2 = Friend support scale post-test; SSPfrd3 = Friend support scale follow-up; TxCtr = YEP involvement; Session = Program session (i.e., Fall vs. Spring); District = School district; Gender = Participant gender; Ethnicity = Participant ethnicity; BornCan = Student immigration status; FamStruc = Family structure; #sibs = Number of siblings; #schools = Number of schools attended; Excurrics = Participation in extra-curricular activities; School activities = Participation in school-based activities; #hrs study = Number of hours spent studying; Bully = Fear of bullying; Supervision = Afterschool supervision; #hrs screen = Screentime; SSPschool = School Satisfaction scale (pre-test); SSPfrdbeh = Friend behavior scale (pre-test); PH anxiety = Freedom from anxiety scale (pre-test); PHintell = Intellectual and school status scale (pre-test)

## Short-Term Findings

An MLM was used to examine students' perceptions of friend support in elementary school, as well as the short-term impact of the YEP on students' perceptions of friend support (i.e., pre-test to post-test). No significant main effects were found for YEP involvement ($B$ = -.321, $z$ = -1.53, $p$ = .13) or time ($B$ = -.237, $z$ = -1.59, $p$ = .11). These findings indicate that the TX group did not differ from the CTL group at baseline (pre-test) with respect to perceived friend support, and youths' perceptions of friend support did not meaningfully differ from pre-test to post-test. Interestingly, male participants reported significantly lower levels of friend support compared to their female counterparts, indicating a gender bias in the perception of friend support ($B$ = -0.397, $z$ = -2.04, $p$ < .05).

Additionally, results indicate no significant two-way interaction between YEP involvement and time ($B$ = .350, $z$ = 1.12, $p$ = .26), indicating that YEP participants did not differ in their perceptions of friend support at post-test compared to those in the CTL group. The two-way interaction of YEP involvement and gender was also not significant ($B$ = -.449, $z$ = -0.97, $p$ = .33), suggesting no significant difference in perceptions of friend support between male and female YEP participants at baseline. The three-way interaction between YEP involvement, time, and gender was also not statistically significant ($B$ = .036, $z$ = 0.06, $p$ = .95), meaning that there was no difference in perceptions of friend support between youth who participated in B4R and those who participated in WTML/TJM over time. With respect to the covariates, students who participated in more school-based activities reported significantly higher perceptions of friend support ($p$ < .001), as did youth who reported higher levels of school satisfaction ($p$ < .001) and greater self-perception of tasks related to intellect and school ($p$ < .001). The random-effects parameters suggest that there is no variation at the primary school level above and beyond what is already controlled for in the model and that individual-level differences have a larger effect on perceptions of friend support. See Table 4.6.

**Table 4.6. Multilevel Regression for Short-Term Outcomes (N = 625)**

| Dependent Variable | *B* | Robust S.E. | z | P > \|z\| | 95% C.I. | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| YEP Involvement | -0.321 | 0.210 | -1.53 | 0.125 | -0.733 | 0.090 |
| Time | -0.237 | 0.149 | -1.59 | 0.111 | -0.528 | 0.054 |
| Gender | -0.397 | 0.194 | -2.04 | 0.041* | -0.779 | -0.016 |
| YEP Involvement*time | 0.350 | 0.312 | 1.12 | 0.262 | -0.262 | 0.962 |
| YEP Involvement*gender | -0.449 | 0.461 | -0.97 | 0.330 | -1.35 | 0.456 |
| Time*gender | 0.421 | 0.247 | 1.70 | 0.089 | -0.063 | 0.905 |
| YEP Involvement*time*gender | | | | | | |
| Tx*2*Male | 0.036 | 0.576 | 0.06 | 0.950 | -1.09 | 1.17 |
| School district | 0.422 | 0.176 | 2.39 | 0.017* | 0.077 | 0.768 |
| Ethnicity | 0.282 | 0.255 | 1.11 | 0.268 | -0.217 | 0.783 |
| Family structure | 0.274 | 0.265 | 1.04 | 0.300 | -0.244 | 0.793 |
| Student immigration status | 0.260 | 0.233 | 1.11 | 0.265 | -0.197 | 0.718 |
| Fear of bullying | -0.191 | 0.186 | -1.03 | 0.304 | -0.556 | 0.173 |
| # siblings | 0.076 | 0.070 | 1.08 | 0.280 | -0.062 | 0.213 |
| # schools attended | -0.045 | 0.074 | -0.60 | 0.545 | -0.190 | 0.100 |
| Extra-curricular activities | 0.121 | 0.069 | 1.77 | 0.077 | -0.013 | 0.256 |
| School-based activities | 0.164 | 0.042 | 3.88 | 0.000*** | 0.081 | 0.247 |
| Friend Behavior | -0.006 | 0.033 | -0.17 | 0.868 | -0.070 | 0.059 |
| Freedom from Anxiety | -0.037 | 0.032 | -1.15 | 0.250 | -0.101 | 0.026 |
| School Satisfaction | 0.261 | 0.033 | 7.90 | 0.000*** | 0.196 | 0.325 |
| Intellectual and School Status | 0.110 | 0.020 | 5.47 | 0.000*** | 0.071 | 0.150 |
| *Constant* | 6.20 | 1.05 | 5.92 | 0.000*** | 4.15 | 8.26 |

| Random-effects parameters | Estimate | Robust S.E. | 95% C.I. Lower | 95% C.I. Upper |
|---|---|---|---|---|
| elem_school: Identity var(_cons) | 0.098 | 0.074 | 0.022 | 0.428 |
| id: Identity var(_cons) | 1.916 | 0.135 | 1.669 | 2.199 |
| Residual: Exchangeable var(e) | 2.953 | 0.136 | 2.700 | 3.233 |
| cov(e) | -0.009 | 0.123 | -0.250 | 0.233 |

Log pseudolikelihood = -5278.9702; Wald chi2(20) = 660.29; Prob > chi2 = 0.0000
*p < .05, **p < .01, ***p < .001

## Long-Term Findings

Students' perceptions of friend support across the transition to high school, as well as the long-term impact of the YEP, were examined for the subset of participants who completed the follow-up survey after transitioning to high school (grade 8; N = 185 (CTL = 106; TX = 79)). Due to the considerable attrition of the study sample on the follow-up survey, the findings with respect to the long-term impact of the YEP should be considered preliminary. Similar to above, an MLM was used to examine the relationship between program participation, time (pre-test to follow-up), gender, and perceptions of friend support. As shown in Table 4.7, the analysis shows a significant main effect of gender ($B$ = -1.28, $z$ = -2.51, $p$ < .05), with boys in the sample reporting significantly lower levels of support from their friends than did girls in the sample. This finding suggests that gender plays a crucial role in determining the overall levels of friend support reported by youth. There was also a significant two-way interaction between YEP involvement and time ($B$ = .470, $z$ = 3.06, $p$ < .01), indicating that YEP participants experienced a significant increase in the perception of friend support over time, compared to their counterparts in the CTL group. This finding is particularly noteworthy as it emphasizes the positive influence of YEP involvement on adolescents' perceptions of friend support as they transition from elementary school to high school. The analysis did not show any other significant main effects or interaction effects.

The findings show that fear of bullying is associated with a lower perception of friend support ($p$ < .05), as was school district ($p$ < .01) and a greater association with delinquent peers ($p$ < .05). Additionally, youth who reported higher levels of school engagement ($p$ < .001) and greater self-perception related to intellect and school-related tasks ($p$ < .05) reported significantly higher friend support. Similar to the short-term findings, the random-effects parameters suggest that there is no variation at the primary school level above and beyond what is already controlled for in the model.

**Table 4.7. Multilevel Regression for Long-Term Outcomes (N = 185)**

| Dependent Variable | *B* | Robust S.E. | z | P > \|z\| | 95% C.I. | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| YEP Involvement | -0.842 | 0.440 | -1.91 | 0.056 | -1.71 | 0.021 |
| Time | -0.293 | 0.163 | -1.79 | 0.073 | -0.613 | 0.027 |
| Gender | -1.28 | 0.511 | -2.51 | 0.012* | -2.28 | -0.278 |
| YEP Involvement*time | 0.470 | 0.154 | 3.06 | 0.002** | 0.169 | 0.772 |
| YEP Involvement*time*gender | | | | | | |
| ctr#Male | 0.366 | 0.258 | 1.42 | 0.156 | -0.140 | 0.872 |
| tx#Male | 0.347 | 0.205 | 1.69 | 0.091 | -0.056 | 0.749 |
| School district | 0.890 | 0.302 | 2.94 | 0.003** | 0.297 | 1.483 |
| Ethnicity | 0.313 | 0.577 | 0.54 | 0.588 | -0.818 | 1.444 |
| Family structure | -0.299 | 0.532 | -0.56 | 0.574 | -1.34 | 0.743 |
| Student immigration status | -0.457 | 0.287 | -1.59 | 0.112 | -1.02 | 0.106 |
| Fear of bullying | -0.567 | 0.283 | -2.00 | 0.046* | -1.12 | -0.011 |
| # siblings | 0.093 | 0.147 | 0.64 | 0.524 | -0.195 | 0.383 |
| # schools attended | -0.149 | 0.135 | -1.11 | 0.268 | -0.414 | 0.115 |
| Extra-curricular activities | -0.057 | 0.119 | -0.48 | 0.631 | -0.290 | 0.176 |
| School-based activities | -0.201 | 0.161 | -1.25 | 0.210 | -0.516 | 0.114 |
| Friend Behavior | -0.150 | 0.070 | -2.15 | 0.032* | -0.286 | -0.013 |
| Freedom from Anxiety | -0.014 | 0.040 | -0.36 | 0.719 | -0.092 | 0.064 |
| School Satisfaction | 0.252 | 0.069 | 3.66 | 0.000*** | 0.117 | 0.388 |
| Intellectual and School Status | 0.076 | 0.034 | 2.23 | 0.026* | 0.009 | 0.143 |
| *Constant* | 10.2 | 1.90 | 5.39 | 0.000*** | 6.50 | 13.9 |

| Random-effects parameters | Estimate | Robust S.E. | 95% C.I. | |
|---|---|---|---|---|
| | | | Lower | Upper |
| elem_school: Identity | | | | |
| var(_cons) | 0.228 | 0.143 | 0.067 | 0.778 |
| id: Identity | | | | |
| var(_cons) | 1.000 | 0.915 | 0.165 | 6.028 |
| Residual: AR(1) | | | | |
| rho | 0.234 | 0.145 | -0.062 | 0.493 |
| var(e) | 3.709 | 0.771 | 2.467 | .5.575 |

Log pseudolikelihood = -2419.7567; Wald chi2(19) = 944.61; Prob > chi2 = 0.0000
*p < .05, **p < .01, ***p < .001

The findings from the long-term analysis indicate that program benefits were experienced into the first semester of grade 8 (i.e., from baseline to follow-up the TX group reported high perceptions of friend support compared to the CTL group). These results are

suggestive that YEP participants learned knowledge, skills, and/or coping strategies that helped them navigate friendships throughout the transition to high school, allowing for a more positive experience than if they had not participated in the program.

## Discussion

The current study aimed to examine adolescents' perceptions of friend support throughout the transition to high school and assess the impact of the YEP afterschool group mentoring programs on adolescent perceptions of friend support. The findings did not show any significant change in grade 7 students' perceptions of friend support over time. However, both regression models showed a main effect of gender (i.e., direct influence) on students' perception of friend support. Specifically, boys in the full sample reported significantly lower perceptions of friend support compared to girls, both at the end of grade 7 and six months after transitioning to high school. This finding is not altogether surprising, as some research has found that across the period of adolescence (but particularly in early adolescence) boys perceive less support in their close friendships and report lower quality friendships than do girls (Davis, 2019; de Goede et al., 2009; Floody et al., 2019; Way, 2013; Way & Greene, 2006). Nevertheless, this finding is important because developing and maintaining strong social connections during high school can have a significant positive impact on an individual's overall emotional and social well-being (e.g., Benner et al., 2017; Morin et al., 2013). Furthermore, a stable network of friends is linked to better academic outcomes, including higher levels of engagement, achievement, and a lower probability of dropping out (e.g., Benner et al., 2017; Carbonaro & Workman, 2013). The possibility that boys may experience more difficulties adapting to changes in their social circles around the transition to high school is concerning. Challenges with adapting to social changes in high school could potentially result in more negative consequences, which can have a long-lasting impact on their high school experience (e.g., Benner et al., 2017; Felmlee et al., 2018). Together, these findings underscore the need for greater attention on the social well-being of high school students, particularly boys, and the importance of developing strategies to help them adapt to changes in their social networks.

Overall, these results enhance our understanding of youth development by providing empirical evidence for gender differences and social outcomes, such as perceptions of friend support, throughout the transition to high school. The findings indicate notable differences in how grade 7 boys and girls perceive friend support, emphasizing the importance of addressing the unique needs of both genders to promote supportive friendships and peer relationships, and

foster the development of knowledge and skills with respect to healthy relationships. These findings support previous research that highlights the crucial role of individual differences and contextual factors, such as gender, in developing effective interventions for youth (e.g., Liang et al., 2013). Specifically, it suggests that gender should be considered when developing strategies to promote friend support.

Although the findings did not show any immediate (i.e., short-term) impact of YEP participation on perceptions of friend support, adolescents who participated in the YEP had significantly higher perceptions of friend support compared to those who did not participate in the program in the long term (after transitioning to high school). Program effects did not vary by gender (i.e., in the TX group, there were no significant differences in perceptions of friend support between B4R and WTML/TJM participants), indicating that the YEP is equally effective at fostering supportive friendships and peer relationships for both boys and girls in the long term. Altogether, the current study suggests that group mentoring programs, like WTML/TJM and B4R programs, can equip boys and girls with the knowledge, skills, and tools to tackle peer-related challenges that arise throughout their transition to high school. If the YEP were to expand, it would be interesting to explore the possibility of incorporating a high school component into YEP (e.g., booster sessions) to help students continue to build on positive gains.

Group mentoring programs in the after-school context can offer youth valuable opportunities to develop skills related to their social well-being, such as communication and relationships, and strengthening peer relationships (Cawood & Wood, 2014; Kuperminc, 2016). These programs can also support youth in their social development by promoting social and emotional learning and enhancing interpersonal skills (Durlak et al., 2010; 2011; Himmelrich, 2012; Pelcher & Rajan, 2016). These findings contribute to the limited body of methodologically rigorous and longitudinal evaluations on group-based mentoring for adolescents and fill an important gap in the literature by examining group-level gender differences in youth outcomes throughout the transition to high school. Additionally, the study's findings could help to inform school policies or programs that aim to improve friend support among students.

Overall, more empirical research is required to develop effective interventions that help youths transition successfully to high school (Bharara, 2020; Donaldson et al., 2023). More research is needed with respect to the specific components of group mentoring programs that are linked to successful youth outcomes (e.g., program content, group format, quality or quantity

of mentors). Future research should continue to examine how gender affects social outcomes during the transition to high school. Future research should also compare the effects of gender-tailored and non-gender tailored group mentoring programs to determine which approach has more beneficial outcomes for boys and girls. There is also a greater need for rigorous longitudinal research that follows youth for an extended period before and after the transition to high school.

