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Link between stressor exposure and high school dropout: the moderating role of support from

parents, peers, teachers and mental health professionals

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Résumé

Divers modèles théoriques suggèrent que le soutien social peut modérer le lien entre l'exposition à des stresseurs et l'adaptation et la santé mentale (Pearlin et Bierman, 2013). En se centrant sur le lien entre l'exposition récente à des stresseurs et le décrochage scolaire, l'objectif premier de cette étude était d'examiner le rôle modérateur potentiel du soutien offert par les parents, les pairs, le personnel scolaire ou les professionnels de la santé mentale. L'objectif secondaire était de décrire les associations directes entre ces sources de soutien et le décrochage. L'échantillon (n = 545) était composé d'adolescents âgés de 14 à 18 ans (M = 16,5 ; ET = 0,9) de 12 écoles secondaires socio économiquement défavorisées de Montréal et de régions avoisinantes. Des associations bivariées *positives* entre le soutien des adultes à l'école et des professionnels de la santé mentale et le décrochage scolaire sont devenues non-significatives dans les modèles de régressions logistiques multiples incluant les deux variables indépendantes principales (exposition à des stresseurs et sources de soutien). En effet, dans ces modèles, aucune des sources de soutien n'était significativement associée au décrochage scolaire, en interaction ou directement. Ces résultats suggèrent que les adolescents exposés à davantage d'adversité ont reçu plus de soutien des adultes dans leur l'école et la communauté, mais que ce soutien n'était pas suffisant pour atténuer les impacts néfastes de l'adversité sur la persévérance scolaire ou réduire les risques de décrochage. Ainsi, en contexte d'adversité, le soutien social ordinaire pourrait ne pas être suffisant pour soutenir la persévérance.

Mots clés : stress, soutien social, décrochage scolaire, élèves à risque, adolescence, effet de modération

Abstract

Various theoretical models suggest that social support can moderate the impact of stressor exposure on adjustment and mental health outcomes (Pearlin & Bierman, 2013). This study examined whether support offered by parents, peers, school personnel, or mental health professionals moderated the association between recent stressor exposure and high school dropout. The secondary goal was to describe direct associations between these sources of support and high school dropout. The sample ($n = 545$) consisted of adolescents between 14 and 18 years old (M = 16.5; SD = 0.9) from 12 socioeconomically disadvantaged schools in Montreal and neighbouring regions. *Positive* bivariate associations between support from adults at school and from mental health professionals and dropout became non-significant in multiple logistic regression analyses including the two main independent variables (stressor exposure and sources of support). In fact, in these models, no form of social support was significantly associated with dropout, either in interaction or directly. These results suggest that adolescents with more needs received more support from adults in their school and community, but that this support was not sufficient to moderate the link between stressor exposure and dropout. Thus, it is possible that when the amount of adversity and stressors in students' lives is too high, typical support might not be sufficient to buffer their deleterious impact on school engagement and dropout.

Keywords: stress, social support, high school dropout, at-risk students, adolescence, moderation effect.

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SES: socioeconomic status

MELS: Ministère de l'Éducation et de l'Enseignement Supérieur du Québec [Quebec Ministry of Education]

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Geila Kullmann Gonçalves

Research Problem

Obtaining a high school diploma is considered fundamental for youth social inclusion and well-being. This credential is an important asset in the job market, because staying in high school until graduation promotes the development of two types of skills valued by employers, namely cognitive skills acquired from specific school subjects as well as non-cognitive abilities such as self-control or perseverance. For this reason, among others, having a high school diploma is associated with higher wages and more stable employment (Rumberger, 2011). It also opens access to higher education. Beyond employment, high school credentials are thought to be important for well-being and health. In fact, compared to peers who graduate from high school, young people who quit high school without a diploma, often referred to as "high school dropouts", tend to present more physical and mental health problems, including internalized problems as anxiety and depression (Liem et al., 2001; Orfield, 2009; Rumberger, 2011) as well as externalized problems like substance abuse and delinquency (Maynard et al., 2015; Rumberger, 2011). For society, high dropout rates mean high costs of justice, health, public assistance, along with fewer tax revenues (Belfield & Levin, 2007).

Because of its negative consequences, high school dropout is a major concern in many countries, including Canada. The problem is particularly acute in Quebec, the Canadian province with the highest dropout rate (17% against 11% for the whole country for 2016-2017; Statistics Canada, 2019). A student is considered to have dropped out when she or he exits the school system without having graduated from high school or finished studies in an alternative path of professional training or general adult education (Ministère de l'Éducation, du Loisir et du Sport, 2012). Discrepancies can also be seen within Quebec, where dropout tends to concentrate in low-income public high schools (Ministère de l'Éducation et de l'Enseignement Supérieur [MELS], 2015). These patterns reflect larger patterns of income distribution inequalities and segregation by income. Schools, where low income and racial and ethnic minority students are concentrated, are confronted with the particular challenge associated with serving youth with more needs, often with scarcer resources (Kamanzi, 2019). Moreover, SES is recognized as being strongly linked to school dropout as it represents the family financial resources that promote learning opportunities for their children. Other sociodemographic predictors of dropping out of school

are being a boy; being a foreign-born or having foreign-born parents; having family arrangements other than living with both parents; parents' level of education; having a racial or ethnic minority status (which can mean fewer resources in their homes, schools, and communities); etc. Individual factors related to educational performance predicting dropout are grade retention, failed courses, poor grades, and student mobility (Rumberger, 2011).

Dropout usually occurs after the age of 16, when school is not anymore compulsory in Quebec. At this life stage, adolescents are very sensitive when exposed to stressors in their environment. Stressors can be acute (e.g., a car accident) or chronic (e.g., poverty) and represent challenges with the potential to impact functioning, emotional balance and well-being (Spielberger, 1979). Adolescents can respond to stressors by adopting behaviours that may relieve subjective stress in the short term, but that is associated with important costs in the longer term (Romeo, 2017; Steinberg, 2014). Such patterns are relevant for high school dropout, as recent exposure to major stressors has shown to be associated with an increased likelihood of dropout (e.g., Dupéré et al., 2018a, Samuel & Burger, 2020).

Various theoretical models suggest that social support can moderate the impact of stressor exposure on adjustment in general, and on high school dropout in particular (for the latter, see Dupéré et al., 2015). First and foremost, Pearlin's stress process model (Pearlin & Bierman, 2013) highlights social support as a major resource for moderating the impact of stressors on mental health. One definition of social support offered by Cobb (1979), proposes that social support refers to feelings of being cared for, valued, and being part of a social network that have the potential to moderate the impact of stressors. A large literature on the impact of stressor exposure on various adjustment outcomes other than dropout suggests that offering support (e.g., emotional, instrumental) when such exposure occurs is potentially important to mitigate its impact (Aneshensel, 2015; Pearlin & Bierman, 2013). Inspired by these findings, prevention models in the developmental sciences suggest that offering support in late adolescence may be a key part of effective prevention programs (Bailey et al., 2017; see also Bloom, 2010; Pearlin, 2010; Rosen et al., 2019).

Even though a voluminous literature has examined the moderating role of social support in times of stressor exposure in relation to mental health outcomes, very little empirical research

has focused on how various sources of support could moderate the link between stress exposure and students' decision to quit or remain in school (for an exception, see Center for Promise, 2015; Samuel & Burger, 2020). In this context, it appears especially important to find sources of support capable of buffering the apparent triggering impact of stressors. The goal of this study was to address this gap, by evaluating whether social support from various sources moderates the link between recent stressor exposure and high school dropout. Support provided by four prominent actors in adolescents' lives was considered, including parents, peers, school personnel, and mental health professionals. Before reviewing the literature relevant to each of these sources of support, an overview of theoretical models suggesting direct and interactive links between stressor exposure and social support and problem behaviour in adolescence is provided.

Theoretical Background

High school dropout in the stress process and the life course perspective

Understanding the factors leading to dropout and the developmental periods in which they come into action is essential to understand the type of support that students need, and when they need it. Students' needs likely evolve over time, for instance, children's needs when they enter the school system are likely to depart from those of adolescents about to exit the compulsory schooling system. In order to cover the heterogeneity of pathways which can lead to dropout, including the heterogeneity of needs over time, Dupéré et al. (2015) proposed a theoretical perspective which integrates two general models of human development focusing on developmental timing, the changes and inflections which can modulate the life trajectories of individuals, namely the life course and the stress process frameworks. These two models are briefly overviewed with a focus on their features most relevant for high school dropout. Then, Dupéré's integrative framework is described.