## Limitations

One limitation of the study's data is the high rate of non-response on the follow-up survey and the potential influence of attrition bias on the findings regarding the long-term program impact. In contrast to the pre-test and post-test surveys, which were administered during class time, the follow-up survey administration did not take place in-person and students were asked to complete the survey on their own time in an online survey. While the incentive of a $10 gift card for completing the follow-up survey was included, the data collection approach likely contributed to the attrition. Additionally, students were only contacted via mail or e-mail, which are perhaps not ideal methods of communication for students in grade 8. Bias may have occurred in the study sample if participants who completed the follow-up survey were systematically different than those who did not. For example, if youth who were struggling with adjusting to the transition to high school were less likely to complete the follow-up survey than those who were adjusting well, attrition may skew the representativeness of the sample and subsequently skew the validity of the long-term program impacts. Comparison analyses showed some significant differences in the characteristics of those who completed the follow-up survey and those who did not (i.e., gender, family structure, number of siblings, participation in extra-curricular activities, and participation in school-based activities). Due to the attrition at follow-up, the findings concerning long-term program impacts should be considered preliminary.

Additionally, while self-report data is often used in evaluation, it has limitations such as response bias (e.g., social desirability). According to gender schema theory (e.g., Ruble et al., 2006) and the gender-intensification hypothesis (Hill & Lynch, 1983), differences in attitudes, behaviour, and roles between genders become more pronounced during adolescence. This is due to increased societal and peer pressure for boys and girls to conform to gender norms that are reinforced by society (see Rudolph & Dodson (2022) for an in-depth discussion). As such, it is possible that participants either overreported or underreported friend support to align with gendered social expectations about friendships and what they considered 'socially acceptable'.

For example, boys may have perceived the expression of closeness with same-sex friends as a violation of traditional masculine attitudes and behaviours (and subsequently underreported friend support), and girls may have overreported friend support to align with the social expectation that girls 'should' have close and supportive friendships.

Third, due to inconsistent attendance records kept by program staff across the different programs/schools, actual attendance records were not available. As such, it was not possible to account for the frequency of attendance or the "dosage" of the program that each participant received. Fourth, it is important to note that one of the study's limitations is the exclusion of a fulsome process evaluation/analysis of implementation fidelity. Considering the number of programs that were implemented by the YWCA each semester (i.e., 52 separate programs at 31 different primary schools across metro Vancouver), substantial resources would have been required to conduct a process evaluation for a program of this magnitude. Although the program sessions are structured and all facilitators follow the same detailed curriculum for each module (i.e., mentors are provided with a manual, which provides a detailed outline of the module lessons, activities, and group discussion topics), volunteers are encouraged to be flexible and navigate the session based on group interests. Additionally, because each YEP is delivered by a different set of program facilitators, it is possible that the program's curriculum is implemented differently across schools (e.g., spending more time on one activity and running out of time to finish others). The exclusion of program implementation/fidelity assessment limits the lessons that can be drawn from this study with respect to how key characteristics of the program might best support adolescents' adjustment to high school.

Fifth, although the YEPs are gender-based programs and WTML/TJM typically targets girls while B4R typically targets boys, youth can choose which program to enroll in based on their gender identity. As only one student in the analytic sample identified as a gender other than male or female, it was not possible to include an analysis of the group of students who did not identify as either male or female. As such, the findings presented herein may not be generalizable to youth of all genders. Research has consistently found that non-binary and gender minority youths face higher risks of experiencing challenges with social adjustment, academic achievement, and mental well-being in school settings (e.g., Colvin et al., 2019; Durbeej et al., 2019; Kelley et al., 2022; Kosciw et al., 2018). As such, when conducting future research on the effectiveness of high school transition programs, it is crucial to incorporate analyses of the experiences of sexual and gender minority youths, if possible.

Finally, MLMs were used to account for the clustered structure of the data. However, the school-level results of the model were not extensively examined or discussed in the paper (i.e., the research questions were not focused on how the dependent variable varied at the school-level). Since the YEP is offered across multiple schools, the success of the programs may be dependent on school-level factors, such as the amount of time teachers spend preparing their students for high school, talking about peer relationships, and so forth. Similarly, because each YEP is delivered by a different set of program facilitators, the success of the programs may be influenced by program-level factors such as the differential quality and experience of mentors. Additionally, it is possible that the program's curriculum is (unintentionally) implemented differently across schools (e.g., spending more time on one activity and running out of time to finish others). Low implementation fidelity, weak mentoring skills, and/or differences in the environment of each school might influence the effectiveness of the YEP on youth outcomes. The impact of these factors on program outcomes should be examined in future studies.

## Conclusion

Research has shown that adolescents face many difficulties when transitioning to high school, especially regarding their social lives and forming healthy relationships with peers (Benner et al., 2011; Felmlee et al., 2018; Ng-Knight et al., 2019). The findings from this study indicate that boys' perceptions of friend support significantly (and negatively) change throughout the transition to high school. This finding is consistent with existing literature which suggests that boys perceive less friend support during early adolescence (Davis, 2019; Floody et al., 2019; Way, 2013). Consistent with existing research on 1:1 mentoring programs (e.g., Burton, 2020; Christensen et al., 2020; DuBois et al., 2011; Raposa et al., 2019), the findings suggest that group-based mentoring programs implemented in an afterschool setting show promise at improving youths' social outcomes. To date, very little research has examined the effectiveness of group mentoring programs. As such, significant gaps remain before evidence-informed lessons can be drawn about what works for group-based mentoring programs for youth and their friendships and peer relationships, particularly with respect to how program impacts differ for boys and girls. Future research should continue to explore the moderating impact of gender on social outcomes throughout adolescence (particularly during the transition to high school), as well as the effects of gender-tailored group mentoring programs.

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# Supplementary Table: Balance Comparison for Overall Sample

| Covariate | Balance analysis (unadjusted) | | | Balance analysis (weighted and trimmed) | | |
|---|---|---|---|---|---|---|
| | CTL M(SD)/n(%) | TX M(SD)/n(%) | Std Diff | CTL M(SD)/n(%) | TX M(SD)/n(%) | Std Diff |
| **Program session** | | | | | | |
| Fall | 297 (65.9%) | 154 (63.4%) | 0.052 | 240.4 (68.3%) | 199.6 (61.2%) | 0.147 |
| Spring | 154 (34.1%) | 89 (36.6%) | | 111.8 (31.7%) | 126.3 (38.8%) | |
| **School district** | | | | | | |
| A | 214 (47.5%) | 59 (24.3%) | 0.498 | 136.7 (38.8%) | 111.4 (34.2%) | 0.097 |
| B | 237 (52.5%) | 184 (75.7%) | | 215.4 (61.2%) | 214.5 (65.8%) | |
| **Gender** | | | | | | |
| Female | 217 (48.2%) | 139 (57.2%) | 0.181 | 182.9 (51.9%) | 180.6 (55.4%) | 0.070 |
| Male | 233 (51.8%) | 104 (42.8%) | | 169.3 (48.1%) | 145.2 (44.6%) | |
| **Ethnicity** | | | | | | |
| Caucasian | 91 (20.3%) | 40 (16.6%) | 0.095 | 67.8 (19.4%) | 65.0 (20.0%) | 0.016 |
| Visible minority | 358 (79.7%) | 201 (83.4%) | | 281.8 (80.6%) | 259.4 (80.0%) | |
| **Were you born in Canada?** | | | | | | |
| No | 126 (28.0%) | 63 (26.0%) | 0.044 | 97.2 (27.7%) | 84.0 (25.9%) | 0.041 |
| Yes | 324 (72.0%) | 179 (74.0%) | | 254.0 (72.3%) | 240.9 (74.1%) | |
| **Do your biological parents live in the same house as you?** | | | | | | |
| No | 75 (16.8%) | 34 (14.2%) | 0.073 | 55.3 (15.9%) | 52.1 (16.2%) | 0.008 |
| Yes | 371 (83.2%) | 206 (85.8%) | | 292.9 (84.1%) | 269.7 (83.8%) | |
| **Are you ever afraid that someone will bully you at school?** | | | | | | |
| No | 252 (58.1%) | 127 (53.8%) | 0.086 | 191.7 (56.3%) | 173.8 (55.1%) | 0.024 |
| Yes | 182 (41.9%) | 109 (46.2%) | | 148.8 (43.7%) | 141.6 (44.9%) | |
| **# siblings or step-siblings** | | | | | | |
| | 1.47 (1.14) | 1.63 (1.29) | -0.132 | 1.53 (1.19) | 1.62 (1.23) | -0.076 |
| **# times changed schools** | | | | | | |
| | 0.85 (1.06) | 0.83 (1.02) | 0.016 | 0.85 (1.06) | 0.86 (1.04) | -0.011 |
| **# days per week in extra-curricular activities** | | | | | | |
| | 2.88 (1.22) | 2.85 (1.18) | 0.021 | 2.89 (1.22) | 2.84 (1.18) | 0.039 |
| **# days per week in activities during school hours** | | | | | | |
| | 0.24 (0.674) | 0.47 (0.919) | -0.285 | 0.33 (0.797) | 0.35 (0.80) | -0.030 |
| **# days per week at home with no supervision** | | | | | | |
| | 2.23 (1.14) | 2.11 (1.04) | 0.109 | 2.19 (1.13) | 2.18 (1.05) | 0.014 |
| **Baseline Friend Behavior Scale score** | | | | | | |
| | 11.65 (2.40) | 11.66 (2.32) | -0.006 | 11.64 (2.44) | 11.73 (2.40) | -0.039 |
| **Baseline School Satisfaction Scale score** | | | | | | |
| | 17.96 (2.78) | 17.91 (2.98) | 0.018 | 17.97 (2.77) | 17.85 (3.09) | 0.042 |

| Covariate | Balance analysis (unadjusted) | | | Balance analysis (weighted and trimmed) | | |
|---|---|---|---|---|---|---|
| | CTL M(SD)/n(%) | TX M(SD)/n(%) | Std Diff | CTL M(SD)/n(%) | TX M(SD)/n(%) | Std Diff |
| **Baseline Intelligence and School Status score** | | | | | | |
| | 10.10 (3.20) | 9.67 (3.26) | 0.131 | 10.05 (3.22) | 9.57 (3.36) | 0.047 |
| **Baseline Freedom from Anxiety Scale score** | | | | | | |
| | 9.20 (3.29) | 8.85 (3.31) | 0.107 | 9.07 (3.29) | 8.92 (3.31) | 0.146 |

# Supplemental Information: Overview of approaches to multiple imputation (MI) that were attempted

Overall, there is very little guidance in the literature with respect to how to properly conduct MI on longitudinal data with multiple multi-item scales. Although some progress has been made in evaluating different MI strategies for imputing multi-item scales, most of this work has been done in the context of cross-sectional studies or RCTs with variables measured at baseline and follow-up. Limited work has been done to evaluate MI strategies for imputing multi-item scales in the context of large-scale longitudinal studies where scales are measured across multiple waves of data collection (Mainzer et al., 2021).

Several studies have investigated whether it is best to impute values at the item level or scale level when using MI to deal with missing data in multi-item scales. The general recommendation is to impute at the item level prior to calculating scale scores (Eekhout et al., 2014; Gottschall et al., 2012). However, the literature notes that this is not always possible/practically feasible because item-level imputation commonly fails due to computational infeasibility (e.g., too many variables in the model and, as a result, the model fails to converge) or numerical problems caused by perfect prediction or collinearity (Rombach et al., 2018). Such problems are commonly encountered in practice when imputing items in large-scale longitudinal studies because of the need to fit imputation models that contain a large number of highly correlated variables.

### *Approach #1 – Imputing at the item-level*

In general, the literature suggests that it is best practice to impute at the item level (Eekhout et al., 2014; Gottschall et al., 2012). As such, this approach was attempted first. However, I encountered the issue of infeasibly large imputation models that did not converge. This was in large part due to the sheer number of variables that were needed in the imputation model for it to be congenial (e.g., including all of the individual scale items, plus all control variables and the dependent variable (DV)). Additionally, many of the scales in the dataset had ordinal response categories, which are well-known to suffer from problems with non-convergence (this is supported in the literature where large simulation studies demonstrated failed convergence with ordinal data; e.g., Rombach et al., 2018). I tried to conduct MI by imputing individual items from each scale in many different iterations (e.g., including implementing the “noisily” and “augment” options in the models as suggested by Stata, trying to

reduce the number of variables in the model, etc.), however, I could not manage to get the “mi chained” command to work in Stata.

### *Approach #2 – Imputing item-level data by using subscale scores*

The literature suggests that one way to overcome convergence problems caused by item-level imputation is to reduce the number of variables in the imputation model (Mainzer et al., 2021). In the context of several multi-item scales, it has been suggested to impute items using the rest of the items from the same scale and a summary (e.g., the mean or total score) of available items from other scales. In simulation studies, this method has performed well compared with alternatives such as a complete case analysis or imputing total scores (Mainzer et al., 2021).

It was hoped that reducing the number of variables in the imputation model would facilitate convergence. However, I still faced various issues with non-convergence when using scale scores as predictors. I primarily encountered issues with respect to collinearity, “complete determination” and perfect prediction. Again, Stata suggested some options to help the model converge, such as the “noisily”, “augment” and “omit” options, but these did not work, and I still received error messages indicating that the model did not converge. The literature suggests that to correct collinearity/perfect prediction, problem variables should be identified and removed from the model. However, I had some concerns about dropping some variables given the need for the model to be congenial (i.e., if scales 2 and 3 are highly collinear, I should not drop them if I intend to use those as in analyses).

### *Approach #3 – Imputing scale scores*

I spent a considerable amount of time investigating literature that discusses imputing index items vs. scale scores. As discussed above, for the most part, the literature suggests that imputing index items is generally better than imputing scale scores (which makes sense because there is more information in the imputation models for index items, meaning a higher likelihood of precision). However, some papers point out that the conclusion of ‘imputing index items is better than imputing scale scores’ is not necessarily the most feasible/practical option all the time, because those simulation studies 1) do not account for the complexity of imputing multi-item scales and 2) were not conducted on longitudinal datasets (e.g., Mainzer et al., 2021; Newman, 2014; Rombach et al., 2018). There is also a small subset of literature that discusses the difficulty of conducting imputation of index items with ologit models (and that it is sometimes

nearly impossible to conduct MI with ologit models due to the problem of perfect prediction). As discussed above, to solve the problem of perfect prediction, one option is to drop the predictors that are causing the perfect prediction. However, it is also suggested that model congeniality should be of utmost importance, and if it comes to dropping predictors to try to get the ologit model to converge and impute individual items, it is better to go with a simpler model with fewer variables and impute the scale score instead (e.g., Rombach et al., 2018).

Another issue I investigated before attempting this approach to MI is imputing DVs. There appears to be some agreement in the literature that DVs should not be imputed (e.g., Allison, 2012; see also van Ginkel et al., 2020). However, there is a small pool of literature that says imputing the DV is acceptable (Enders, 2010; Johnson and Young, 2011; White et al., 2010). Young & Johnson (2010) discuss the various strategies researchers use when they have missing data on the DV and suggest that under special circumstances (i.e., a large sample size and low levels of missingness), excluding cases missing on the DV and imputing the DV lead to equivalent results.

Overall, imputing scale scores worked as far as getting the models to converge and generating multiple datasets. However, I encountered problems when running the “mi estimate” command in Stata that I could not resolve. After considerable investigation (e.g., I stripped down the models to the bare minimum and investigated all the imputed dataset), I was not able to successfully run the Stata command without receiving an error message.

# Chapter 5. Navigating the Transition to High School: Investigating Adolescents' Delinquent Attitudes and Association with Delinquent Peers

The transition from middle school to high school is an exhilarating time for adolescents; they experience an increased sense of freedom, develop new friendships, and can participate in various extra-curricular activities (Akos & Galassi, 2004). However, the shift to high school is accompanied by many changes to students' structural and social environments, which require considerable adjustment. For instance, students must learn to navigate a new school building (Arens et al., 2013; Coelho & Ramao, 2016), contend with a more impersonal learning environment (e.g., departmentalized approach to education, students go between multiple classrooms and teachers; Arens et al., 2013; Coelho & Ramao, 2016; Herlihy, 2007; Holcomb-Mcoy, 2007), and manage new peer groups, social pressures, and expectations (Osterman, 2000; Wentzel et al., 2004). Because of this abrupt change in adolescents' daily experience, the transition to high school is described as a stressful and challenging turning point (Benner, 2011) during which new attitudes and behavioural patterns can form which have the potential for long-lasting consequences (Shi & Moody, 2017; Vaquera & Kao, 2008; West et al., 2010).

From a developmental perspective, studying turning points such as the transition to high school is important because they can alter adolescents' behavioural, social, and academic trajectories (Benner, 2011; Benner et al., 2017; Hayward & Gorman, 2004). Given the number of challenges that coincide with the transition from elementary or middle school to high school and their potential implications on non-pro social behaviours, understanding the effects of interventions that are designed to promote protective factors and offset risk factors is worthy of considerable attention. Framed by the existing literature on afterschool programs and mentoring programs for youth, the aims of this study are to (1) examine adolescents' delinquent attitudes and association with delinquent peers throughout the transition to high school and (2) examine the effects of the metro Vancouver YWCA Youth Education Programs (referred to herein as YEP), a set of afterschool group mentoring programs that focus on youth transition to high school, on adolescents' attitudes toward delinquency and association with delinquent peers.

## The Impacts of the Transition to High School on Adolescent Delinquency

The adverse impacts of the transition to high school on adolescents' social, emotional, and psychological well-being are well documented (Benner, 2011; Chung et al., 2014; Evans et al., 2018; Felmlee et al., 2018; Fite et al., 2019). Yet, relatively little is known about the impact of school transitions on behavioural outcomes, such as delinquency. More generally, social developmental theories of crime and delinquency explain how school transitions can shape youths' engagement in delinquent behaviour. For example, social control theories purport that connections to people and meaningful relationships/bonds, especially in school, are crucial protective factors against delinquency (Hirschi, 1969). Critical social bonds may weaken during the transition to high school (e.g., teacher-student relationships, relationships with other students, and sense of school belonging); these diminished social controls may increase the risk of delinquent behaviour (Laub & Sampson, 1993; Liljeberg et al., 2011; Maddox & Prinz, 2003; Wang & Eccles, 2012). Additionally, differential association theory (Sutherland, 1947) and interactional theory (Thornberry et al., 1994) assert that deviant behaviour is learned/reinforced and that association with deviant peers increases delinquent beliefs and the probability of delinquent behaviour. In the context of high school transition, it is well known that adolescent social relationships are challenged and that many youths experience a lack of healthy peer relationships, including association with non-prosocial peers (e.g., Benner & Graham, 2009; Benner et al., 2017; Demuth, 2004; Felmlee et al., 2018; Grills-Taquechel et al., 2010; Kreager, 2004; Magiste, 1992; McQuillan et al., 2011). The relationship between delinquent peers and delinquency involvement has been well examined; in fact, it has been noted that "the finding that affiliation with deviant peers is associated with growth in delinquent behaviour is one of the most robust findings in the literature on juvenile delinquency" (Gifford-Smith et al., 2005, p. 256).

Despite the demonstrated theoretical linkage between school transitions and adolescent delinquency, little research has shown a direct relationship between the transition to high school and increased delinquency. For example, research has shown that the transition to high school negatively impacts adolescents' social networks (Benner et al., 2017; Białecka-Pikul et al., 2019; Felmlee et al., 2018), and the absence of strong social ties in high school contributes to adverse socio-emotional outcomes (Barber & Olsen, 2004; Benner et al., 2017; Seidman et al., 1994). In turn, these socio-emotional problems can lead to risky and/or delinquent behaviours such as substance use, violence, sexual activity, and gang membership (Catalano et al., 2004; Juvonen, 2007; Monahan et al., 2010; Resnick et al., 1997). Furthermore, recent research suggests that transitioning to high school may be associated with decreased antisocial

behaviours (Freelin et al., 2023; O'Neill & Doherty, 2019), though delinquent peers may moderate this finding. Specifically, O'Neill and Doherty (2019) found that overall delinquency decreased by 10% following the study sample's transition to high school; yet youth more highly associated with delinquent peers had significantly higher levels of delinquent activities following the transition.

## Afterschool Programs for Youth

Afterschool programs (ASPs; also known as 'out-of-school time' programs (Development Services Group Inc, 2010)) are widely implemented initiatives in North America. In 2022, 40% of Canadian children aged 4 to 12 years attended some form of before- or after-school care (of which school-based programs were the most common; Statistics Canada, 2022), and recent reports suggest that the demand for afterschool programming is surging in both Canada and the United States (Afterschool Alliance, 2023; Statistics Canada, 2022). ASPs were first developed in the 1980s to address the problem of 'latchkey kids' (Mahoney et al., 2009) and increased youth delinquency following school dismissal (Gottfredson et al., 2001). It was hypothesized that the adult-supervised and structured activities of ASPs would decrease the prevalence of juvenile crime and delinquency by reducing the opportunity to engage in negative behaviours, as well as increase prosocial peer networks through positive recreational activities (Gottfredson et al., 2001; Gottfredson et al., 2007; Gottfredson et al., 2010). ASPs generally share the similar purpose of providing supervised activities to youth after school, with the intent of offsetting risk factors (e.g., delinquent peers, poverty) and promoting protective factors (e.g., high self-esteem, interpersonal skills) through the provision of structured activities in an adult-supervised environment (Durlak et al., 2010).

Despite the lack of research that targets the specific timeframe of high school transition, a growing body of meta-analytic research has demonstrated the positive impacts of ASPs on various youth outcomes (Durlak & Weissberg, 2007; Durlak et al., 2010). Despite the notable benefits of some ASPs, the potential for peer contagion is an exceptionally serious concern for programs that target at-risk youth with varied risk factors (Dishion et al., 1999), and some research has shown evidence of deviancy training among youths participating in group-based afterschool interventions (Gottfredson et al., 2010; Rorie et al., 2011). To date, limited evidence suggests a significant impact of ASPs on reducing delinquency and associated risky behaviours. For example, Taheri and Welsh (2016) meta-analyzed 17 studies which examined the effects of ASPs on youth delinquency and found a non-significant overall impact. Further,

moderator analyses suggest that no specific type of ASP (i.e., academic, recreational, skills training/mentoring) significantly impacts youth delinquency. Consistently, Kremer and colleagues (2015) examined the impact of ASPs on externalizing behaviours for at-risk youth. The synthesis of 49 effect sizes yielded a non-significant overall effect.

## Group Mentoring Programs

In general, youth mentoring programs aim to strengthen relationships (both interpersonal and intrapersonal) through activities, engagement, and positive interactions between mentors and mentees. Additionally, such programs typically seek to offset risk factors for delinquency (e.g., antisocial attitudes, beliefs, and behaviours) and promote protective factors (e.g., connectedness, social skills, and association with prosocial peers; Gordon et al., 2013). 'Group mentoring' is an umbrella term encompassing a wide variety of youth-adult mentoring models in a group setting, either in part or in whole (Kuperminc & Deutsh, 2021). Proponents of group mentoring argue that compared to the traditional model of mentoring (i.e., one mentee is paired/matched with one mentor and the therapeutic benefits are hinged on the one-to-one relationship), the group-based model provides additional benefits as it allows youth to develop relationships with multiple mentors (Deutsch et al., 2017) and build relationships with a group of peers (Kuperminc et al., 2018). Additionally, inherent in the group structure is the opportunity for problem-solving, teamwork, and compromise (Deutsch et al., 2013).

Recent research on the effectiveness of mentoring programs for youth in North America has demonstrated beneficial effects on various emotional, psychological, social, educational, and behavioural outcomes (DuBois et al., 2002; DuBois et al., 2011; Wood & Mayo-Wilson, 2012), including decreased problem/high-risk behaviour (e.g., substance use, delinquency, bullying; DuBois et al., 2002; DuBois et al., 2011; Raposa et al., 2019; Tolan et al., 2014). However, despite the number of studies that have examined the impact of 1:1 mentoring, very little research has been conducted on the impacts of group mentoring on youth outcomes. Although some recent research suggests that group mentoring has a positive impact on various aspects of youth development and functioning (e.g., see reviews conducted by DuBois et al. (2011), Kuperminc & Deutsh (2021) and Poon et al. (2021)), no published reviews have specifically examined the effects of group mentoring programs on delinquency outcomes or delinquency-related measures.

## Current Study

The current study examines adolescents' attitudes toward delinquency and association with delinquent peers throughout the transition to high school. Additionally, the impact of the YEP, a set of afterschool group mentoring programs for grade 7 students, on youths' attitudes toward delinquency and association with delinquent peers is also examined. The YEP does not target adolescent delinquency as a primary outcome. However, the program curriculum includes content that aims to reduce risk factors for delinquency and promote protective factors (e.g., sense of self, healthy relationships, responsible decision-making, connectedness to community). As such, it was hypothesized that the YEP may have a residual impact on measures that are associated with youth delinquency. The findings from the study will contribute to the limited body of methodologically rigorous empirical research on group-based mentoring programs and add to the evidence base of what strategies work for youth in the context of high school transition in an afterschool setting.

## Method

### Procedure

Data for this study were collected from grade 7 students who participated in the YEP (treatment (TX) group) and their classmates who did not participate in the YEP (control (CTL) group). Data were collected from students in metro Vancouver between October 2017 and February 2020.[20] Youth were surveyed at three time points: Approximately two weeks before the first YEP session (Time 1; grade 7 pre-test), approximately two weeks following the last YEP session (Time 2; grade 7 post-test) and again six months following their transition to high school (Time 3; grade 8 follow-up). The Time 1 and Time 2 surveys were paper-based questionnaires, which were administered during class time by a team of trained graduate-level research assistants. The Time 3 online follow-up survey was administered to program alumna and all CTL group youth.

Refer to Chapter 2 for a detailed description of the YEP and Methods (i.e., study design, procedure, recruitment, data collection).

[20] Pre-test and post-test data were collected in four cohorts: Fall 2017, Spring 2018, Fall 2018, and Spring 2019.

## Response Rate and Attrition

The sample consists of 798 students clustered across 31 schools at baseline and 710 students at post-test (89% response rate). Considerable attrition was observed at follow-up. The number of participants who responded to the follow-up survey was 205. As such, there was 74% attrition of participants from Time 1 to Time 3 (67% attrition from the TX group; 88% attrition from the CTL group). See Table 4.1 in Chapter 4 for an overview of the sample size and attrition rates for each cohort, each treatment condition, and each survey. The analytic sample used in the current study includes participants who responded to the PYS Attitudes Toward Delinquency scale and the SSP Friend Behavior scale and were missing $\leq$ 30% of the items on either scale. The sample characteristics are described in the Results section.

## Measures

### *Dependent Variables*

#### Attitudes Toward Delinquency

A modified version of the Pittsburgh Youth Study (PYS) Attitudes Toward Delinquency scale (Loeber et al., 1998) was used in the current study.[21] The scale assesses respondents' beliefs, attitudes, and/or approval in regards to how 'wrong' it is to commit certain delinquent acts (e.g., truancy, bullying, lying).[22] Responses are recorded on a three-point Likert scale (0 = very wrong, 1 = somewhat wrong, 2 = not at all wrong).[23] The scale score is computed by summing across all nine items; scores range from 0 to 18 with higher scores indicating greater acceptance of delinquency. Prior studies have demonstrated the scale's strong internal consistency (e.g., Allegra, 2012; Dahlberg et al., 2005). The scale reliability coefficient is 'exemplary' (Dahlberg et al., 2005) in the present study, with a Cronbach's alpha of 0.84. In the current study, the dependent variable is set as a time series/time varying variable (Allison, 2017). As such, the dependent variable's association with past values (e.g., the pre-test score) is accounted for in the model without including it as a covariate.

[21] See Chapter 2 for details about the modifications that were made to the scale.

[22] See Chapter 2 for details about the scale items.

[23] The original scale was measured on a four-point Likert scale (1 = very wrong, 2 = wrong, 3 = a little wrong, 4 = not at all wrong). For analysis purposes, the response categories "wrong" and "a little wrong" were merged.

### Association with Delinquent Peers

The School Success Profile (SSP; Bowen & Richman, 2008) is a validated questionnaire for middle and high school students. It is used to assess 15 core dimensions of students' attitudes and beliefs about their social environment (e.g., neighbourhood, school, friends, family). The Friend Behavior scale is a nine-item inventory[24] designed to assess a student's likelihood of associating with deviant peers and has demonstrated good internal consistency in other studies (e.g., alpha = 0.87; Bowen et al., 2008). In the current study, the scale is modified to include an item about cigarette use (i.e., "I have friends who smoke cigarettes"); as such, the scale includes 10 items (instead of nine as in the original scale). The Cronbach's alpha for this 10-item scale is computed as 0.82. Youth responses are recorded on a three-point Likert scale (1 = not like me, 2 = a little like me, 3 = a lot like me) and items are summed to form a scale score. Scale scores range from a minimum of 10 to a maximum of 30; high scores indicate a greater association with deviant peers. Similar to above, this variable is set as a time series/time varying variable (Allison, 2017) and the variable's association with past values (e.g., the pre-test score) is accounted for without adjusting for it in the model.

## *Independent Variables*

### YEP Involvement

The key independent variable of interest differentiates between youth who participated in the YEP (i.e., the TX group = 1) and youth who did not (i.e., the CTL group = 0). The TX group consists of all grade 7 students who participated in the YEP in Fall 2017, Spring 2018, Fall 2018, or Spring 2019. Students self-selected into the TX or CTL group based on their decision to participate in the program (as self reported in Survey 2 and/or 3).[25] The CTL group comprises students from the same elementary schools who did not choose to participate in the YEP.

### Time

The analysis of short-term outcomes examined change in the dependent variables over two time points (i.e., Time 1 to Time 2). In this model, time was specified as a discreet variable. The analysis of long-term outcomes examined change in the dependent variables over three

[24] See Chapter 2 for details about the scale items.

[25] Due to inconsistent attendance records kept by program staff across the different programs/schools, self-report of program participation and frequency of attendance could not be verified with program records.

time points (i.e., Time 1 to Time 3). Here, time was specified as a continuous variable to account for the unevenly distributed time points between Time 1, Time 2, and Time 3.[26]

### *Control Variables*

Several demographic/background variables were used in the analyses as control variables: Gender, ethnicity, student immigration status, school district, number of times the student has changed schools, family structure, number of siblings, amount of time spent studying on weeknights, participation in school-based activities, involvement in extra-curricular activities, and at-home supervision. In addition, baseline scores from several validated instruments were used as control variables: The Friend Support scale from the SSP (Bowen & Richman, 2008), the School Satisfaction Scale from the SSP (Bowen & Richman, 2008), and the Freedom from Anxiety scale from the Piers-Harris Self-Concept Scale for Children 2 (Piers & Herzberg, 2002). See Table 5.1 for a description of the control variables. A detailed narrative description of each measure is provided in Chapter 2.