The life course perspective

The *life course perspective* highlights the changing needs of individuals over time. While the model emphasizes continuity developmental processes across the life span, it also places change as a central feature defining life trajectories. Changes, or bifurcations in trajectories, are particularly likely to occur in times of transitions when individuals go through different social roles. The end of high school and entry into the job market and adulthood is such a time of transition (Dupéré et al., 2015). Likewise, the concept of *timing* is considered in this model, as the impact of opportunities or setbacks is dependent on life stages. For instance, Elder et al., (2015) studying the impact of the Great Depression in the 1930s in the lives of Californian families, observed that youths whose families were exposed to severe economic losses imposed by the economic crisis were impacted differently by these hardships depending on developmental timing. For teens old enough to rely more on their personal resources, it brought more opportunities for growth than for children, who were more dependent on their parents' resources. Thus, the timing of exposure to significant challenges in life plays a key role in the life course

perspective and creates conditions ripe for the emergence of turning points, in which life trajectories can take on a different direction.

In the life course perspective, *turning points* are described as changes in people's lives which can be positive experiences or events that give an opportunity for growth or negative ones in which stressful events or difficulties can potentially derail plans. Whether trajectories take a turn for the better or the worse in times of change depends not only on developmental timing but also in part on the social context in which lives unfold. The life course concept of *linked lives* suggests that lives are interdependent and resonate with each other. For adolescents, the direction they give to their lives as they transition to adulthood will be influenced by other adults and peers close to them, including parents, friends, school personnel, and professional help received in a moment of crisis or emotional need.

The stress process model

The *stress process model* originated in the 1980s as a sociological framework for understanding the impact of stress on mental health, particularly on depression (Pearlin & Bierman, 2013). The model proposes that individuals will be differently exposed to stressors in different life contexts (such as the family, the school, the workplace, etc.) depending on their social and economic status, with those from lower rungs of the social ladder being more vulnerable than those enjoying higher status as they are more exposed to adversity in their environments and at the same time have less access to financial, material and social resources (Shonkoff et al., 2012). Stressors are characterized as events and experiences which challenge one's ability to adjust and respond, and have the potential to negatively affect one's functioning, equilibrium, and well-being. Stressors can take the form of discrete events (e.g., death or romantic breakup) or chronic, long-lasting difficulties (e.g., enduring poverty). Whereas stressors refer to external events and situations occurring in the individual's environment, stress is understood as an internal, psychological, and physiological response to those situations (Pearlin & Bierman, 2013).

Individuals will respond to stressors with more or less internal stress and distress depending on their personal resources, including their sense of self-efficacy and agency, and on their social resources, that is the social support they have from their entourage.

When these personal and social resources are strong, they have the potential to buffer the negative impact of stressor exposure. Conversely, when the resources are scarcer, stressor exposure can more readily result in poorer mental health (see Cohen et al., 2000; Pearlin & Bierman, 2013). Cohen & Willis (1985) also posit that for the buffering effect to occur, there should be a match between the coping needs elicited by a stressor and the available support.

The protective and buffering impact of social support on stress has been explained by various concepts, including the construct of *mattering*, referring to one's sense of belonging, being valued, nurtured, and important, as well being the object of interest and well-being concern by others (Pearlin & Bierman, 2013; Rosenberg & MacCullogh, 1981). Additionally, feeling valued might moderate feelings of threat to self-esteem and hopelessness which are common responses when events are appraised as stressful (Cohen and Willis, 1985). Social support is also thought to have a crucial *legitimating function* in times of stress and difficulty, as it allows feelings to be perceived as a reasonable response to a given situation and to assess a problem more objectively and not as a reflection of one's flaw. Moreover, social support can *reinforce personal resources* like mastery, because it can boost confidence in one's ability to deal with difficult life events (Pearlin & Bierman, 2013). Aside from strengthening individuals from a psychological and emotional standpoint, social support can also take *informational* or *instrumental* forms, for instance informational support is when significant others help find relevant information or provide advice while instrumental support is when material and financial resources are provided (see House et al., 1988; Malecki & Demaray, 2003; Tardy, 1985). For example, informational support may exert its influence on stress when others suggest coping responses or taking a more positive perspective in the face of adversity and stressors, which can counterbalance feelings of lack of control (Cohen & Willis, 1985).

In the stress process model, social support does not only take different forms but can also come from different sources. In adolescence, key sources of social support include parents, peers, and adults in school, such as teachers or other professionals like school psychologists (McDermott et al., 2019). The provision/provider model of social support, used to assess youth social networks, lists different providers (i.e. parents,

friends, teachers, etc.) and different types of supportive interactions or provisions (informational, emotional, instrumental). Changing developmental needs and contexts can modulate which providers offer which type of support configuration. For example, parents can be more generalist providers for their children, giving different provisions (emotional, instrumental, informational), while teachers can be more specialist providers of instrumental support. Friends increase in their importance in adolescence providing emotional support and later on in adulthood can become generalist providers, providing all kinds of support provisions (Cauce et al., 1999; Scholte et al., 2001).In turn, these different sources of support appear to matter differently for different dimensions of adjustment, including school adjustment (Fall & Roberts, 2012; Lasarte et al., 2020; Legault et al., 2006; Malecki & Demaray, 2003; Ricard & Pelletier, 2016; Song et al., 2015). This literature is reviewed in more detail below.

Integrative stress process, life-course perspective

According to Pearlin (Pearlin, 2010; see also Aneshensel & Avison, 2015; Elder et al., 1996), the life course and the stress process models share common precepts, as they refer to stability and discontinuity and to events impacting trajectories and well-being differently whilst people age. Both models also highlight the role of stressors and crisis, as well as the moderating role of social support to buffer its impact. Thus, these two models can be integrated to understand the occurrence of important life outcomes (for examples of applications, see for instance Avison, 2010; Nurius et al., 2015), including high school dropout.

In the latter case, Dupéré et al. (2015) have proposed an integrative model of dropout incorporating aspects of the life course and the stress process perspective. This model, summarized in Figure 1, proposes that dropout can result from both the long-term and short-term processes. Long-term processes refer to enduring school difficulties and disengagement. Early-onset and lasting difficulties such as school failure and grade retention are indeed associated with dropout, as well as family characteristics like low socioeconomic status (low-SES) or family instability (Dupéré et al., 2018a; Rumberber, 2011). Despite the importance of such long-term processes, short-term ones can also elicit

academic disengagement and dropout, even without a history of academic difficulties. Dupéré et al. (2018a) showed, in a Canadian sample, that recent stressful life events such as pregnancies, hospitalizations, arrests, or conflicts with teachers or peers are independently associated with dropout. Such events are frequent, with a rate of exposure of 40% in the three months prior to dropouts depart from school. Other recent findings from Europe and the United States also point in the same direction and highlight significant links between recent stressor exposure and high school dropout (Center for Promise, 2015; McDermott et al., 2019; Samuel & Burger, 2020).

These studies highlight the importance of stressor exposure in late adolescence in the dropout process. The integrative model proposes that exposure to stressors in this particular developmental period is crucial for a number of reasons. At this developmental time, students appear particularly vulnerable to the effects of acute or chronic stress. Experimental laboratory studies indeed show that the physiological stress response is more intense among adolescents than among children or adults, especially following exposure to social stressors (Romeo, 2017; Shonkoff et al., 2012). In turn, strong physiological stress responses and elevated cortisol levels in the brain can impair emotional functioning and lead to mental health problems incompatible with school functioning (e.g., depression characterized by an inability to concentrate and insufficient energy to participate in daily activities; Lupien et al., 2009). Strong physiological stress responses can also alter cognitive functions implicated in learning, i.e.. memory, attention, reasoning, planning, mental operations, self-regulation and task monitoring (Cibrian-Llanderal et al., 2018). Also, because of the lag between the development of the limbic regions boosting impulsivity and of the prefrontal cortex sustaining executive functions, late adolescents are particularly likely to respond to stressors impulsively via strategies providing immediate relief but sometimes with long-term costs (Steinberg, 2014). These strategies might comprise decline in school attendance and schoolwork, followed by school failure and disengagement and, eventually, dropout (Dupéré et al. 2015).

However, this negative feedback loop is not automatically set into motion following stressor exposure. Rather, following the tenets of the stress process perspective stating that

individuals will respond to stressors depending on their personal assets including their social resources (see Pearlin, 2010), the integrative model proposes that some students will be better equipped to deal with such stressors. Notably, those with access to social support might cope more effectively and implement adaptive coping strategies and develop a sense of control, thus reducing the physiological and psychological stress response and promoting recovery and resilience (Shonkoff et al., 2012). Namely, those who can rely on the support of their parents, peers, teachers, or mental health professionals are expected to be less likely to respond to stressors by disengaging from school. The following sections describe these four sources of support pertinent to adolescence generally and to schooling outcomes particularly.