[26] For instance, the duration between Time 1 to Time 2 was approximately 3 months. However, as some programs were offered in the Fall semester (i.e., October – December) and some programs were offered in the Spring semester (i.e., February – May), the time to follow-up varied depending on when the program was delivered at the students' school (i.e., if the program was offered at a school in Fall the time to follow-up for students was 14 months; whereas if the program was offered in Spring, the time to follow-up was nine months).

**Table 5.1. Description of Control Variables**

| Variable | Survey question | Code |
|---|---|---|
| School district | n/a | District 1 = 0;<br>District 2 = 1 |
| Gender | Gender | Female = 1; Male = 2 |
| Ethnicity | Race/Ethnicity (check as many as apply) | White = 1<br>Visible minority = 2 |
| Family structure | Do both your mother and your father (biological or adoptive) live in the same household? | No = 0; Yes = 1 |
| Student immigration status | Were you born in Canada? | No = 0; Yes = 1 |
| # siblings | How many siblings or step-siblings do you have? | Continuous |
| # schools attended | How many times have you changed schools? | 0 = none<br>1 = once<br>2 = twice<br>3 = more than twice |
| Extra-curricular activities | How many times per week do you participate in extra-curricular activities (e.g., sports, music, art, dance, tutoring, volunteering that are not organized through your school)? | 1 = not at all<br>2 = once per week<br>3 = 2-3x per week<br>4 = 4-5x per week<br>5 = 6-7x per week |
| School-based activities | Indicate the school activities that you have or will have participated in during the current school year that are not part of class work (Mark all that apply) | Composite score: Continuous |
| # hrs spent studying | During the past month, about how many hours did you usually spend studying or doing homework each school night (Sunday-Thursday)? | 1 = none<br>2 = less than 1 hour<br>3 = about 1 hour<br>4 = about 2 hours<br>5 = about 3 hours<br>6 = more than 3hrs |
| At-home supervision | How often are you left alone at home without any supervision (e.g., parent, older sibling, other family member, babysitter) for more than an hour? | 0 = not at all<br>1 = once/week<br>2 = 2-3x/week<br>3 = 4-5x/week<br>4 = 6-7x/week |
| Friend Behavior | See the School Success Profile (Bowen & Richman, 2008) | Composite score (range: 10-30): Continuous[a] |
| Freedom from Anxiety | See the Piers-Harris Self-Concept Scale for Children 2 (Piers & Herzberg, 2002) | Composite score (range: 0-14): Continuous[b] |
| School Satisfaction | See the School Success Profile (Bowen & Richman, 2008) | Composite score (range: 7-21): Continuous[c] |
| Friend Support | See the School Success Profile (Bowen & Richman, 2008) | Composite score (range: 5-15): Continuous[d] |
| Attitudes Toward Delinquency | See the Pittsburgh Youth Study (Loeber et al., 1998) | Composite score (range: 0-18): Continuous[e] |

[a] Higher scores indicate greater association with deviant peers

[b] Higher scores indicate more freedom from anxiety (low feelings of anxiousness)

[c] Higher scores indicate greater school engagement
[d] Higher scores indicate a greater perception of supportive friendships
[e] Higher scores indicate greater acceptance of delinquency

## Analytic Approach

### *Student Demographics*

Descriptive statistics were calculated for the full sample and separately for the TX group and CTL group. Pearson's chi-squared tests and independent-samples t-tests were used to determine whether there were statistically significant differences between the sample of students who completed Survey 3 ('completers') and those who did not ('non-completers').

### *Data Preparation*

Overall, the amount of person-level missingness in the dataset was low; specifically, the percentage of cases in the sample with incomplete data was less than 7%. However, item-level missingness in the dataset was problematic as both dependent variables were based on the summation of multiple scale items (as described above). More specifically, if a response was missing from a single item on a scale, the total (summed) scale score was undercounted due to item non-response. Little's test of missing completely at random (MCAR) was conducted for each validated scale, and the missing data points were determined to be MCAR. Multiple Imputation by Chained Equation (MICE) was attempted; however, some characteristics of the dataset rendered multiple imputation computationally infeasible.[27] See the supplemental information provided on p. 123 for a detailed overview of the approaches to multiple imputation that were attempted. Instead, a random hot deck imputation procedure (Schonlau, 2022) was used to impute missing values when a student was missing $\leq$ 30% of items on a scale.[28] The

[27] To date, limited work has been done to evaluate multiple imputation strategies for multi-item scales in the context of large-scale longitudinal studies where scales are measured across multiple waves of data collection (Mainzer et al., 2021), and several studies have noted that under some circumstances (e.g., scales with ordinal response categories) MICE is not always possible/practically feasible (e.g., Newman, 2014; Rombach et al., 2018).

[28] The amount of missingness on each multi-item scale varied across participants. While some literature suggests that under some circumstances, there is a benefit to imputing data regardless of the proportion of missingness, other literature suggests that variables with more than 40% missing data should be discarded and/or only used for purposes of hypothesis generation (e.g., see Madley-Dowd and colleagues (2019) for an in-depth discussion). The decision was made to only impute data for a multi-item scale when $\leq$30% of the items were missing (e.g., if a respondent skipped 3 items on a 10-item scale, the missing values would be imputed; if a respondent skipped 4 or more of the 10 items, the missing values would not be imputed).

hot deck method of imputation is a widely used strategy for handling missing data, particularly item non-response (Andridge & Little, 2010). In random hot decking, observations with missing data (i.e., recipients) are matched to 'similar' observations which have no missing values (i.e., donors) based on a set of categorical variables that are known for both recipient and donor (e.g., demographic characteristics; Andridge & Little, 2010; Lavrakas, 2008). Imputation is implemented wherein the recipient's missing values are replaced with a randomly selected donor's observed values (Lavrakas, 2008). Random hot deck imputation has several advantages, including that it randomly selects values (which adds in variability) and does not rely on model fitting and is thus less sensitive to model misspecification (Andridge & Little, 2010). Random hot decking has also been demonstrated to perform nearly as well as other imputation methods (e.g., see Andridge & Little, 2010 for examples; see also Parent (2013) and Roth (1994)). Additionally, because imputed values are taken from actual respondents in the same dataset, they are plausible as they are within the same range as in the observed data (Andridge & Little, 2010; Lavrakas, 2008).

## *Primary Analyses*

### Propensity Score Estimation and Weighting

Although true experimental designs are considered the gold standard research design for establishing causal inference (Sherman et al., 1998), random assignment is often challenging to implement in practice. In the current study, random assignment to the TX and CTL groups was not possible for the students and/or schools due to the YWCA's method of school selection and the voluntary nature of the YEP. As a non-equivalent group design involves self-selection (i.e., participants volunteer for the program), pre-existing differences between the two groups are expected, and equivalence of the TX and CTL groups cannot be assumed. As such, selection effects can potentially complicate comparisons between TX and CTL groups. However, if rigorous balancing techniques are applied, such as propensity score weighting, and the re-distribution of characteristics in both the TX and CTL groups is successful, the likelihood of unbiased treatment effects increases (Apel & Sweeten, 2010).

The propensity score is "the probability of treatment assignment conditional on the observed baseline covariates" (Austin, 2011, p. 399; see also Rosenbaum and Rubin (1983)). The use of propensity scores is beneficial in observational studies, as they reduce systematic baseline differences between the TX and CTL groups on variables which affect participation (e.g., self-selection) or relevant outcomes by controlling for variables that have a confounding

influence on treatment impacts (Stuart, 2010). Logistic regression was used to estimate propensity scores for all participants, with treatment condition regressed on a series of observed covariates (i.e., demographic characteristics) that were theoretically associated with student participation in the program and/or program outcomes (Austin, 2011). The following covariates were used to estimate propensity scores: Program session (i.e., Fall vs. Spring), school district, participant gender, participant ethnicity, student immigration status, parents' immigration status, family structure, # siblings, # schools attended, participation in extra-curricular activities, participation in school-based activities, # hours spent studying, afterschool supervision. See Chapter 2 for more details on each variable. Missing covariate values were imputed for the purpose of propensity score estimation. In the current study, the strategy of 'imputation with constant plus missingness indicators' was used. See Chapter 4 for more details about this approach.

Next, inverse probability of treatment weights (IPTWTs) were included to reduce selection bias, eliminate substantive differences between the TX and CTL groups on covariates, and create sufficient group equivalence for comparison (Austin, 2008; Rossi et al., 2004). IPTWTs use the propensity score to "balance baseline characteristics in the exposed and unexposed groups by weighting each individual in the analysis by the inverse probability of receiving his/her actual exposure" (Chesnaye et al., 2022, p. 15). Stata 17's doubly robust estimation command was used to calculate IPTWTs for each participant.[29] As per guidance by Chesnaye and colleagues (2022), IPTWTs were trimmed at the 1st and 99th percentile.

**Balance Diagnostics**

The standardized mean difference (SMD) was used to assess the balance of selected covariates before and after weighting (Austin, 2009; Stuart, 2010). Several recommendations have been provided in the literature for acceptable thresholds of balance/imbalance of variables (e.g., Austin, 2009; Rubin, 2001). In the current study, variables were deemed well-balanced if they had an SMD < 0.20, which is conventionally considered a 'negligible' amount of imbalance (Rubin, 2001; Stuart, 2010). A visual examination of box plots and kernel density plots was also conducted to compare the distributions of continuous variables across the TX and CTL group before and after weighting (Austin & Stuart, 2015; Chesnaye et al., 2022; Garrido et al., 2014).

[29] IPTWTs were calculated as 1/e (where e is the estimated propensity score) for the treatment group and 1/(1-e) for the control group (Lunceford & Davidian, 2004).

### Multilevel Modelling

Multilevel modelling (MLM) is a statistical (regression-based) approach used to model the relationship between variables when the data have a nested/hierarchical structure and observations are correlated. The use of MLM with nested/clustered data may be necessary if the nature of correlated data violates the assumption of independent observations in ordinary least squares regression; if the grouping of data is not adequately accounted for in models, the estimated coefficients and their standard errors will be biased (Hair & Favero, 2019). To account for the natural hierarchical/clustered structure of the data in the current study, MLM was used to examine the relationship between program participation and measures of youth delinquency. A three-level multilevel model was used to account for the non-independence of data within students (i.e., repeated measures (time points clustered with students) and between study participants (i.e., students clustered within schools)), and robust standard errors were used to adjust for school-level clustering. In addition, an exchangeable correlation structure was assumed in the models to account for the correlation of residuals across time points (i.e., repeated measures on one individual). A double-robust approach for removing residual confounding bias after the use of propensity scores was used in the current study. This method involves reintroducing covariates in the regression model and shows promise for improving causal inference accuracy in observational studies (Nguyen et el., 2017).

Though MLM is very robust to model assumption violations (Schielzeth et al., 2020), statistical assumptions for MLM were tested for each model. First, the normal distribution of the residuals at each model level was assessed through a visual examination of probability-probability (p-p) plots, quantile-quantile (q-q) plots, kernel density plots, and histograms. Second, homogeneity of variance was assessed by visually comparing standardized residuals to fitted values through p-p plots, q-q plots, kernel density plots, and two-way scatter plots. All assumptions were satisfied.

### Supplementary Analyses

Due to considerable attrition at Time 3, long-term outcomes were examined as supplementary analyses. MLMs were conducted in Stata/SE 17 to examine adolescents' attitudes toward delinquency and association with delinquent peers throughout the transition to high school, as well as to examine the long-term effects of the YEP on participants' attitudes toward delinquency and association with delinquent peers. Analytic procedures were identical to those conducted in the primary analyses (e.g., propensity score estimation, IPTWTs, multilevel

modelling), except for the use of a first-order autoregression correlation structure to account for the correlation of multiple time points.

# Results

## Descriptive Statistics and Correlations

Table 5.2 shows baseline data for the study sample before weighting. The analytic sample consists of 582 students; 203 students participated in the YEP and 379 students were in the CTL group. Demographic characteristics for the full sample of participants are described here and shown in Table 5.2. Most of the sample self-identified as female (54%), identified as a visible ethnic minority (80%), and were born in Canada (73%). The majority of participants reported that both of their biological parents lived in the same house (i.e., were married/common law; 85%) and, on average, had one or two siblings or step-siblings ($M$ = 1.54, $SD$ = 1.19). On average, participants changed schools once ($M$ = 0.79, $SD$ = 1.02), participated in extra-curricular activities once per week (e.g., activities that are not organized through the school such as music, art, dance, volunteering; $M$ = 2.86, $SD$ = 1.21), and did not participate in any school-based activities during school hours (e.g., sports, clubs; $M$ = 0.25, $SD$ = 0.73). Students also reported that they studied for an average of one hour on weeknights ($M$ = 3.42, $SD$ = 1.24) and spent two-three days per week at home without supervision ($M$ = 2.18, $SD$ = 1.11).

**Table 5.2. Sample Characteristics**

| | Full sample (*N* = 582) *N* (%) | Intervention group (*n* = 203) *n* (%) | Control group (*n* = 379) *n* (%) | Standardized mean difference | |
|---|---|---|---|---|---|
| | | | | Before weighting | After weighting |
| Gender | | | | | |
| Female | 313 (53.8%) | 122 (60.1%) | 191 (50.4%) | 0.173 | 0.082 |
| Male | 269 (46.2%) | 81 (39.9%) | 188 (49.6%) | | |
| Ethnicity | | | | | |
| White | 115 (19.8%) | 34 (16.8%) | 81 (21.4%) | 0.105 | 0.001 |
| Visible minority | 467 (80.2%) | 169 (83.3%) | 298 (78.6%) | | |
| Biological parents live in the same house as you? | | | | 0.061 | 0.006 |
| No | 88 (15.1%) | 28 (13.8%) | 60 (15.8%) | | |
| Yes | 494 (84.9%) | 175 (86.2%) | 319 (84.2%) | | |
| Were you born in Canada? | | | | | |
| No | 156 (26.8%) | 54 (26.6%) | 102 (26.9%) | 0.046 | 0.003 |
| Yes | 426 (73.2%) | 149 (73.4%) | 277 (73.1%) | | |
| | *M* (*SD*) | *M* (*SD*) | *M* (*SD*) | --- | --- |
| # siblings or step-siblings | 1.54 (1.19) | 1.65 (1.23) | 1.48 (1.16) | -0.136 | -0.075 |
| # times you have changed schools | 0.79 (1.02) | 0.80 (1.01) | 0.79 (1.03) | -0.002 | -0.019 |
| # days per week in extra-curricular activities | 2.86 (1.21) | 2.81 (1.20) | 2.89 (1.22) | 0.058 | 0.034 |
| # days per week in activities during school hours | 0.25 (0.73) | 0.43 (0.93) | 0.16 (0.57) | -0.295 | -0.029 |
| # hours spent studying each school night | 3.42 (1.24) | 3.61 (1.28) | 3.12 (1.21) | -0.240 | -0.105 |
| # days per week at home with no supervision | 2.18 (1.11) | 2.11 (1.05) | 2.22 (1.14) | 0.140 | 0.018 |

After weighting, all baseline differences were less than 0.20 standardized differences, except for one variable (SSP Friend Support), which was slightly unbalanced after weighting (SMD = 0.247). The assessment of all other balance diagnostics was satisfactory, suggesting that substantive systematic differences between the TX and CTL groups at baseline were reduced and that the two groups can be considered equivalent. See the supplementary table at the end of this chapter for the comparative balance analysis on the unadjusted and adjusted (weighted and trimmed) sample and a description of the weighted sample used in the analyses.

Between-group comparisons were conducted to examine the differences in characteristics between those who completed survey 3 and those who did not. As shown in Table 5.3, some notable differences in demographics were observed. For instance, the sample of ‘completers’ had significantly more females ($p < .001$), spent more days per week in activities during school hours ($p < .05$), and had fewer siblings or step-siblings ($p < .05$) compared to those who did not complete survey 3.

**Table 5.3. Difference Between Survey 3 Completers and Non-Completers**

| | Full sample (N = 582) N (%) | Completed survey 3 (n = 172) N (%) | Non-completers (n = 410) N (%) | Difference between completers and non-completers | |
|---|---|---|---|---|---|
| | | | | Test statistic | p-value |
| Gender | | | | | |
| Female | 313 (53.8%) | 114 (66.28%) | 199 (48.54%) | $\chi^2 = 15.345$ | 0.000*** |
| Male | 269 (46.2%) | 58 (33.72%) | 211 (51.46%) | | |
| Ethnicity | | | | | |
| Caucasian | 115 (19.8%) | 36 (20.93%) | 79 (19.27%) | $\chi^2 = 0.211$ | 0.646 |
| Visible minority | 467 (80.2%) | 136 (79.07%) | 331 (80.73%) | | |
| Biological parents live in the same house as you? | 88 (15.1%) | | | | |
| No | 494 (84.9%) | 19 (11.05%) | 69 (16.83%) | $\chi^2 = 3.157$ | 0.076 |
| Yes | | 153 (88.95%) | 341 (83.17%) | | |
| Were you born in Canada? | | | | | |
| No | 156 (26.8%) | 42 (24.42%) | 114 (27.80%) | $\chi^2 = 0.708$ | 0.400 |
| Yes | 426 (73.2%) | 130 (75.58%) | 296 (72.20%) | | |
| | **M (SD)** | **M (SD)** | **M (SD)** | **---** | **---** |
| Number of siblings or step-siblings | 1.54 (1.19) | 1.35 (1.11) | 1.62 (1.21) | t = 2.502 | 0.013* |
| Number of times you have changed schools | 0.79 (1.02) | 0.82 (1.01) | 0.78 (1.02) | t = -0.451 | 0.652 |
| Number of days per week in extra-curricular activities | 2.86 (1.21) | 3.01 (1.21) | 2.80 (1.21) | t = -1.830 | 0.068 |
| # days per week in activities during school hours | 0.25 (0.73) | 0.35 (0.90) | 0.21 (0.64) | t = -2.104 | 0.036* |
| # hours spent studying each school night | 3.42 (1.24) | 3.35 (1.21) | 3.45 (1.25) | t = 0.865 | 0.387 |
| # days per week at home with no supervision | 2.18 (1.11) | 2.16 (1.07) | 2.19 (1.13) | t = 0.248 | 0.804 |

The bivariate correlation analyses show several small significant correlations between many of the variables that were included in the analysis (including those that were used for propensity score estimation). See Tables 5.4 and 5.5 for detailed information on bivariate correlations for the two analytic models.

**Table 5.4. Bivariate Correlations for Association with Delinquent Peers**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SSPfrd beh1 | 1.0000 | | | | | | | | | | | |
| SSPfrd beh2 | 0.6068* | 1.0000 | | | | | | | | | | |
| SSPfrd beh3 | 0.3351* | 0.3600* | 1.0000 | | | | | | | | | |
| TxCtr | -0.0016 | -0.0355 | 0.0932 | 1.0000 | | | | | | | | |
| Session | 0.1385* | 0.0985* | 0.0953 | 0.0171 | 1.0000 | | | | | | | |
| District | 0.0492 | 0.0535 | 0.0572 | 0.2447* | -0.1531* | 1.0000 | | | | | | |
| Gender | 0.1103* | 0.1645* | -0.0879 | -0.0824* | 0.0355 | -0.0113 | 1.0000 | | | | | |
| Ethnicity | -0.0206 | -0.0521 | -0.0751 | 0.0494 | -0.1299* | 0.2949* | 0.0177 | 1.0000 | | | | |
| BornCan | -0.0257 | -0.0439 | -0.0246 | 0.0217 | 0.0831* | -0.0486 | 0.0904* | -0.2716* | 1.0000 | | | |
| FamStruc | -0.0829* | -0.0842* | -0.0093 | 0.0288 | -0.0710 | 0.0307 | -0.0412 | 0.1338* | -0.0479 | 1.0000 | | |
| #sibs | 0.0087 | -0.0136 | -0.0984 | 0.0655 | -0.0190 | -0.1084* | -0.0371 | -0.0364 | -0.0327 | -0.1105* | 1.0000 | |
| #schools | 0.0718 | 0.0268 | -0.0388 | 0.0007 | -0.0355 | 0.0134 | -0.0526 | 0.0619 | -0.3450* | -0.0561 | 0.0847* | 1.0000 |
| Excurrics | 0.0233 | 0.0094 | 0.0120 | -0.0275 | 0.1068 | 0.0206 | -0.0311 | -0.0452 | 0.2116* | 0.0849* | -0.1563* | -0.0748 |
| School activities | -0.0970* | -0.0882* | 0.0204 | 0.1475* | 0.1064* | 0.3019* | -0.0482 | 0.0709 | 0.0089 | 0.0156 | -0.0666 | -0.0100 |
| #hrs study | 0.0103 | 0.0042 | 0.0681 | 0.1153* | -0.0031 | 0.1938* | -0.0843* | 0.1139* | -0.0442 | 0.0316 | -0.0232 | 0.0381 |
| Supervision | 0.1228* | 0.0789* | 0.0265 | -0.0657 | 0.1135* | -0.1016* | 0.0518 | -0.1952* | 0.0497 | -0.1198* | -0.0825* | 0.0640 |
| Parent BornCan | 0.0636 | 0.0425 | -0.0061 | -0.0438 | 0.1805* | -0.2277* | -0.0152 | -0.6153* | 0.3905* | -0.1475* | -0.0111 | -0.1747* |
| PYSdel | 0.1857* | 0.2170* | 0.1420 | 0.0442 | 0.0566* | 0.0175 | 0.0650 | -0.0868 | -0.0395 | -0.0074 | -0.0257 | -0.0543 |
| PHanxiety | -0.1120* | -0.0910* | -0.0104 | -0.0626 | -0.0042 | -0.1432* | 0.2348* | -0.0373 | 0.0968* | 0.0740 | -0.0346 | -0.0515 |
| SSPsch | -0.1398* | -0.1047* | -0.0631 | -0.0196 | 0.0018 | -0.0640 | -0.0821* | 0.0025 | 0.0788* | 0.0920* | 0.0013 | -0.0139 |
| SSPfrdsup | -0.0681 | -0.0697 | -0.0043 | -0.0747 | -0.0047 | 0.0248 | 0.1115* | 0.0120 | 0.0427 | 0.0558 | -0.0339 | -0.0313 |

| | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|---|---|
| Excurrics | 1.0000 | | | | | | | | |
| School activities | 0.0557 | 1.0000 | | | | | | | |
| #hrs study | -0.0171 | 0.0774 | 1.0000 | | | | | | |
| Supervision | 0.0555 | 0.0144 | -0.0249 | 1.0000 | | | | | |
| Parent BornCan | 0.1305* | -0.0086 | -0.1220* | 0.1798* | 1.0000 | | | | |
| PYSdel | -0.0885 | -0.0232 | -0.0123 | 0.0503 | 0.0368 | 1.0000 | | | |
| PHanxiety | 0.1947* | 0.0083 | -0.0795* | -0.0144 | 0.0805* | -0.1222* | 1.0000 | | |
| SSPsch | 0.1735* | 0.0466 | -0.0016 | -0.0139 | 0.0875* | -0.2746* | 0.3370* | 1.0000 | |
| SSPfrdsup | 0.1441* | 0.0942* | -0.0243 | -0.0354 | 0.0295 | -0.1540* | 0.1300* | 0.4205* | 1.0000 |

Note: SSPfrdbeh1 = Friend behavior scale pre-test; SSPfrdbeh2 = Friend behavior scale post-test; SSPfrdbeh3 = Friend behavior scale follow-up; TxCtr = YEP involvement; Session = Program session (i.e., Fall vs. Spring); District = School district; Gender = Participant gender; Ethnicity = Participant ethnicity; BornCan = Student immigration status; FamStruc = Family structure; #sibs = Number of siblings; #schools = Number of schools attended; Excurrics = Participation in extra-curricular activities; School activities = Participation in school-based activities; #hrs study = Number of hours spent studying; Supervision = Afterschool supervision; Parent BornCan = arents' immigration status; SSPschool = School Satisfaction scale (pre-test); SSPfrdsup = Friend support scale (pre-test); PH anxiety = Freedom from anxiety scale (pre-test); PYSdel = Attitudes toward delinquency scale (pre-test

**Table 5.5. Bivariate Correlations for Attitudes Toward Delinquency**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PYSdel1 | 1.0000 | | | | | | | | | | | |
| PYSdel2 | 0.3942* | 1.0000 | | | | | | | | | | |
| PYSdel3 | 0.2982* | 0.3759* | 1.0000 | | | | | | | | | |
| TxCtr | 0.0442 | -0.0384 | -0.1143 | 1.0000 | | | | | | | | |
| Session | 0.0566 | -0.0160 | 0.0600 | 0.0171 | 1.0000 | | | | | | | |
| District | 0.0175 | 0.0663 | -0.0141 | 0.2447* | -0.1531* | 1.0000 | | | | | | |
| Gender | 0.0650 | 0.0401 | 0.0609 | -0.0824* | 0.0355 | -0.0113 | 1.0000 | | | | | |
| Ethnicity | -0.0868* | -0.0344 | -0.0147 | 0.0494 | -0.1299* | 0.2949* | 0.0177 | 1.0000 | | | | |
| BornCan | 0.0395 | 0.0732 | 0.1994* | 0.0217 | 0.0831* | -0.0486 | 0.0904* | -0.2716* | 1.0000 | | | |
| FamStruc | -0.0074 | -0.0924* | -0.1190 | 0.0288 | -0.0710 | 0.0307 | -0.0412 | 0.1338* | -0.0479 | 1.0000 | | |
| #sibs | -0.0257 | 0.0047 | 0.0335 | 0.0655 | -0.0190 | -0.1084* | -0.0371 | -0.0364 | -0.0327 | -0.1105* | 1.0000 | |
| #schools | -0.0543 | -0.1408 | -0.1741* | 0.0007 | -0.0355 | 0.0134 | -0.0526 | 0.0619 | -0.3450* | -0.0561 | 0.0847* | 1.0000 |
| Excurrics | -0.0885* | -0.0397 | -0.0644* | -0.0275 | 0.1068* | 0.0206 | 0.0311 | -0.0452 | 0.2116* | 0.0849* | -0.1563* | -0.0748 |
| School activities | -0.0232 | -0.0920* | -0.0561 | 0.1475* | 0.1064* | 0.3019* | -0.0482 | 0.0709 | 0.0089 | 0.0156 | -0.0666 | -0.0100 |
| #hrs study | -0.0123 | -0.0214 | -0.0587 | 0.1153* | -0.0031 | 0.1938* | -0.0843* | 0.1139* | -0.0442 | 0.0316 | -0.0232 | 0.0381 |
| Supervision | 0.0503 | 0.0506 | -0.1777 | -0.0657 | 0.1135* | -0.1016* | 0.0518 | -0.1952* | 0.0497 | -0.1198* | -0.0825* | 0.0640 |
| Parent BornCan | 0.0368 | -0.0045 | -0.0724 | -0.0438 | 0.1805* | -0.2277* | -0.0152 | -0.6153* | 0.3905* | -0.1475* | -0.0111 | -0.1747* |
| SSPfrdbeh | 0.1857* | 0.1872* | 0.1188 | -0.0016 | 0.1385* | 0.0492 | 0.1103* | -0.0206 | -0.0257 | -0.0829* | 0.0087 | 0.0718 |
| PHanxiety | -0.1222* | -0.0687 | 0.0535 | -0.0626 | -0.0042 | -0.1432* | 0.2348* | -0.0373 | 0.0968* | 0.0740 | -0.0346 | -0.0515 |
| SSPsch | -0.2746* | -0.2237 | -0.0457 | -0.0196 | 0.0018 | -0.0640 | -0.0821* | 0.0025 | 0.0788* | 0.0920* | 0.0013 | -0.0139 |
| SSPfrdsup | -0.1540* | -0.0742 | -0.0275 | -0.0747 | -0.0047 | 0.0248 | 0.1115* | 0.0120 | 0.0427 | 0.0558 | -0.0339 | -0.0313 |

| | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|---|---|
| Excurrics | 1.0000 | | | | | | | | |
| School activities | 0.0557 | 1.0000 | | | | | | | |
| #hrs study | -0.0171 | 0.0774 | 1.0000 | | | | | | |
| Supervision | 0.0555 | 0.0144 | -0.0249 | 1.0000 | | | | | |
| Parent BornCan | 0.1305* | -0.0086 | -0.1220* | 0.1798* | 1.0000 | | | | |
| SSPfrdbeh | 0.0233 | -0.0970* | 0.0103 | 0.1228* | 0.0636 | 1.0000 | | | |
| PHanxiety | 0.1947* | 0.0083 | -0.0795* | -0.0144 | 0.0805* | -0.1120* | 1.0000 | | |
| SSPsch | 0.1735* | 0.0466 | -0.0016 | -0.0139 | 0.0875* | -0.1398* | 0.3370* | 1.0000 | |
| SSPfrdsup | 0.1441* | 0.0942* | -0.0243 | -0.0354 | 0.0295 | -0.0681 | 0.1300* | 0.4205* | 1.0000 |

Note: PYSdel1 = Attitudes toward delinquency scale pre-test; PYSdel2 = Attitudes toward delinquency scale post-test; PYSdel3 = Attitudes toward delinquency scale follow-up; TxCtr = YEP involvement; Session = Program session (i.e., Fall vs. Spring); District = School district; Gender = Participant gender; Ethnicity = Participant ethnicity; BornCan = Student immigration status; FamStruc = Family structure; #sibs = Number of siblings; #schools = Number of schools attended; Excurrics = Participation in extra-curricular activities; School activities = Participation in school-based activities; #hrs study = Number of hours spent studying; Supervision = Afterschool supervision; Parent BornCan = Parents' immigration status; SSPschool = School Satisfaction scale (pre-test); SSPfrdsup = Friend support scale (pre-test); PH anxiety = Freedom from anxiety scale (pre-test); SSPfrdbeh = Friend behavior scale (pre-test)

## Primary Analyses

### *Attitudes Toward Delinquency*

MLMs were implemented to examine adolescents' attitudes toward delinquency from pre-test (Time 1) to post-test (Time 2) and to examine the impact of YEP involvement on adolescents' attitudes toward delinquency. As shown in Table 5.6, no significant main effect is found for YEP involvement ($B$ = 0.361, $z$ = 1.62, $p$ = .104). This means that there is no significant difference between the TX and CTL group participants at pre-test with respect to attitudes toward delinquency. A statistically significant main effect for time was found, suggesting that, as a group, students reported more favourable attitudes toward delinquency from pre-test to post-test ($B$ = 0.377, $z$ = 2.59, $p$ < .01). Although the finding that adolescents' attitudes toward delinquency increase over time is perhaps not surprising – for instance, the occurrence of increased delinquency during teenage years is well established (e.g., Moffitt, 1993), this finding may be important to inform interventions that focus on youths' transition to high school and include crime/delinquency-related topics. Additionally, the two-way interaction between YEP involvement and time is not statistically significant ($B$ = -0.600, $z$ = -1.88, $p$ = .06), indicating that students in the TX group do not differ from those in the CTL group with respect to their attitudes toward delinquency over time (i.e., from pre-test to post-test). Additionally, the findings indicate that students who were born in Canada had more favourable attitudes towards delinquency than did those who had immigrated to Canada ($p$ < .05), attendance at a greater number of schools is associated with less favourable attitudes to delinquency ($p$ < .01), a high level of association with delinquent peers at baseline is associated with more favourable attitudes toward delinquency ($p$ < .05), and greater school satisfaction at baseline is associated with less favorable attitudes toward delinquency ($p$ < .001). Finally, the random-effects parameters suggest that the effect of the students' primary school on the outcome is minimal (i.e., there is no variation at the primary school level above and beyond what is already controlled for in the model).