Finally, the integrative model also integrates other macro aspects described in the stress process and life-course frameworks. These two models notably propose that socioeconomic position and geographical contexts structure exposure to stressors and the intensity of the stress response, which can in turn affect dropout decisions. Namely, stressors experienced by youth from disadvantaged backgrounds are likely to be more numerous, severe and diverse compared to patterns of exposure among peers from more advantage backgrounds (Duperé et al. 2015). From early on in life, youth from low SES families and living in high-poverty neighbourhoods are indeed more exposed to stressful experiences such as dysfunctional schools, neighbourhood violence, dysfunctional families, lack of positive learning experiences such as after-school activities, etc. (Sampson et al., 2002; Shonkoff et al., 2009). By the same token, youth exposed to poor environments and adversity can have a reduced access to quality social support, given that parents experiencing economic hardships can be less available (Conger et al., 2010). Also, schools concentrated in high-poverty neighbourhoods tend to have less experienced and equipped personnel to support students' needs (Clotfelter et al., 2006). Moreover, youth with particular emotional needs, which are overrepresented among youth with socioeconomically disadvantaged family backgrounds, have less access to mental health resources (Hodkinson et al., 2017; Malla et al., 2018; Reiss, 2013). Thus, it appears particularly important to study the role of recent exposure to stressors, along with the potential buffering role of social support, among youth from disadvantaged social backgrounds.

Figure 1

Integrative Model of Dropping Out of School Integrating the Perspective of the Life Course and the Dynamic Stress Process Framework
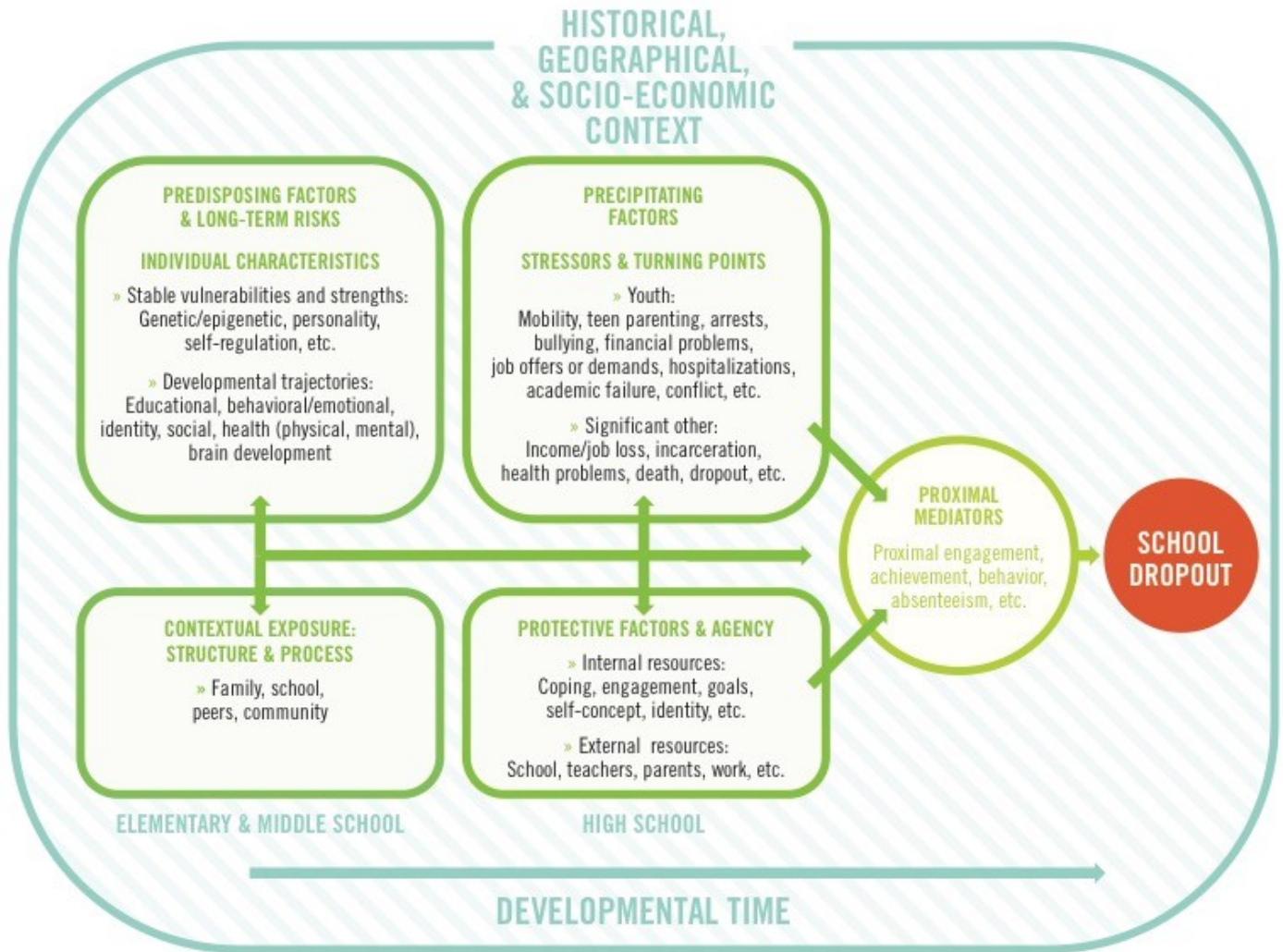
Note: From « Stressors and turning points in high school and dropout: A stress process, life course framework » by Dupéré, V., Leventhal, T., Dion, E., Crosnoe, R., Archambault, I., & Janosz, M., 2015), *Review of Educational Research*, *85*(4), p. 613 (https://doi.org/10.3102/0034654314559845).

The distinctive supportive role of parents, school personnel, peers and mental health professionals

As mentioned above, parents, peers, teachers, and mental health professionals represent different sources of social support with the potential to buffer the impact of stressor exposure on adolescent adjustment in general, and school functioning and perseverance in particular. The following sections review the literature pertaining to the general role of these different actors in adolescents' lives, as well as the empirical literature linking support from these actors and adolescents functioning, with a particular focus on school functioning in general and school dropout in particular. As detailed next, these sources of support have been directly associated with better general school functioning and school perseverance, although some more strongly than others (e.g., see Lasarte, 2020; Legault et al., 2006). Fewer studies, however, have examined the specific buffering role of these sources of support among adolescents exposed to significant stressors, especially in relation to high school dropout.

The supportive role of parents

Parents play a crucial role in child development generally, including in terms of health, well-being, and school engagement (Bornstein, 2015). During adolescence, parents promote autonomy and connectedness, important tools for the individuation process and the transition to adulthood (Noack & Kracke, 1998; Youniss & Smollar, 1987). The link between parental support and emotional adjustment in adolescence has been extensively documented (e.g., Chentsova et al., 2020; Hair et al., 2008; Parker & Benson, 2004). Conversely, conflictual family relations and low family support are related to adolescents internalized and externalized problems (e.g., Barnes & Farrel, 1992; McKinney & Renk, 2011; Morrison et al., 2019; Scholte et al., 2001; Sheeber et al., 1997). Parental support or lack thereof has also been directly associated in expected directions with schooling outcomes, including intentions of dropping out of school or actual high school dropout (Afia et al., 2019; Englung et al. 2008; Fall & Roberts, 2012; Legault et al., 2006; Malecki & Demaray, 2003; Sacker & Schoon, 2007; Song et al., 2015; Steinberg, 1989), although direct links are not always observed and are sometimes limited to specific subgroups of adolescents (Archambault et al., 2017; Astone & McLanahan, 1991; Janosz et al., 1997; McNeal, 1999; Pan et al., 2017; Roche et al., 2008; Rumberger et al., 1990).

Moreover, high parental support apparently plays a buffering role with regard to stressful life events, since the association between such events and negative outcomes like anxiety and depression symptoms is lower among those with high parental support (Zimmerman et al., 2000). Some findings suggest that the apparent buffering effect of parental support extends to adolescents' schooling outcomes such as school interest and intentions of dropping out (Center for Promise, 2015; Samuel & Burger, 2020; Wentzel, 1998).

When it comes to actually dropout, however, one study found no direct or buffering role for school-related social support from parents and peers, as measured with a four-item scale including two focusing on parents' support (maternal and paternal; Samuel & Burger, 2020). These results need to be interpreted with caution, given that when peers and parental support are considered separately, parental support appears to be playing a more robust role in schooling outcomes than peer support (Lasarte et al., 2020; Legault et al., 2006; Malecki & Demaray, 2003; Ricard & Pelletier, 2016; Song et al., 2015).