**Table 5.6. Multilevel Regression of Short-Term Attitudes Toward Delinquency (N = 582)**

| Dependent Variable | B | Robust S.E. | z | P > \|z\| | 95% C.I. | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| YEP involvement | 0.361 | 0.222 | 1.62 | 0.104 | -0.075 | 0.797 |
| Time | 0.377 | 0.145 | 2.59 | 0.009** | 0.092 | 0.662 |
| YEP involvement*time | -0.600 | 0.319 | -1.88 | 0.060 | -1.23 | 0.025 |
| School district | 0.267 | 0.201 | 1.33 | 0.184 | -0.127 | 0.661 |
| Gender | 0.086 | 0.170 | 0.50 | 0.615 | -0.247 | 0.418 |
| Ethnicity | -0.471 | 0.333 | -1.41 | 0.157 | -1.12 | 0.182 |
| Family structure | -0.104 | 0.205 | -0.51 | 0.612 | -0.506 | 0.298 |
| Student immigration status | 0.400 | 0.198 | 2.02 | 0.043* | 0.012 | 0.789 |
| # siblings | -0.040 | 0.065 | -0.61 | 0.542 | -0.168 | 0.088 |
| # schools attended | -0.207 | 0.070 | -2.96 | 0.003** | -0.344 | -0.070 |
| Extra-curricular activities | -0.070 | 0.058 | -1.20 | 0.229 | -0.183 | 0.044 |
| School-based activities | -0.112 | 0.100 | -1.12 | 0.264 | -0.308 | 0.084 |
| # hrs spent studying | -0.020 | 0.037 | -0.55 | 0.581 | -0.092 | 0.052 |
| At-home supervision | 0.089 | 0.059 | 1.50 | 0.134 | -0.027 | 0.205 |
| Friend Behavior | 0.112 | 0.042 | 2.68 | 0.007** | 0.030 | 0.194 |
| Freedom from Anxiety | -0.003 | 0.024 | -0.13 | 0.898 | -0.050 | 0.044 |
| School Satisfaction | -0.221 | 0.056 | -3.95 | 0.000*** | -0.331 | -0.111 |
| Friend Support | -0.004 | 0.024 | -0.18 | 0.860 | -0.052 | 0.044 |
| *Constant* | 4.74 | 1.40 | 3.38 | 0.001 | 1.99 | 7.48 |

| **Random-effects parameters** | ***Estimate*** | ***Robust S.E.*** | ***95% C.I.*** | |
|---|---|---|---|---|
| | | | ***Lower*** | ***Upper*** |
| elem_school: Identity var(_cons) | 0.131 | 0.064 | 0.051 | 0.340 |
| id: Identity var(_cons) | 1.318 | 0.146 | 1.061 | 1.637 |
| Residual: Exchangeable varl | 3.650 | 0.512 | 2.773 | 4.806 |
| l(e) | -0.122 | 0.173 | -0.460 | 0.216 |

Log pseudolikelihood = -5015.463; Wald chi2(18) = 287.29; Prob > chi2 = 0.0000
*p < .05, **p < .01, ***p < .001

### *Association with Delinquent Peers*

Next, an MLM was used to examine adolescents' association with delinquent peers from pre-test (Time 1) to post-test (Time 2) and the impact of YEP involvement on adolescents' association with delinquent peers. See Table 5.7. No significant main effects were found for YEP involvement (i.e., no significant difference between the TX and CTL group participants on association with delinquent peers at pre-test ($B$ = 0.010, $z$ = 0.04, $p$ = .97)) or time (i.e., no significant change in association with delinquent peers from pre-test to post-test ($B$ = 0.210, $z$ = 1.42, $p$ = .16)). Additionally, the two-way interaction of YEP involvement and time is not statistically significant, meaning that the students in the TX group do not differ from those in the CTL group with respect to their association with delinquent peers from pre-test to post-test ($B$ = -0.142, $z$ = -0.69, $p$ = .49). The findings also indicate that, compared to their female classmates, males report a greater association with delinquent peers ($p$ < .01), participation in more school activities is linked to a reduced association with delinquent peers ($p$ < .001), more unsupervised time at home is related to a greater association with delinquent peers ($p$ < .05), more favorable attitudes toward delinquency at baseline predicts a higher association with delinquent peers ($p$ < .05), and low feelings of anxiousness at baseline is related to fewer associations with delinquent peers ($p$ < .05). Similar to above, the findings from the model suggest that the effect of the students' primary school on the outcome is minimal.

**Table 5.7. Multilevel Regression for Short-Term Association with Delinquent Peers (N = 582)**

| Dependent Variable | *B* | Robust S.E. | z | P > \|z\| | 95% C.I. | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| YEP involvement | 0.010 | 0.228 | 0.04 | 0.966 | -0.437 | 0.457 |
| Time | 0.210 | 0.148 | 1.42 | 0.155 | -0.079 | 0.499 |
| YEP involvement*time | -0.142 | 0.206 | -0.69 | 0.492 | -0.545 | 0.262 |
| School district | 0.042 | 0.456 | 0.09 | 0.927 | -0.851 | 0.934 |
| Gender | 0.810 | 0.304 | 2.67 | 0.008** | 0.215 | 1.41 |
| Ethnicity | 0.032 | 0.293 | 0.11 | 0.913 | -0.543 | 0.606 |
| Family structure | -0.152 | 0.298 | -0.51 | 0.611 | -0.737 | 0.433 |
| Student immigration status | -0.010 | -0.230 | -0.05 | 0.964 | -0.461 | 0.441 |
| # siblings | 0.031 | 0.064 | 0.48 | 0.629 | -0.094 | 0.156 |
| # schools attended | 0.107 | 0.140 | 0.76 | 0.445 | -0.167 | 0.380 |
| Extra-curricular activities | 0.119 | 0.068 | 1.75 | 0.081 | -0.015 | 0.254 |
| School-based activities | -0.349 | 0.038 | -9.10 | 0.000*** | -0.424 | -0.274 |
| # hrs spent studying | 0.034 | 0.111 | 0.30 | 0.761 | -0.184 | 0.252 |
| At-home supervision | 0.235 | 0.107 | 2.18 | 0.029* | 0.024 | 0.445 |
| Attitudes Toward Delinquency | 0.097 | 0.048 | 2.02 | 0.044* | 0.003 | 0.190 |
| Freedom from Anxiety | -0.079 | 0.031 | -2.53 | 0.012* | -0.141 | -.0018 |
| School Satisfaction | 0.012 | 0.041 | 0.28 | 0.778 | -0.069 | 0.092 |
| Friend Support | -0.033 | 0.053 | -0.63 | 0.527 | -0.137 | 0.070 |
| *Constant* | 11.2 | 0.872 | 12.9 | 0.000 | 9.51 | 12.9 |

| Random-effects parameters | Estimate | Robust S.E. | 95% C.I. Lower | 95% C.I. Upper |
|---|---|---|---|---|
| elem_school: Identity var(_cons) | 1.247 | 1.511 | 0.116 | 13.404 |
| id: Identity var(_cons) | 2.700 | 0.364 | 2.073 | 3.517 |
| Residual: Exchangeable) cov(e) | 2.571 | 0.507 | 1.747 | 3.786 |
| | 0.001 | 0.190 | -0.371 | 0.373 |

Log pseudolikelihood = -4964.8219; Wald chi2(18) = 1069.59; Prob > chi2 = 0.0000
*p < .05, **p < .01, ***p < .001

## Supplementary Analyses

Supplementary analyses were conducted on the subset of students who completed the follow-up survey after transitioning to high school (grade 8). Analyses examined students' attitudes toward delinquency and association with delinquent peers after the transition to high school, as well as the long-term effects of YEP participation on attitudes toward delinquency and association with delinquent peers. Due to the considerable attrition of the study sample on the follow-up survey (N = 172), these findings should be considered preliminary.

### *Attitudes Toward Delinquency*

Findings from the MLM show no significant main effect for YEP involvement ($B$ = -0.071, z = -0.17, $p$ = .87), time ($B$ = 0.069, $z$ = 0.46, $p$ = .65), or for the two-way interaction of YEP involvement and time ($B$ = -0.083, $z$ = -0.45, $p$ = .65). See Table 5.8. Altogether, these findings suggest that throughout the transition to high school, students' attitudes toward delinquency do not vary based on YEP participation or over time. As well, the YEP does not significantly impact participants' attitudes toward delinquency in the long term. With respect to the control variables, the findings show that compared to students who immigrated to Canada, those born in Canada have more favourable attitudes toward delinquency ($p < .05$) and that greater school satisfaction at baseline is associated with less favourable attitudes toward delinquency ($p < .01$). The random-effects parameters suggest that there is no variation at the primary school level above and beyond what is already controlled for in the model.

**Table 5.8. Multilevel Regression for Long-Term Attitudes Toward Delinquency (N = 172)**

| Dependent Variable | *B* | Robust S.E. | z | P > \|z\| | 95% C.I. | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| YEP involvement | -0.071 | 0.421 | -0.17 | 0.866 | -0.896 | 0.754 |
| Time | 0.069 | 0.150 | 0.46 | 0.645 | -0.224 | 0.362 |
| YEP involvement*time | -0.083 | 0.183 | -0.45 | 0.650 | -0.442 | 0.276 |
| School district | 0.471 | 0.332 | 1.42 | 0.155 | -0.179 | 1.12 |
| Gender | -0.014 | 0.256 | -0.06 | 0.956 | -0.517 | 0.488 |
| Ethnicity | -0.484 | 0.416 | -1.16 | 0.244 | -1.30 | 0.331 |
| Family structure | -0.257 | 0.189 | -1.36 | 0.174 | -0.628 | 0.114 |
| Student immigration status | 0.820 | 0.399 | 2.06 | 0.040* | 0.038 | 1.60 |
| # siblings | -0.010 | 0.083 | -0.12 | 0.907 | -0.172 | 0.152 |
| # schools attended | -0.143 | 0.172 | -0.83 | 0.405 | -0.481 | 0.194 |
| Extra-curricular activities | -0.090 | 0.124 | -0.72 | 0.469 | -0.333 | 0.153 |
| School-based activities | 0.045 | 0.191 | 0.24 | 0.812 | -0.329 | 0.420 |
| # hrs spent studying | -0.097 | 0.112 | -0.87 | 0.383 | -0.316 | 0.122 |
| At-home supervision | -0.086 | 0.139 | -0.62 | 0.538 | -0.359 | 0.187 |
| Friend Behavior | 0.090 | 0.073 | 1.23 | 0.217 | -0.053 | 0.233 |
| Freedom from Anxiety | -0.025 | 0.057 | -0.43 | 0.664 | -0.137 | 0.087 |
| School Satisfaction | -0.111 | 0.036 | -3.13 | 0.002** | -0.181 | -0.042 |
| Friend Support | 0.015 | 0.065 | 0.23 | 0.821 | -0.112 | 0.141 |
| *Constant* | 3.67 | 1.36 | 2.69 | 0.007 | 0.996 | 6.34 |

| Random-effects parameters | Estimate | Robust S.E. | 95% C.I. Lower | 95% C.I. Upper |
|---|---|---|---|---|
| elem_school: Identity | | | | |
| var(_cons) | 0.344 | 0.183 | 0.123 | 0.972 |
| id: Identity | | | | |
| var(_cons) | 0.588 | 0.480 | 0.119 | 2.910 |
| Residual: AR(1) | | | | |
| rho | 0.196 | 0.161 | -0.129 | 0.483 |
| var(e) | 3.064 | 0.810 | 1.824 | 5.145 |

Log pseudolikelihood = -2159.7649; Wald chi2(18) = 810.39; Prob > chi2 = 0.0000
*p < .05, **p < .01

### *Association with Delinquent Peers*

Findings from the MLM show no significant main effect for YEP involvement (*B* = -0.194, *z* = -0.30, *p* = .76) or the two-way interaction of YEP involvement and time (*B* = 0.298, *z* = 0.90, *p* = .37). However, there is a statistically significant main effect for time (*B* = 0.355, *z* = 2.57, *p* = .01) which indicates that, as a group, students reported a greater association with delinquent peers from pre-test (grade 7) to follow-up (after the transition to high school). The random-effects parameters suggest that the effect of the students' primary school on the outcome is minimal. See Table 5.9. Although these are preliminary findings and should be interpreted with caution, this finding may be important to inform interventions that focus on youths' peer networks and social circles throughout the transition to high school.

**Table 5.9. Multilevel Regression for Long-Term Association with Delinquent Peers (N = 172)**

| Dependent Variable | B | Robust S.E. | z | P > \|z\| | 95% C.I. | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| YEP involvement | -0.194 | 0.646 | -0.30 | 0.764 | -1.46 | 1.07 |
| Time | 0.355 | 0.138 | 2.57 | 0.010** | 0.085 | 0.626 |
| YEP involvement*time | 0.298 | 0.330 | 0.90 | 0.367 | -0.349 | 0.945 |
| School district | 0.237 | 0.579 | 0.41 | 0.681 | -0.896 | 1.37 |
| Gender | 0.132 | 0.395 | 0.33 | 0.739 | -0.643 | 0.907 |
| Ethnicity | -0.161 | 0.656 | -0.25 | 0.806 | -1.45 | 1.12 |
| Family structure | -0.025 | 0.699 | -0.04 | 0.972 | -1.39 | 1.34 |
| Student immigration status | -0.221 | 0.347 | -0.64 | 0.525 | -0.902 | 0.460 |
| # siblings | -0.161 | 0.173 | -0.93 | 0.351 | -0.501 | 0.178 |
| # schools attended | 0.056 | 0.161 | 0.34 | 0.730 | -0.260 | 0.371 |
| Extra-curricular activities | -0.034 | 0.143 | -0.24 | 0.813 | -0.315 | 0.247 |
| School-based activities | -0.149 | 0.099 | -1.50 | 0.133 | -0.343 | 0.045 |
| # hrs spent studying | 0.062 | 0.208 | 0.30 | 0.767 | -0.345 | 0.469 |
| At-home supervision | 0.126 | 0.179 | 0.70 | 0.481 | -0.225 | 0.478 |
| Attitudes Toward Delinquency | 0.078 | 0.085 | 0.92 | 0.356 | -0.088 | 0.245 |
| Freedom from Anxiety | -0.038 | 0.075 | -0.51 | 0.609 | -0.185 | 0.109 |
| School Satisfaction | 0.101 | 0.112 | 0.90 | 0.366 | -0.119 | 0.321 |
| Friend Support | -0.154 | 0.080 | -1.93 | 0.053 | -0.310 | 0.002 |
| *Constant* | 11.5 | 1.92 | 6.00 | 0.000 | 7.76 | 15.3 |

| Random-effects parameters | Estimate | Robust S.E. | 95% C.I. Lower | 95% C.I. Upper |
|---|---|---|---|---|
| elem_school: Identity | | | | |
| var(_cons) | 1.171 | 0.607 | 0.424 | 3.234 |
| id: Identity | | | | |
| var(_cons) | 1.688 | 0.703 | 0.746 | 3.819 |
| Residual: AR(1) | | | | |
| rho | 0.112 | 0.223 | -0.320 | 0.505 |
| var(e) | 5.621 | 0.848 | 4.182 | 7.555 |

Log pseudolikelihood = -2530.8758; Wald chi2(18) = 123.41; Prob > chi2 = 0.0000
**p < .01

# Discussion

Although a relatively new approach, group mentoring has become a popular intervention for youth (Garringer et al., 2017). The YEP is a set of afterschool, group mentoring interventions for primary school students in metro Vancouver, British Columbia and is designed to help youth transition to high school. The aim of this study was to examine adolescents' attitudes toward delinquency and association with delinquent peers throughout the transition to high school and assess the short- and long-term impact of the YEP on students' attitudes toward delinquency and association with delinquent peers. Although the YEP does not directly target delinquency-related outcomes, there is ample theoretical support to suggest that ASPs and group mentoring programs have the potential to reduce delinquency and other delinquency-related outcomes (e.g., see Taheri and Welsh (2016), Raposa and colleagues (2019)). Furthermore, many of the program's objectives and targeted outcomes include risk factors and protective factors for delinquency (e.g., sense of self, healthy relationships, responsible decision-making, connectedness to community). Consequently, it was hypothesized that the YEP may have a positive impact on participants' attitudes toward delinquency and their association with delinquent peers.

The findings show that students reported significantly more favourable attitudes toward delinquency throughout grade 7 (i.e., pre-test to post-test) and greater association with delinquent peers from grade 7 to grade 8 (i.e., pre-test to follow-up). These findings are important as extensive empirical research has shown that delinquent attitudes are a strong predictor of current/future delinquent behaviours (e.g., Engels et al., 2004; Rebellon et al., 2014; Thornberry et al., 1994; Zhang et al., 1997) and that the strong relationship between delinquent attitudes and behaviours is especially true for 'starting delinquents' who have not frequently engaged in deviant behaviours (Engels et al., 2004). In addition, considerable research has repeatedly shown that associating with deviant peers is a strong predictor of delinquency (e.g., Dishion & Tipsord, 2011; Mrug et al., 2014; Thornberry et al., 1994; Wang & Dishion, 2012; Zhu et al., 2016). Although increased tendencies toward deviancy in adolescence are considered normative, some criminological theories suggest that most of these youth are likely to be adolescence-limited offenders, and their criminal/deviant tendencies will desist as they move into early adulthood (Laub & Sampson, 1993; Moffitt, 1993). The evidence that youth's attitudes

and peer association play such a significant role in their engagement with deviant behaviours at a critical period of transition should not be minimized. Existing research is clear that 'problem behaviour' (e.g., fighting, disruptive behaviour, non-compliance) is a barrier to positive school transition (Darmody, 2008; Rice et al., 2011), and much research has shown that a challenging/adverse experience when transitioning to high school is associated with negative outcomes such as lower academic achievement, lower school engagement, lower socio-emotional well-being, unhealthy peer relationships, and school dropout (Benner, 2011; Benner et al., 2017; Coffey et al., 2011; Hanewald, 2013; Killebrew, 2017; McIntosh et al., 2008; van Rens et al., 2018; Waters et al., 2012). Although adolescents' heightened inclinations toward deviancy may be commonly considered 'normal' and temporary, if not curbed, problem behaviour exhibited during the transition to high school can have many negative indirect consequences for youth.

Consistent with existing literature on ASPs that use a mentoring approach (e.g., Taheri & Welsh, 2016), the findings of this study indicate that participation in the YEP does not have a significant impact on participants' attitudes toward delinquency and association with delinquent peers, in either the short- or long-term. As discussed above, it is well known that deviance and delinquency-related behaviours tend to increase during adolescence (e.g., Moffitt, 1993). As such, it is perhaps not surprising that no program impact was found and that, instead, students developed significantly more favourable attitudes toward delinquency as they moved through grade 7 and reported a significantly greater association with delinquent peers from grade 7 to grade 8. Importantly, youth in this study were not selected to participate in the YEP due to elevated delinquency and, overall, the sample demonstrated low scores on the delinquency-related measures at baseline. As a result, the likelihood of observing notable decreases in delinquency measures over a short timeframe was perhaps not likely. Taken another way, the results of the study are promising in the sense that they do not indicate any signs of peer contagion or deviancy training because of participating in the YEP, which are significant concerns for interventions that involve groups of adolescents (Gottfredson et al., 2010; Rorie et al., 2011). Peer contagion and deviancy training can have detrimental effects on individuals undergoing group-based interventions and can undermine the effectiveness of such interventions. The absence of evidence for peer contagion and deviancy training in the study is a positive finding,

suggesting that group-based interventions can be a viable option for addressing the transition to high school and related issues without the risk of negative peer influence.

The program's (lack of) impact on delinquent attitudes and peer associations does not diminish the YEP's work to achieve other outcomes of adolescent well-being (e.g., increased self-esteem, connectedness to the community). However, existing research on youth and adolescence has shown that engaging in deviant behaviours throughout the transition to high school can have adverse impacts on youth. As such, the need for interventions that support youth throughout this transition, particularly interventions which target predictors of adolescent delinquency, is well supported (Shi & Moody, 2017; West et al., 2010). If the YEP aims to impact youth delinquency, more targeted program efforts are needed. For instance, evidence-based findings on youth mentoring programs suggest that 'targeted' mentoring programs (e.g., programs that target specific populations of youth based on presenting problems) are more effective than 'non-targeted' mentoring programs (e.g., programs that focus on a general population of youth and focus on general relationship-building; Christensen et al., 2020)). The YEP might successfully achieve reductions in delinquency and other related measures by placing more emphasis on recruiting at-risk youth and including more content that is directly focused on preventing delinquent attitudes and/or behaviours.

To date, there are few evidence-based practices for afterschool programs or group-based mentoring programs that target youth delinquency. An in-depth search of the literature did not uncover any syntheses that identified program features or characteristics that are consistently linked to positive program impacts. One meta-analysis (Tolan et al., 2014) found that mentoring programs with 'emotional support' and 'advocacy' components were related to strong program effects with respect to adolescent delinquency, however, because these findings are not derived from primary studies that examined group-based mentoring, the generalization of these findings to the current context is unknown. The paucity of evidence-based best practices for prevention programs that target delinquency in either the afterschool setting and/or group mentoring context is a concerning gap in the literature. More research is needed to determine what works for delinquency prevention interventions in the afterschool setting and group mentorship context. Additionally, more empirical research is needed to inform best practices for interventions that target youths' healthy transition to high school. Further, systematic reviews of interventions that focus on school transition suggest that more

research is needed to identify program features and mechanisms that are effective at facilitating the transition experience from middle school to high school (Bharara, 2020; Donaldson et al., 2023).

## Limitations

While this study has several notable strengths (e.g., large sample size, rigorous weighting technique to reduce the threat of selection bias, validated measurement scales, analytic techniques that account for the multilevel/clustered nature of the data, longitudinal analysis), there are some limitations to note. First, though teachers and principals from the participating schools were asked to identify at-risk youth and encourage them to enroll in the program, the YEP does not directly target at-risk youth. Consequently, the study sample was not highly deviant. For instance, although students' scores spanned across the entire range of the Friend Behavior scale and Attitudes Toward Delinquency scale (indicating variety in participants' responses), the mean scores for both dependent variables at all time points were low, indicating that most of the sample reported disapproving attitudes toward delinquency and low rates of associating with delinquent peers.

Second, in the current study, the outcome variables were treated as independent, despite the possibility of inter-relationships between them. For instance, attitudes towards delinquency might have played a role in the association with delinquent peers. Therefore, future research should consider using mediation and/or moderation analyses to explore these potential relationships. Additionally, while it would have been interesting to examine group-level program differences between boys and girls, the MLM models with the three-way interaction of YEP involvement, time, and gender failed to converge.

Third, all the data were from youth self-report questionnaires. While self-report data have some advantages over official reports (e.g., self-report measures are beneficial when assessing a participant's feelings, thoughts, attitudes, and perceptions), there are also limitations. For instance, the validity of the data is contingent on the honesty/accuracy of the participant responses. Due to the sensitive nature of the questions about delinquency, some students may have underreported their attitudes toward delinquent behaviours and/or their association with delinquent peers.

Additionally, because students completed the surveys at Time 1 and Time 2 during class time, and teachers were present in the classroom while students completed the surveys, it is possible that students provided socially desirable responses on their surveys. While participants were informed that the survey was not a test (i.e., “this is not a test and there are no right or wrong answers”) and were assured that no one other than the researchers would see their responses (i.e., “the surveys will only be seen by Dr. Wong and her research assistants. This means that your answers will not be seen by your teachers, your principal, or your parents”), they nonetheless may have had concerns of social desirability and/or fear of negative repercussions based on their responses to specific survey questions.

Fourth, due to the considerable attrition of participants at Time 3, the primary analyses are based on immediate program effects only (i.e., short-term outcomes). One of the primary limitations of existing empirical studies on ASPs and youth mentoring programs is the lack of long-term follow-up. Although the current study fills a gap in the existing literature by providing supplemental analyses of long-term outcomes, a longer follow-up time after the transition to high school may have yielded different findings. Additionally, because of the high attrition at follow-up (and related concerns about attrition bias, etc.), little is known about how the program affects youth’s transition to high school in the longer term. See Chapter 4 for an additional discussion of limitations pertaining to participant attendance records and implementation fidelity.

## Conclusion

As an adverse transition to high school can have numerous negative and long-term impacts on youth (Evans et al., 2018; Jindal-Snape et al., 2020), considerable research has demonstrated the importance of studying developmental turning points, such as the transition to high school (Benner, 2011; Benner et al., 2017; Hayward & Gorman, 2004). Inconsistent with existing research on the effectiveness of 1:1 mentoring programs on youth problem/high-risk behaviour (e.g., DuBois et al., 2002; DuBois et al.,2011; Raposa et al., 2019; Tolan et al., 2014), the findings of this study indicate that participation in the YEP (a group mentoring program) does not significantly impact measures of youth delinquency in either the short-or long-term. Further, consistent with existing literature on adolescent delinquency (e.g., Moffitt, 1993), youth who participated in this study demonstrated an increased inclination toward delinquency over time. Future

research should aim to establish best practices for delinquency prevention interventions that are delivered in an afterschool setting and/or the group mentoring context (e.g., see Shi & Moody, 2017; West et al., 2010). Evidence-based best practices for educational transition programs for youth are also sorely needed (Bharara, 2020; Donaldson et al., 2023).

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# Supplementary Table: Comparison Table for Overall Sample

| Covariate | Balance analysis (unadjusted) | | | Balance analysis (trimmed and weighted) | | |
|---|---|---|---|---|---|---|
| | CTR *M(SD)/n(%)* | TX *M(SD)*/n*(%)* | Std Diff | CTR *M(SD)*/n*(%)* | TX *M(SD)*/n*(%)* | Std Diff |
| **Program session** | | | | | | |
| Fall | 267 (63.6%) | 141 (61.8%) | 0.036 | 212.7 (65.2%) | 182.7 (60.0%) | 0.107 |
| Spring | 153 (36.4%) | 87 (38.2%) | | 113.7 (34.8%) | 121.9 (40.0%) | |
| **School district** | | | | | | |
| District 1 | 213 (50.7%) | 58 (25.4%) | **0.539** | 134.2 (41.1%) | 112.4 (36.9%) | 0.086 |
| District 2 | 207 (49.3%) | 170 (74.6%) | | 192.2 (58.9%) | 192.2 (63.1%) | |
| **Gender** | | | | | | |
| Female | 206 (49.3%) | 132 (57.9%) | 0.173 | 170.8 (52.6%) | 172.6 (56.7%) | 0.082 |
| Male | 212 (50.7%) | 96 (42.1%) | | 153.7 (47.4%) | 131.9 (43.3%) | |
| **Ethnicity** | | | | | | |
| Caucasian | 88 (21.0%) | 38 (16.9%) | 0.105 | 66.07 (20.3%) | 61.31 (20.3%) | 0.001 |
| Visible minority | 331 (79.0%) | 187 (83.1%) | | 259.9 (79.7%) | 240.7 (79.7%) | |
| **Were you born in Canada?** | | | | | | |
| No | 119 (28.5%) | 60 (26.4%) | 0.046 | 88.35 (27.2%) | 81.96 (27.0%) | 0.003 |
| Yes | 299 (71.5%) | 167 (73.6%) | | 237.1 (72.8%) | 221.6 (73.0%) | |
| **Do your biological parents live in the same house as you?** | | | | | | |
| No | 66 (15.9%) | 31 (13.8%) | 0.061 | 48.68 (15.1%) | 44.77 (14.9%) | 0.006 |
| Yes | 348 (84.1%) | 194 (86.2%) | | 273.8 (84.9%) | 255.8 (85.1%) | |
| **# siblings or step-siblings** | | | | | | |
| | 1.46 (1.13) | 1.62 (1.21) | -0.136 | 1.52 (1.19) | 1.61 (1.17) | -0.075 |
| **# times you changed schools** | | | | | | |
| | .808 (1.04) | .810 (1.0) | -0.002 | .816 (1.04) | .830 (1.00) | -0.019 |
| **Parents' immigration status** | | | | | | |
| Both | 273 (65.8%) | 157 (70.1%) | 0.092 | 215.0 (66.7%) | 201.3 (67.0%) | 0.007 |
| At least one | 142 (34.2%) | 67 (29.9%) | | 107.6 (33.3%) | 99.2 (33.0%) | |
| **# days per week in extra-curricular activities** | | | | | | |
| | 2.89 (1.22) | 2.83 (1.20) | 0.058 | 2.87 (1.21) | 2.82 (1.19) | 0.034 |
| **# days per week in activities during school hours** | | | | | | |
| | .183 (.62) | .412 (.90) | **-0.295** | .261 (.75) | .280 (0.75) | -0.029 |
| **# hours spent studying on a school night** | | | | | | |
| | 3.33 (1.22) | 3.64 (1.29) | **-0.240** | 3.36 (1.20) | 3.49 (1.30) | -0.105 |
| **# days per week at home with no supervision** | | | | | | |
| | 2.27 (1.17) | 2.12 (1.04) | 0.140 | 2.22 (1.15) | 2.20 (1.07) | 0.018 |

| Covariate | Balance analysis (unadjusted) | | | Balance analysis (trimmed and weighted) | | |
|---|---|---|---|---|---|---|
| | CTR *M(SD)/n(%)* | TX *M(SD)*/n*(%)* | Std Diff | CTR *M(SD)*/n*(%)* | TX *M(SD)*/n*(%)* | Std Diff |
| **Baseline Attitudes Toward Delinquency Scale score** | | | | | | |
| | 1.69 (2.10) | 1.89 (2.40) | -0.091 | 1.70 (2.14) | 2.01 (2.65) | -0.131 |
| **Baseline Friend Behavior Scale score** | | | | | | |
| | 11.6 (2.29) | 11.6 (2.25) | 0.003 | 11.6 (2.30) | 11.7 (2.35) | -0.029 |
| **Baseline School Engagement Scale score** | | | | | | |
| | 18.0 (2.78) | 17.9 (3.00) | 0.041 | 18.0 (2.79) | 17.8 (3.12) | 0.068 |
| **Baseline Friend Support Scale score** | | | | | | |
| | 12.6 (2.27) | 12.3 (2.43) | 0.155 | 12.7 (2.23) | 12.1 (2.54) | **0.247** |
| **Baseline Freedom From Anxiety Scale score** | | | | | | |
| | 9.24 (3.32) | 8.80 (3.33) | 0.131 | 9.08 (3.33) | 8.82 (3.34) | 0.079 |

# Chapter 6. Conclusion

The transition from primary to secondary school is an important and challenging stage in every student's educational journey. It is a time when students are expected to adapt to a new environment, make new friends, and deal with increased academic demands. However, research shows that for many students, the transition to secondary school can be a difficult experience that leads to academic and motivational issues, disengagement from school, and social disconnection from peers (Anderson et al., 2000; Bru et al., 2010; Waters et al., 2012). Additionally, students often struggle to cope with the transition to secondary school even after the first year (Jindal-Snape & Foggie, 2008; Rice et al., 2011; West et al., 2010). Overall, more rigorous research is needed to understand the challenges and issues that are experienced by adolescents as they move from primary to secondary school and to develop effective strategies to support students during this educational transition. The three articles that are presented in this thesis aim to help fill that gap.