Another study conducted by the Center for Promise (2015) and having profiles of support derived from a detailed measure assessing different types of support (emotional, informational, appraisal, and instrumental) from four different sources (parents, peers, adults in school, and adults outside of school) showed that among adolescents who could rely on high levels of support from combined sources including (but not limited to) parents, exposure to adverse life events was not as strongly associated with dropping out. However, this buffering effect was limited to exposure to four adverse life events or less; for students who experienced five or more stressful events, even the combined support from multiple sources did not moderate the apparent role of high adversity. The results of another study focusing on dropouts who reconnected to school also indicates limits to the buffering hypothesis, since parental support was associated with better academic engagement only among those exposed to low levels of adversity, and not among those exposed to stressors to a high degree (Pan et al., 2017).

In short, given such inconsistent results, the buffering hypothesis needs to be reassessed ideally while considering different sources of support separately. Additional studies based on gold-standard interview-based measures of stressor exposure is also needed since the studies reviewed in the above paragraphs exclusively rely on problematic self-reported checklists, a

problem shared by much of the developmental literature (Dohrenwend, 2006; Grant et al., 2004; Harkness & Monroe, 2016).

The supportive role of peers

In the course of their development, adolescents acquire more sophisticated cognitive and social skills, yet they develop more collaborative and intimate friendship relationships with their peers (Furman & Rose, 2015; Rubin et al., 2015). Having positive friendships is related to positive self-esteem, well-being, feelings of social connectedness as well as a lower level of problem behaviour (Colarossi & Eccles, 2003; Hartup, 1993; Hiatt et al., 2015). A vast literature also highlights reverse trends, with negative peer relationships characterized by conflict, low support, or deviant peer affiliation being associated with unfavourable behavioural and emotional outcomes (e.g., Dishion & Tipsord, 2011). In terms of the buffering hypothesis, having supportive friendships can apparently buffer the negative impact on adjustment of stressful life events (Auerbach et al., 2011; Walker & Greene, 1987) and of challenging life circumstances like family conflict and low parental support (Sentse et al., 2010; Way & Greene, 2006).

The direct and moderating role of peer support among adolescents exposed to stressors could also apply to schooling outcomes. According to Steinberg et al. (1992), peers play a specific supportive role when it comes to schooling. Whereas parents contribute to shaping their children's long-term educational plans, peers apparently are particularly influential for daily school behaviours, such as the amount of homework done. Positive friendship and friends' support can lead to the adoption of valued academic goals and behaviours that in turn lead to school motivation, engagement, and higher grades (e.g. Ahmed et al., 2010; Berndt & Keefe, 1995; Steinberg et al., 1992; Wentzel, 1998). Beyond such direct associations, some findings suggest that peer support moderates the link between some risk factors linked to general school adjustment (e.g., see Wentzel 1998). However, a number of studies focusing on school functioning and comparing the role of peer support to that of other sources of support, from parents and teachers notably, seem to indicate that peer support is related to a more limited range of outcomes, and with associations of a smaller magnitude for younger adolescents (Dishion & Tipsord, 2011; Lasarte et al., 2020; Malecki & Demaray, 2003; Song et al., 2015).

Concerning dropout specifically, authors of influential theoretical models have suggested that feeling socially integrated at school is a key element for motivating adolescents to stay in school (Tinto, 1975). In other words, the better integrated students are into their school's social system, the more committed they will be to the institution and to complete their studies. Along those lines, some empirical findings support the idea that social isolation is linked with a high school dropout and high school dropout intentions (Farmer et al., 2003; Frostad et al., 2015; Lagana, 2004; Ream & Rumberger, 2008). However, in the Samuel and Burger (2020) study described in the previous section that considered parental and peer support jointly as a potential buffer against the apparent impact of stressors on dropout, no direct or moderating effect was found. Thus, peer support might be associated with school perseverance directly but perhaps less so than other sources of support, without necessarily playing a buffering role in challenging times when students face important stressors (see also Center for Promise, 2015).

The role of teachers or other adults in school

The school context plays a key role in fostering adolescents' social and academic development (Crosnoe & Benner, 2015). Beyond delivering academic content, adults in school, first and foremost teachers, also help students develop abilities and values needed to succeed academically and socially. In addition to providing informational support, they can be role models, confidants, and sources of emotional support (Wang et al., 1997). Teacher support is related to adolescent adjustment, including lower levels of internalized and externalized problems (Brewster & Bowen, 2004; Colarossi & Eccles, 2003; Reddy et al., 2003). Teacher support also appears important for academic success. When students feel valued and supported by their teachers, they are likely to feel more motivated to engage socially and academically in school. Findings show that students' greater emotional connectedness with teachers is associated with greater school motivation, engagement, and achievement (Wentzel, 1997; Martin & Dowson, 2009; Legault et al., 2006; Malecki & Demaray; 2003; Ricard & Pelletier, 2016; Song et al., 2015), perhaps especially so among socioeconomically disadvantaged or academically struggling students (Pan et al., 2017).

Additionally, when teachers can provide a caring and supportive relationship with students, it apparently serves as a protective factor buffering the negative link between stressful

life events and academic failure (Wang et al., 1997; Wentzel, 1997; Pan et al., 2017). School personnel thus apparently plays an important supportive role to help students develop the skills and abilities needed to effectively deal with life difficulties and avoid negative interference on school adjustment (Allensworth & Easton, 2005). It remains unclear if school staff support plays such a moderating role for school dropout specifically. In fact, even though support coming from school personnel is negatively related to school dropout (e.g. Cemalcilar & Gökşen, 2014; Kotok et al., 2016), it remains unclear whether this kind of support buffers the impact of recent stressor exposure, although results obtained among high school dropouts who have re-engaged in school suggest that teacher support may be particularly effective at sustaining school engagement, especially among those exposed to intense stressors in their environment (Pan et al., 2017).

The role of mental health professionals

For some youth facing high levels of adversity, parents, peers, and teacher support may not be enough (see Center for Promise, 2015). In Quebec high schools, almost a third (29%) of adolescents report significant psychological distress according to the most recent edition of the *Enquête québécoise sur la santé des jeunes du secondaire* (Institut de la Statistique du Québec [ISQ], 2019). Moreover, youth with mental health problems tend to be more vulnerable when exposed to stressors, in part because they report lower social support from their family, friends, school, and community (Hammen 2018; ISQ, 2019). For these youths, receiving support from mental health professionals may be critical to adequately deal with difficult life situations when they arise.

In fact, some findings indicate that among youth at high risk for dropout, those who receive school-based professional services have reduced odds of dropping out compared to those who do not use such services (e.g. Kerns et al., 2011). Without such professional help, psychological distress is associated with impaired academic functioning and school dropout (Brière et al., 2013; Holt et al., 2019; Hjorth et al., 2016). For instance, a study from Dupéré et al. (2018b) showed that dropouts report more clinically significant depressive symptoms in the three months preceding to dropout (25,3%) than matched at-risk students (11.5%). It is thought that the particular vulnerability of these youth is underpinned in part by a reduced ability to effectively cope on their own with difficult situations (Dupéré et al., 2015). Reception of

professional mental health services could thus reduce the association between stressor exposure and dropout, but it appears that this premise has yet to be empirically tested.

Objectives and Hypotheses

The main goal of this study is to examine whether perceived support from parents, peers, school personnel, or mental health professionals moderate the association between recent stressor exposure and high school dropout, in a sample of vulnerable late adolescents attending disadvantaged public schools with high dropout rates. In line with the literature reviewed, it is hypothesized that this link will be weaker among those with access to support in their environment. A secondary goal is to describe direct associations between these sources of support and high school dropout. Based on the reviewed literature, it is tentatively hypothesized that the direct and buffering role of these different sources of support might vary, with potentially more potent associations for parental and teacher support. These hypotheses will be tested after accounting for potentially confounding factors known to be associated with high school dropout as well as with access to support, including sociodemographic variables (e.g. sex, age, immigration status, visible racial and ethnic minority, paternal and maternal employment, parents' marital status, parental education) as well as individual pre-existing risks (e.g. special class and vulnerability to high school dropout).

Methodology

Sample and Design

The research questions were examined using data from a longitudinal study, *Projet Parcours* (Dupéré et al., 2018a). This project documents life circumstances and educational experiences among a sample of adolescents aged 14 to 18 years old, drawn from twelve disadvantaged public high schools located in and around Montreal. Ten of these schools are considered disadvantaged socioeconomically according to official provincial data from Quebec's Ministry of Education (MELS, 2015). Data collection took place in three consecutive school years, in 2012-13 (in 3 schools), 2013-14 (in 4 schools), and 2014-15 (in 5 schools) and proceeded in two phases.

Phase 1: **screening**. The first screening phase aimed at collecting background information on students' sociodemographic profiles and individual risk for dropout (see measures for details). The data was collected at the start of the school year for all students aged 14 and over in the participating schools (N= 6,773, response rate higher than 95%).