The focus of this thesis is to examine the experience of adolescents in metro Vancouver as they go through the primary-secondary school transition, with attention to how students' experiences differ by gender and whether participation in the YWCA YEP has a positive effect on students' move to high school.

Study 1 is centered around students' concerns about high school and focuses on the following research questions: (1) what are the key areas in which students have concerns about high school and do these differ between boys and girls? and (2) what are the challenges/difficulties experienced by students after their first semester in high school and do these differ between genders?

Study 2 focuses on the YEP objective of 'promoting the development of participants' skills and knowledge required for developing healthy relationships' and examines youths' perceptions of friend support across the transition from primary to secondary school. The study examines the following research questions: (1) Do youths' perceptions of friend support change throughout the transition to high school? (2) Do perceptions of friend support vary by gender? (3) What are the short-term and long-term impacts of the YEP on students' perceptions of friend support? and (4) Is there an

interaction effect of gender and YEP participation on students' perceptions of friend support?

Study 3 is centered around the YEP objective of 'promoting the development of participants' skills and knowledge required for responsible decision-making' and focuses on youths' attitudes toward delinquency and association with delinquent peers. The study aims to answer the following research questions: (1) Do adolescents' attitudes toward delinquency and association with delinquent peers change throughout the transition to high school? and (2) What are the short-term and long-term impacts of the YEP on youths' attitudes toward delinquency and association with delinquent peers?

These questions are addressed by using a longitudinal dataset consisting of 798 grade 7 students from metro Vancouver. This thesis is framed by literature on youths' transition from primary to secondary school, and community-based intervention strategies such as after-school programs, group mentoring programs, and high school transition programs. Overall, several broad conclusions can be drawn from this thesis with respect to (1) youths' experience with the transition to high school, (2) gender differences in the experience of transitioning to high school, and (3) the effectiveness of afterschool group mentoring programs, like the YEP, on youth outcomes. Each of these are discussed below.

## Youths' Experience with the Transition to High School

The findings from this thesis largely confirm prior research which suggest that youth experience several simultaneous challenges around the time when they transition to high school (e.g., see Evans et al., 2018; Jindal-Snape et al., 2020). For instance, the findings from Study 1 show that youth have a wide variety of concerns about high school and find many aspects of high school to be difficult, particularly academics. Additionally, the findings from Study 3 show that youths' attitudes toward delinquency significantly increase as they near high school, and that their association with delinquent peers significantly increases throughout their transition to high school. Although some of these perceptions, attitudes and behaviours dissipated within the first semester of high school, collectively, the results confirm that some students experience several challenges leading up to the transition and sometimes after their first semester of high school.

### Gender Differences in the Experience of Transitioning to High School

Relatively little research has rigorously examined gender differences in youths' experience with the primary-secondary transition, especially with respect to peer relationships and students' concerns about high school. Overall, findings from this thesis indicate that gender affects perceptions of friend support and concerns about high school. In particular, findings from Study 2 show that boys report less support from friends than girls, and Study 1 demonstrated that both genders have different fears about the transition to high school. Together, these findings highlight the importance of acknowledging and addressing the specific challenges that students face during the transition from primary to secondary school, particularly in terms of the gendered experiences of students.

### Effectiveness of the YEP on Participants

Overall, mixed findings were observed with respect to the effectiveness of the YEP on participant outcomes. While Study 3 did not show any significant impact of the YEP in terms of participants' attitudes toward delinquency or association with delinquent peers (in either the short-term or the long-term), Study 2 demonstrated a significant relationship between participation in the YEP and perceptions of friend support in the long term. Specifically, after transitioning to high school, students who participated in the YEP had greater perceptions of friend support than those who did not participate in the program. To the best of my knowledge, no other research has rigorously examined the impact of group mentoring programs that take place in the afterschool context and focus on students' transition to high school. Considering the lack of empirical research on this type of intervention, the findings from Study 2 and 3 are both important contributions to the literature.

## Implications for Policy and Practice

As demonstrated in this thesis, the transition from primary to secondary school can be a challenging time for adolescents and many students experience difficulties when they transition from primary to secondary school. It is important to understand that expecting teenagers to adapt seamlessly to a new environment without equipping them with healthy coping mechanisms is perhaps a misguided approach. Indeed, research by

West and colleagues (2010) and Symonds and Hargreaves (2016) suggest that when students do not receive sufficient support with the transition to high school, they may have trouble staying engaged in school and adapting to their new environment. As such, it is vital to provide the necessary support and resources to students during this stage in their educational journey. Together, the findings in the thesis highlight the need for resources and support to help students adjust to various realms of high school. By doing so, students can overcome the challenges they might face during this period. Overall, professionals who are involved with adolescents in some capacity (e.g., teachers, principals, support staff, community-based program staff) may find the results of this thesis useful for making more informed decisions about how to improve school transition programs and students' outcomes before, during, and after the transition to high school. Three key takeaways from this thesis for policy and practice are discussed below.

## Focus on Building Students' Knowledge and Skills

Consistent with existing literature, the findings presented in this thesis point toward the potential benefits of providing students with skills and knowledge to navigate some of the challenges they may encounter throughout the transition to secondary school (Anafara & Schmid, 2007; McCallumore & Sparapani, 2010). To facilitate this process, schools can offer a range of programs and initiatives that help students develop the skills and knowledge they need to succeed in high school. Schools have the option of prioritizing different skills and aspects of the school transition process depending on their students' needs, such as logistical information about the high school students will be attending, peer relationships, academic skills, organization, time management, and much more. By providing students with useful tools, schools can help to ease the transition process and set students up for success in high school. For example, schools could provide orientation programs that familiarize students with their new environment (including tours), as giving students the opportunity to become familiar with the physical school environment may help alleviate some of their worries and concerns about high school. Additionally, schools could offer mentorship opportunities that connect students with older peers who can offer guidance and support. Such programs might focus on building students' social and emotional competencies, such as self-regulation and relationship-building skills. Further, schools could also offer tutoring programs for

students in their first year of high school to help them adjust to the new academic demands.

It crucial for schools to constantly assess and enhance their procedures for facilitating the transition to secondary school while keeping in mind the diverse needs and experiences of their students. As our knowledge and understanding of adolescent development expands, it is important that those who develop and/or implement such programs remain open to adjusting their approach to effectively address the needs of youth. Additionally, it is essential to assess students' needs with respect to the transition to high school and evaluate the effectiveness of school transition programs in meeting the needs of students and providing them with the requisite knowledge and skills to handle and overcome challenges.

## Implement Comprehensive/Holistic Approaches to High School Transition

While many schools have created various programs and procedures to minimize challenges and alleviate difficulties associated with the transition to secondary school and there exists a variety of school transition programs, many are narrow/singular in focus. For instance, as discussed in Chapter 1, most published research on high school transition programs focuses on Freshman/Ninth Grade Academies, which typically emphasize academic success. While interventions with a singular focus are important, they may not fully address the needs of students. For example, while programs that focus on academic success can help students with the new coursework demands of high school, they may not provide students with important logistical information about the school and its resources or help students with how to manage new social pressures that are experienced in high school.

Drawing from the findings of this thesis, high school transition programs should take a comprehensive approach to ensure a successful transition for students (Andrews & Bishop, 2012). This means looking beyond just academic preparation and considering the broader social and emotional needs of students during this time of change. Overall, the findings of this thesis point toward the need for school transition programs to include various components to help students adjust to their new environment. This could include providing opportunities for students to develop social competencies, such as

communication skills, teamwork, and conflict resolution, as these are crucial for effective interactions with peers and teachers in a new academic setting. In addition, coping strategies such as stress-management techniques, time-management skills, and problem-solving abilities can help students deal with the academic and social pressures that come with the transition to secondary school. Orientation sessions and/or bridging programs can also play an important role in alleviating students' fears and anxieties about their new school environment. By providing students with an opportunity to familiarize themselves with their new surroundings and get to know their teachers and peers, schools can help to foster a sense of belonging and create a more positive transition experience. Overall, by taking a more holistic approach to transition programming, schools can help to set students up for success and foster a positive and supportive school culture.

## Implement Tailored Intervention Approaches to Facilitate Students' Transition to High School

It is crucial to recognize that the primary-secondary school transition is a complex process, and no two students will experience the move to high school in the same way. With this in mind, schools should avoid a one-size-fits-all approach when implementing transition programming. The findings presented in this thesis put forth a strong argument for targeted approaches to high school transition that consider the unique needs, strengths, and challenges of students. In particular, the findings presented herein demonstrate the need to pay close attention to the gendered experiences of students as they navigate the transition from primary to secondary education and demonstrates that boys and girls often have different experiences leading up to, during, and/or following the transition to high school. As such, targeted approaches to school transition may involve tailoring programs to address gender-specific challenges for students to address their needs. By taking a more targeted approach to transition programming, such as adopting a gender-sensitive approach, schools can help students be better equipped to deal with the challenges they will encounter in high school and ensure that every student receives the support they need to succeed.

# Directions for Future Research

## Adolescents and their Experience with the Primary-Secondary School Transition

There is a growing need for rigorous longitudinal research that tracks adolescents for an extended period both before and after their transition to high school. Such research can help identify the long-term effects of the transition on academic, social, and emotional outcomes and inform the development of evidence-based interventions that can support students during the move to high school. By examining how factors such as academic performance, students' worries/concerns, peer relationships, and behaviours evolve over time, researchers can gain a better understanding of the challenges that students face during the transition to high school and develop effective strategies to address these challenges. Longitudinal research can also help identify risk and protective factors that influence outcomes during the transition and inform the development of tailored interventions that meet the unique needs of individual students.

Future research should also investigate how gender impacts outcomes during the transition to high school. Such research can help identify any gender-specific challenges that students may face during this time and inform the development of interventions that address these challenges. By examining the impact of gender on various outcomes (e.g., peer relationships, sense of belonging, academic engagement), researchers can gain a better understanding of how to support students before, during, and after the transition to high school. This research can also inform the development of gender-sensitive interventions that promote positive outcomes during their transition to high school.

## Afterschool, Group Mentoring, and School Transition Programs

Currently, there is a dearth of research that examines the impacts of afterschool group mentoring programs on adolescents. Given the importance of evidence-based programming (e.g., see Mihalic & Elliott, 2015), it is essential to continue evaluating afterschool group mentoring programs. Further research on this topic can inform the development of evidence-based afterschool group mentoring programs and promote

positive outcomes for youth. Additionally, more research is necessary to identify the specific components of group mentoring programs that are associated with successful youth outcomes. This research should focus on factors such as program content, group format, and the quality and quantity of mentors. By examining these variables, researchers can better understand whether group mentoring is more beneficial than one-to-one mentoring and how group mentoring programs can be improved to promote positive youth outcomes. Such research can inform the design and implementation of evidence-based group mentoring programs.

Overall, there is a pressing need for more empirical research to inform effective interventions that facilitate adolescents' transition to high school (Bharara, 2020; Donaldson et al., 2023). Such research should aim to gain a comprehensive understanding of the factors that contribute to a successful transition. For instance, researchers may examine the impact of various supports/interventions such as academic counseling, mentorship programs, peer support groups, and orientation programs that can help students adjust to the new social, structural, and academic environments. Future research on the effectiveness of school transition programs should also examine the role of school-level factors and the role that contextual factors such as teachers, classroom climate, school structure, and parental support have on student outcomes. By examining these variables, researchers can gain a better understanding of the complex factors that affect students' transition experiences and develop evidence-based interventions that address these factors. This research can also inform the development of school policies and practices that promote positive outcomes for all students during the transition to high school, regardless of their personal characteristics. By conducting in-depth empirical research in these areas, educators and policymakers can design interventions that effectively address the needs of individual students and promote a successful transition to high school.

## Metro Vancouver YWCA Youth Education Programs

Although the current study provides a useful starting point for understanding the effectiveness of the metro Vancouver YWCA YEP, further research is necessary to gain a more complete understanding of its impacts on youth. Future research on the YEP should examine other key outcomes like knowledge of program topics, acquisition of

skills, comfort level with the transition to high school, confidence, self-esteem, and so forth.

Additionally, it is worth considering that the effectiveness of the YEPs may have varied across schools. It is possible that some programs were more successful in carrying out the intended curriculum and achieving desired outcomes than others. For instance, it is possible that the success of each participant is influenced by contextual factors such as the mentoring teams' adherence to the YEP curriculum, the heterogeneity of students that participated in the program, the quality of mentors, and/or the availability of resources. As such, future research on the YEP specifically (and school transition programs more generally) should consider the extent to which program-level factors affect youth outcomes and overall program impact.

## Gender/Sexual Minority Students

While this thesis focused on the experiences of girls and boys during the transition to high school, it is crucial not to overlook the experiences of students who identify as a gender other than male/female. Future research should include a more diverse range of gender identities and examine how students of different genders experience the transition to high school differently. This research can help identify any unique challenges that students who identify as non-binary or gender non-conforming may face during this period and inform the development of evidence-based interventions that support their needs. By examining the experiences of students of different genders during the transition to high school, researchers can better understand how to support them effectively. Such research can also inform the development of inclusive high school transition programs that are tailored to meet the unique needs of sexual/gender minority youths and promote positive outcomes for this specific group of students.

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