Phase 2: **interviews with dropouts, matched at-risk schoolmates, and normative not-at-risk schoolmates**. Following the screening phase, an individual interview phase took place during the rest of the school year, with a subset of the screened sample carefully selected based on their initial profile (see below for details). On average, interviews were conducted six months after the initial screening phase. The interviews aimed at documenting in more detail the stressful experiences students had been exposed to during the last 12 months. Semi-structured individual interviews of approximately 90 minutes were conducted by trained research assistants (most of whom were enrolled in the master's in psycho-education).

These interviews were conducted with a subsample of screened participants (N= 545). To assemble this subsample, about 45 adolescents were selected in each school: 15 who had recently dropped out, 15 matched at-risk schoolmates, and 15 schoolmates with an average level of dropout risk. Dropouts were recruited in collaboration with the participating schools. The research team was alerted by school staff whenever a student stopped attending one of the participating schools. Shortly thereafter, a research assistant contacted that student to invite him

or her for an interview. Subsequently, a matched at risk group was formed by conducting, after each interview with a dropout student, another interview with a matched persevering student from the same school and of the same sex. Matched students also had similar profiles in terms of dropout risk (see Measures). To the extent possible, selected matched students were also similar to dropouts in terms of family sociodemographic (e.g., family structure, parental education, and employment, immigration status). A third group was also interviewed, comprised of students who were close to the school average in terms of dropout risk. The overall participation rate in the interview was 65% for dropouts, 70% for matched students, and 77% for normative students.

The final interview sample (N= 545, 52% Male, M age =16.3 years old, SD=0.9) includes 183 dropouts, 183 matched students, and 179 normative students. Around onethird of the sample had a parent born outside Canada. Detailed sociodemographic characteristics as a function of dropout, matched and normative status are provided in Table 1.

Measures

High school dropout. This dichotomous variable was coded so that 0 = "non-dropout" and 1 = "dropout". A student was considered to have dropped out if he or she had completed an official document confirming his or her departure from school, did not attend school for at least a month without justification, or if was transferred to the General Educational Department (GED), namely the adult education sector. A GED program is considered as leaving school as the future prospects for graduates of this program are more similar to those of dropouts than to those of high school graduates, especially in terms of accessibility to employment (Gagnon et al., 2015; Heckman et al., 2014; Lavoie et al., in press).

Exposure to stressors and chronic difficulties. *The Life Events and Difficulty Schedule* (LEDS), adolescent version (Brown et al., 1992; Bifulco et al., 1989) was used to capture stressor exposure in the past year preceding the interview. It was adapted for use with academic at-risk adolescents including high school dropouts (see Dupéré et al., 2017). The LEDS is considered the gold standard instrument to capture exposure to acute and chronic stressors (Dohrenwend, 2006; Harkness & Monroe, 2016).

The LEDS is a semi-structured, interview-based instrument measuring discrete life events (e.g., death of a family member) as well as chronic difficulties (e.g., long-lasting family conflicts) occurring in all key domains of life (e.g., personal relationships [e.g., with parents, peers, romantic partners], accidents or health problems, work, finances, housing, criminal or legal issues, etc.). Events and difficulties reported during individual LEDS interviews are summarized in short vignettes (≈150 words) prepared by the interviewer, which are then coded based on detailed coding manuals, separately by two research assistants blind to the student's status (dropout, matched at-risk, average). These two research assistants independently coded each stressful event or difficulty experienced along different dimensions, including its 1) nature (domain and subdomain); 2) severity (rated on a scale from mild to severe); and 3) timing (date of occurrence or onset/change in intensity). Inter-rater reliability ranged from good to excellent (between .79 and .90; see [Dupéré et al., 2017]), and any discrepancies among raters were resolved in team meetings. The instrument is considered to be less prone to recall bias, considering that events experienced with high emotional intensity tend to be recalled more easily even after longer periods of time. The base rate for the previous LEDS studies (Brown & Harris, 1978) as for the present study were generally constant across time in the population groups studied. In the present sample, the LEDS showed high convergent validity with other sources of information, such as administrative records. Also, the instrument has shown excellent general predictive validity, including the present sample (Dupéré et al., 2017; Duperé et al., 2018a).

Following previous publications based on this sample (e.g., Dupéré et al., 2018a; Lavoie et al., 2019) and following usual LEDS rules (Monroe et al., 2007), only severe or moderate events were considered, that is those receiving moderate–low threat ratings or above. Moreover, only recent events, that is, those that had occurred in the three-month period just preceding dropout or the interview (for students in the matched or normative group), were considered because such recent events were found to be specifically associated with increased dropout risks, and no other, less recent ones (Dupéré et al., 2018a). For difficulties, again based on previous results, only enduring (i.e., lasting at least 6 months), ongoing severe ones (receiving moderate-high threat ratings or above) were considered. The analytical variables were dichotomous,

representing participants exposed to at least one moderate or severe event in the past three months, and those exposed to at least one enduring, ongoing severe difficulty.

Perceived support from parents, peers, school personnel, and mental health professionals. During the interviews, students were asked whether they felt that they received adequate support from their parents and schoolmates. They were also asked whether they had a special relationship with an adult at school (e.g., a teacher, a coach) that they trusted and in whom they could confide. Finally, they also indicated whether they had received services from a mental health professional in their school (e.g., school psychologist) or community (e.g., community health services). The interviewer coded the presence or absence of each of these sources of support.

This concise evaluation method based on a series of single dichotomous items was selected because of time constraints, as the interviews with participants had to be completed within a limited time frame to avoid undue disruptions to classes and school functioning, an ethical imperative when conducting research with academically struggling youth (for details, see Dupere et al., 2018a). Using such dichotomous items to assess social support is not ideal, and when possible multi-item scales assessing various dimensions of social support are to be preferred (Gottlieb & Bergen, 2010; Tardy, 1985). Nevertheless, brief evaluations based on a handful of categorical yes/no answers have often been successfully used in the literature, with sufficient if not ideal validity and reliability (Gottlieb & Bergen, 2010).

Control Variables. Potentially confounding pre-existing sociodemographic and individual risks associated with both school dropout and social support (e.g., see Rumberger, 2011) were also included in the analysis to ensure that associations between social support and dropping out of school remained significant even after taking them into account (Archambault and Janosz, 2009 ; Rumberger, 2011). This information was self-reported by students via questionnaires during the screening phase.

Sociodemographic variables included gender (0 = "boys"; 1 = "girls"), age (in years), family structure (0 = "intact family", 1 = "divorced or separated parents"), status of father's and mother's employment (0 = "unemployed", 1 = "full-time or part-time employment") as well as a parental education variable. This last variable represents the highest level of education attained

by a parent on a four-point scale, ranging from 0 = "primary" to 4 = "university". Variables capturing immigration status (0 = "parents born here", 1 = "at least one parent born abroad") and membership of a visible ethnic minority (0 = "no", 1 = " yes ").

Variables representing individual risk factors were also measured during the screening phase. They comprised the variable representing the study sector (0 = "regular sector"; 1 = "special education"). This information is important because dropping out is much more common among young people in the special education sector than among those in the regular program (Rumberger, 2011). The second variable captured was the vulnerability for high school dropout, measured through the self-reported *Vulnerability for High School Dropout Index* (Archambault & Janosz, 2009). This index aggregates answers from seven questions about key risk factors for dropout, including achievement, attainment, and engagement. The questions include: 1) the number of repeated years, 2) school results in French and 3) in mathematics, 4) appreciation of the school, 5) the importance given to academic results, 6) the perception of results in relation to others, and finally, 7) academic ambition. The index was shown to have good reliability and predictive validity in a large sample of high school students from the province of Quebec (*N*=35,000; Archambault & Janosz, 2009), as well as in the present sample (see Gagnon et al., 2015). Due to parsimony reasons, these seven variables were combined into a single dropout risk index designed to be centred at 0 with a standard deviation of 1 in the general population of Quebec adolescents. The index demonstrated good predictive validity in a sample of more than 35,000 young Quebec adolescents, as well as in the present sample (ROC) curve = .81, x = .76) (Archambault and Janosz, 2009; Gagnon et al., 2015).

Analytical Plan

Preliminary analyses, including descriptive and frequency statistics per group (dropout, matched, and normative) were performed using the software SPSS 26 (Field, 2013). The general purpose of these analyses was to examine the distributions and ensure that the basic postulates for logistic regression were met. A one-way ANOVA was conducted to examine whether dropouts differed from the other two subgroups in terms of sociodemographic controls, stress exposure, and sources of support. Post-hoc tests were conducted to assess specific group differences while controlling for the number of comparisons (i.e., using the Bonferroni correction). Preliminary analyses also included correlations between the variables under investigation.

The main analyses were then conducted, to examine links with dropout of the main independent variables, that is, stressor exposure and social support. Multiple logistic regressions were conducted, given the dichotomous nature of the outcome (dropout/nondropout; Tabachnick & Fidell, 2013). In addition to assessing the direct association between stress exposure and dropout, as published in Dupéré et al. (2018a), the analyses also tested the direct association with the same outcome of various sources of support as well as their interaction with stress exposure. Figure 1 represents the tested interactions.

Three sets of models were conducted. The first set of models focused on the main effects of the independent variables, that is stressor exposure and sources support. Four separate models were assessed, one for each source of support (adult in school, peer, parents, or professional). Using the PROCESS macro (Hayes, 2018), the second set of models examined potential moderation effects, by adding an interaction term between each of the two forms of stressor exposure (to discrete life events and enduring difficulties) and each source of support variables (from parents, peers, adults in school and mental health professionals). The final regression model included all of the significant main and interaction effects (if any) as well as the control variables to assess if eventual direct or moderated associations were maintained when considering all the relevant variables at once. -

Figure 2

Conceptual Diagram Depicting the Moderation Effect of Social Support on the Link Between
Social Support and School Dropout
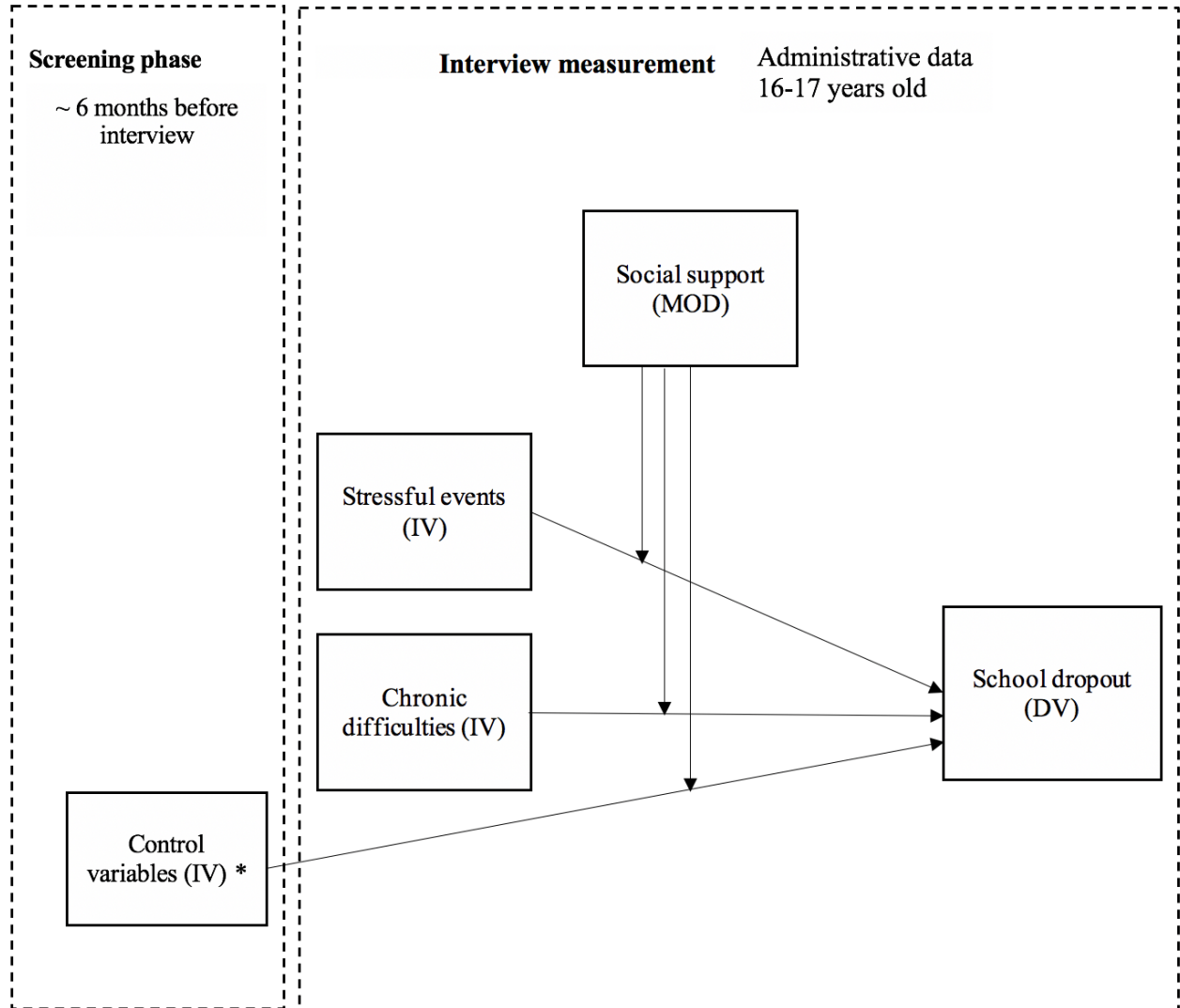
Note. IV = independent variable. MOD = moderator variable (adult at school, peers at school, parents, and mental health professionals). DV = dependant variable.

* : sex, age, immigration status, visible ethnic minority, paternal employment, maternal employment, parents' marital status, parental education, special education, vulnerability for high school dropout.

Results

Preliminary analyses

Before proceeding with the main statistical analysis, we assessed the basic assumptions for logistic regressions, as recommended by Tabachnick and Fidell (2013). Following this -+examination, extreme scores (scores located at the limit of $z = +/- 3.29$) were replaced. It concerned only the dropout risk index, on which 2 participants had a value greater than $z = 3.29$ (Z values of 3.35 and 3.89) and for whom the z-scores were replaced by the calculated limit scores of 6.76. The preliminary analysis confirmed the absence of multicollinearity, the normality distribution of continuous predictors, the logit's linearity, as well as the parsimony principles.

Following the verification of assumptions, one-way ANOVAs and correlations were conducted for basic descriptive purposes. Results of one-way ANOVAs, comparing the dropout, matched at risk, and normative groups in terms of the independent and control variables, are reported in Table 1. The post-hoc comparisons revealed that dropouts, matched, and normative cases did not differ for sex, immigration status, visible racial and ethnic minority status, parental education, and maternal employment. Comparisons on other sociodemographic variables indicated that participants from the normative group were slightly younger than those from the dropout and matched groups. Compared to the matched group, those in the dropout group were more likely to have a non-employed father. Also, parents of the participants in the dropout group were more likely to be separated compared to those in the matched and normative groups. Finally, compared to the dropout and matched group, participants in the normative group were less likely to attend a special education class and also had a significantly lower score on the dropout risk index. In terms of stress exposure, participants from the dropout group reported higher exposure to stressful events and chronic difficulties, compared to the matched and normative groups between whom these figures were not statistically different. In terms of sources of support, the percentage reporting reception of parental support was similar in all three groups. However, participants in the dropout group perceived that they received more support from adults at school, but less support from their peers compared to those of the normative

group. Finally, compared to the normative group, participants from the dropout and matched groups both reported receiving more professional support.

Correlations between all variables under investigation are reported in Table 2, again for basic descriptive purposes. As expected, correlations between the outcome and the independent and control variables followed a similar pattern to that observed in Table 1 and already described in the previous paragraph. Correlations involving independent and control variables generally followed expected patterns. They revealed particularly strong correlations between visible minority and immigration status ($r = .71$, $p \leq .01$) and between special education and scores on the dropout risk index ($r = .49$, $p \leq .01$). Moderate correlations (with $r > .20$ and $p \leq .01$) were observed in the expected directions between markers of family socioeconomic background (e.g., parental education and employment). Also, exposure to negative life events was moderately correlated with exposure to chronic difficulties. Finally, placement in special education and visible minority status was associated with lower peer support and lower professional support, respectively; conversely, adolescents reporting higher levels of severe chronic difficulties also reported more support from adults at school and mental health professionals, potentially indicating that their apparent higher support needs were to some degree recognized and acted upon by adults around them.

Logistic regressions

Models predicting dropout while considering stress exposure and sources of support

The first set of regression models incorporated the main effects of the independent variables, i.e., stress exposure and sources of support, on dropout. Results are presented in the upper panels of Table 3. In all four models, results show that exposure to severe events and chronic difficulties are positively associated with dropout, as found in previous publications based on this sample (Dupéré et al., 2018; Lavoie et al., 2019). More specifically, these models indicate that among participants exposed to stressful events, the odds of dropping out are between 2.60 to 2.72 times higher compared to peers not exposed. Similarly, among those reporting severe difficulties, the odds are between 1.89 and 2.04 higher compared to peers not reporting such difficulties. However, none of the four sources of support showed a significant

association with dropout beyond the risks posed by exposure to stressful events and chronic difficulties. These models explained between 11% and 12% of the variance of dropout.

The second set of regressions was conducted using PROCESS while incorporating interactions between the two forms of stressor exposure and the four sources of support (see Figure 2). The results are reported in the lower panel of Table 3. No significant interaction effects emerged, showing that stressor exposure was similarly related to dropout regardless of sources of support . Thus, regardless of the level of support, the relationship between being exposed to acute or chronic stressors and school dropout remains the same. Moreover, these models did not explain a larger proportion of variance, with the R^2 Nagelkerke ranging from 11% to 13%.

Exploratory analyses were also conducted to examine whether a cumulative measure of support from parents, peers, adults in school, and mental health professionals would be directly associated with dropout, or as a moderator of the stressor-dropout link. Those exploratory analyses yielded similar results, with no direct or moderation effects associated with social support.

Final model with control variables

The last model incorporated only the independent variables for which significant results emerged in previous steps (i.e., stressor exposure), alongside all the relevant control variables. Given that significant results were not found for the four sources of support, none were included in the final model. Results from this model are presented in Table 4. Essentially, they reproduce previous results already described elsewhere (Dupéré et al., 2018a). Assessing the associations with control variables, the results indicate that sex, immigration status, visible minority status, parental education and employment, and being in a special education class were not associated with dropout. However, for each increase in one year of age, the odds of dropping out increased by a factor of 1.71. Also, among those who had separated parents compared to those living with both biological or adoptive parents, the odds of dropout were 1.79 higher. Also, for each increase of one standard deviation on the score of the dropout risk index, the odds of dropping out increased by a factor of 1.15. Next, looking at the associations with the independent variables indicates that beyond the contribution of sociodemographic controls, exposure to stressful events

and severe difficulties remained significantly associated with dropout, with odds ratios of 2.90 and 2.16 respectively. Overall, this model explained 23% of the variance of school dropout.

As a final set of verification and to probe for robustness, the final model was rerun while excluding the normative group, i.e., with the subsample of dropouts and matched at-risk students (n= 366). Results from this model reveal that the associations between the independent variables and dropout remained significant (odds ratio did not vary by more than 0.40), and the non-significant remained non-significant.

Table 1

Participant's Characteristics (n= 545)

	Dropout (n=183) $M (SD) / \%$	Matched (n=183) $M (SD) / \%$	Normative (n=179) $M (SD) / \%$
Sociodemographics			
Sex (1=male)	54.1%	54.1%	48.6%
Age	$16.5(0.9)_a$	$16.4(1.0)_b$	$16.0(0.8)_{a,b}$
Immigration status (1=at least one parent born outside Canada)	32.8%	35.0%	36.3%
Visible minority (1=ethnicity minority)	19.1%	24.0%	26.8%
Parental education[a]	2.5(1.0)	2.6(0.9)	2.7(0.9)
Maternal employment (1=working mother)	69.4%	70.5%	69.8%
Paternal employment (1=working father)	$69.4\%_a$	$80.3\%_a$	78.2%
Parent marital status (1=separated parents)	$69.9\%_{a,b}$	$53.6\%_a$	$50.8\%_b$
Special education (1=attends special education class)	$42.6\%_a$	$45.9\%_b$	$4.5\%_{a,b}$
Dropout risk index	$1.1(2.1)_a$	$1.3(1.9)_b$	$-0.6(0.5)_{a,b}$
Stress exposure			
Stressful events	$39.9\%_{a,b}$	18.0_a	16.8_b
Chronic difficulties	$51.9\%_{a,b}$	29.5_a	33.0_b
Source of support			
Adult at school	$47.0\%_a$	39.3%	$32.4\%_a$
Peer at school	$32.2\%_a$	40.0%	$45.3\%_a$
Parent	63.9%	68.3%	70.4%
Professional	$43.7\%_a$	$37.7\%_b$	$22.9\%_{a,b}$

Note. Means and percentages sharing subscripts in each row are significantly different at $p < .05$, based on one-way ANOVAs. [a] Maximum level of education attained by one parent (1=primary to 4= university).

Table 2

Pearson Correlations (n= 545)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Dropout status																
2. Sex (1=male)	.03															
3. Age	.16**	.06														
4. Immigration status	-.03	.03	.03													
5. Visible minority	-.07	.05	.07	.71**												
6. Parental education	-.07	.07	-.05	.20**	.15**											
7. Maternal employment	-.01	-.01	.05	-.08	-.06	.22**										
8. Paternal employment	-.11*	.04	-.02	-.06	-.04	.21**	.16**									
9. Parent marital status	.17**	-.06	-.03	-.06	-.11**	-.03	.02	-.14**								
10. Special education	.18**	.11**	.02	-.11*	-.09*	-.19**	-.05	-.06	.09*							
11. Dropout risk index	.21**	.16**	.07	-.19**	-.22**	-.22**	-.07	-.09*	.11*	.49**						
12. Stressful events	.25**	-.03	-.09*	-.15**	-.12**	-.05	-.02	-.05	.15**	.09*	.08					
13. Chronic difficulties	.20**	-.07	-.11*	-.03	-.02	-.14**	-.09*	-.14**	.08*	.07	.10*	.22**				
14. Adult at school	.11*	-.10*	.06	-.05	-.07	.01	-.03	-.01	.05	.09*	.05	.07	.21**			
15. Peer at school	-.10*	.07	-.02	.10*	.17**	.07	-.02	.02	-.05	-.21**	-.07	-.12**	.01	-.07		
16. Parent	-.05	.04	.05	.04	.05	.06	.02	.13**	-.09*	-.10*	-.11*	-.12**	-.16**	-.07	.10*	
17. Professional	.13**	.04	.06	-.17**	-.20**	.05	.06	-.01	.07	.09*	.18**	.15**	.23**	.17**	-.14**	-.07

Note. *p < .05. ** p < .01.

Table 3

Direct and Interactive Logistic Regression Models by Source of Support Predicting School Dropout (n= 545)

	Adult Support		Peer Support		Parental Support		Professional Support	
	b(SE)	OR	*b*(SE)	OR	*b*(SE)	OR	*b*(SE)	OR
Model with main effects								
Stressful events	**1.00(.21)****	2.72	**0.96(.21)****	2.60	**1.00(.21)****	2.72	**0.97(.21)****	2.64
Severe difficulties	**0.64(.20)****	1.90	**0.71(.19)****	2.04	**0.69(.20)****	2.00	**0.63(.20)****	1.89
Source of Support	0.29(.20)	1.34	-0.37(.20)	1.44	-0.03(.20)	1.03	0.33(.20)	1.39
R² Nagelkerke	0.11		0.12		0.11		0.12	
Model with main effects and interactions								
Stressful events	**1.00(.29)****	2.73	**0.85(.26)****	2.35	**0.95(.34)****	2.58	**0.97(.28)****	2.63
Severe difficulties	**0.80(.27)****	2.21	**0.47(.24)***	1.61	**0.70(.33)***	2.01	**0.80(.25)****	2.23
Source of Support	0.46(.29)	1.58	**-0.78(.30)****	2.18	-0.05(.31)	1.05	0.52(.29)	1.69
Events x Support	-0.02(.42)	0.98	0.38(.46)	1.46	0.09(.43)	1.09	0.03(.43)	1.03
Difficulties x Support	-0.34(.39)	0.71	0.68(.41)	1.98	-0.01(.41)	1.01	-0.43(.40)	1.53
R² Nagelkerke	0.12		0.13		0.11		0.12	

Note. *p < .05. ** *p* < .01.

Table 4

Final Logistic Regression Model Predicting School Dropout (n= 545)

	b(SE)	OR
Control variables		
Sex (1=male)	0.05(.21)	1.05
Age	**0.54(.12)****	1.71
Immigration status	0.49(.31)	1.63
Visible minority	-0.49(.35)	0.61
Parental education	0.03(.12)	1.03
Maternal employment	0.08(.23)	1.09
Paternal employment	-0.27(.24)	0.76
Parent marital status	**0.58(.21)****	1.79
Special education	0.43(.24)	1.54
Dropout risk index	0.14(.06)*	1.15
Retained predictors		
Stressful events	**1.07(.23)****	2.90
Severe difficulties	**0.77(.21)****	2.16
R^2 *Nagelkerke*	0.23	

*Note. *p < .05. ** p < .01.*

Discussion

The main goal of this study was to evaluate whether social support from various sources (parents, peers, school personnel, and mental health professionals) moderated the link between recent stressor exposure and high school dropout. Overall, none of the interaction terms emerged significant, even before accounting for crucial risk factors for high school dropout. The secondary goal of the study was to examine direct links between these sources of support and high school dropout. Even though bivariate results indicated a lower risk of dropout among those reporting adequate peer support at school, this association became non-significant when stressor exposure was considered. Bivariate results also indicated, contrary to expectations, a *positive* association between dropout and support from adults at school and of mental health professionals. This association also became non-significant when stressors were incorporated in the model, suggesting that such support does not lead to a higher risk of dropout. Rather, it indicates that adolescents with more needs received more support from adults in their school and community, but that this support was apparently not sufficient to significantly decrease their risk of dropout. The following paragraphs present these results in more detail and offer tentative explanations in light of extant studies, as well as recommendations for future research. Strengths, limitations, and practical implications are also discussed.

Absence of a significant buffering role for social support

A handful of extant studies linking stressor exposure and high school dropout assessed the potential moderating role of various sources of social support. Some studies, including one by Samuel and Burger (2020), found results consistent with our null findings, as school-focused social support from parents and peers did not moderate the stressor-dropout association in their study either. Others, however, obtained findings consistent with our initial hypotheses. Notably, a study by the Center for Promise (2015) found that overall social support of different types and from different sources buffered the stressor-dropout link, based on a more comprehensive measurement of social support comprising questions about feeling being cared for, being treated fairly, being shown how to do things, receiving help for problem-solving and for schoolwork, etc. This apparent buffering effect worked only up to a certain point, however, and disappeared for those who experienced five or more stressful events. Similarly, a study on academic

engagement among adolescents who had dropped out of school but reenrolled found that social support from parents was not associated with school engagement among those exposed to high levels of adversity (five or more adverse experiences in childhood and adolescence), whereas teacher support showed a significant association with school engagement independent of the level of adversity (Pan et al., 2017). Similar trends highlighting limited buffering effect for social support has been observed in studies focusing on other aspects of adolescent adjustment besides schooling outcomes, in relation to adverse experiences. For instance, in a study about post-traumatic stress disorder among adolescents, Pinto et al. (2017) found that social support was "not enough", in the sense that it did not exert a compensatory effect for adolescents exposed to high levels of adverse experiences and trauma.

These results from previous studies highlight several potential explanations for our null findings. Even extant studies supporting the buffering hypothesis show that the protective powers of social support are not infinite and that they tend to diminish as adversity increases. In the present study, participating adolescents were recruited from low-SES public schools with high dropout rates. Moreover, within this disadvantaged population, students at a very high risk of early school leaving were oversampled. Thus, the acute and chronic stressors that we measured were superimposed to a generally challenging socioeconomic background. With these cumulating sources of adversity, it is possible that social support was "not enough", in Pinto's (2017) words, to protect from high school dropout. These results are also aligned with a larger developmental literature showing associations between exposure to intense stressors and trauma in childhood and adolescence and enduring problems in various spheres of functioning, including with learning problems, school disengagement, and dropout (Hughes et al., 2017; Porche et al., 2011). Problematic levels of stressor exposure are particularly prevalent among children from socioeconomically disadvantaged communities (Leventhal & Dupéré, 2019). The consequences of intense stressor exposure are generally hard to tackle because they tend to become engrained in neural networks. Persistent and excessive adversity also called "toxic stress" can have long-lasting effects on all aspects of functioning, lasting past adolescence into adulthood (Shonkoff et al., 2009). Additionally, exposure to severe levels of adversity early in life can have damaging effects on socio-emotional development and can result in distrusting others and having problems

with intimacy and sociability, which could make social support ineffective (Pan et al., 2017; Riggs, 2010; Turner et al., 2017).

Another line of explanation revolves around measurement issues, both for stressor exposure and social support. In extant studies looking at the potential moderating role of social support in the stressor exposure - high school dropout link, stressor exposure has been measured via self-reported checklists which are prone to bias (e.g., over-or underreporting) that can seriously threaten the validity of the measure itself and associations based on it (Dohrenwend, 2006; Grant et al., 2004; Harkness & Monroe, 2016). The use of a gold-standard interview-based measure of stressors in the present study might explain some of the discrepancies compared to previous findings. On the other hand, each source of social support was not measured via a gold standard, multifaceted, multi-item instrument, but rather via a single dichotomous item per source, not distinguishing between different forms of social support (e.g., emotional, instrumental, informational). Such a limited "yes or no" format cannot capture subtle variations in social support type or intensity (MacCallun et al., 2002). Further details about this limitation will be discussed in the *limitation* section of this study.

Direct links

Despite null results for social support in the logistic regression models including multiple predictors, bivariate results indicated some trends potentially relevant for future research. Notably, among the four sources of support considered, only peer support was associated as expected with a lower risk of dropout. This finding is consistent with prominent theories of high school dropout suggesting that strong integration in one's school social fabric is a key factor for perseverance (Tinto, 1975). Adolescence is a developmental period of increased reliance on peers for support, and during which positive relationships with peers have a general protective effect, fostering well-being, self-esteem, and psychosocial adjustment (Bernt & Koefe, 1995; Demaray & Malecki, 2002; Hiatt et al., 2015).

Two other sources of adult support, namely from an adult at school or from a mental health professional, were related to high school dropout in the bivariate analyses, however, not in the expected direction. Those results should not be interpreted as suggesting that these types of support increase high school dropout. Rather, they probably simply indicate that adolescents who

receive support from adults at school or mental health professionals have high levels of vulnerability or great emotional needs, to begin with. In other words, prior to quitting school, dropouts might have sought counsel or have been referred to counselling at school in a context of experiencing high levels of stress that they could not cope with by themselves or when previous attempts were not successful (Hess & Coopeland, 2001). In addition, given the scarce mental health resources that are available in schools, students might be receiving emotional help only when their problems become severe, therefore probably not addressing students' emotional needs in a timely manner or sufficiently to prevent students from leaving school (Dowdy et al., 2015).

For parental support, no direct links were found, even in bivariate analyses. Research has long posited the importance of parental support for school engagement and to prevent high school dropout (Hess & Coopeland, 2001; Rumberger, 2011). However, these expectations were not always borne out empirically, and a number of studies found no links, or at best weak links, between parental support and dropout (Samuel & Burger, 2020). It is possible that the importance of a particular source of support changes over life stages (Demaray & Malecki, 2002), and that parental support may have less influence on school engagement in adolescence than in childhood. Also, when family relationships lack stability and trust and are sources of stress, attempts at offering support might fall short and be perceived as stressful rather than as helpful (Pan et al. 2017; Pinto et al., 2017).

It is important to underscore once more that when social support variables were incorporated in the logistic regression models, no direct association with school dropout remained, echoing the null moderation findings already discussed. Again, the absence of direct links over and above other dropout risk factors is not unique to this study. Importantly, Samuel & Burger (2020) did not find any direct associations between perceived social support (e.g., parents, significant other, and friends at school) and actual dropout, although an association was found between perceived social support and dropout intentions. Nevertheless, there is extensive literature suggesting a role of social support on dropout. Of note, the study of Center for Promise (2015) showed significant direct links with dropout in the expected direction for emotional and instrumental support from parents, adults in school, and adults outside of school, as well as informational support from peers. To better understand these discrepancies, future studies

incorporating gold standard measures of both stressor exposure and social support and considering potential differential associations by adversity levels are needed.

Links between stressors and dropout

The final model in this study reproduced published results showing strong links between recent stressor exposure and dropout (Dupéré et al., 2018a). This means that in low-SES schools, it is imperative that we find effective ways to help students at risk for dropout exposed to significant stressors, beyond "ordinary" social support which in and of itself seems insufficient. Unfortunately, our results indeed suggest that "ordinary" social support from parents, peers, teachers, and even mental health professionals is not enough. As it has been discussed in the studies mentioned earlier, social support can have protective effects on stress for youth in general, but research suggests that it might not be enough for youth at risk and who has experienced high levels of stress and adversity in life.

Strengths and limitations

The present study has a number of strengths including the sampling and assessment procedures. The number of participants can be seen as large considering that the study is based on detailed interviews. Also, participants were carefully recruited to assemble a representative sample of dropouts and a credible matched comparison group in addition to a normative comparison group. The sampling was also designed specifically to identify proximal factors associated with dropping out. Moreover, exposure to stressors was assessed using the semi-structured interview*, the Life Events and Difficulties Schedule (LEDS*; Brown et al., 1992) which is considered a gold-standard instrument in the field to capture comprehensively and in-depth both discrete events and chronic difficulties in a wide variety of domains relevant in students' lives (Dohrenwend, 2006; Grant et al., 2004; Harkness & Monroe, 2016). Also, the LEDS was adapted specifically for optimal use with students at high risk of high school dropout (Dupéré et al., 2017). The interview timing was also optimal, right after dropout notifications at school, thus allowing an ideal time frame to capture the proximal mechanisms involved in school leaving. Lastly, an important strength of this study is that it was performed with a population in late adolescence. This is a crucial developmental phase in which young people are more vulnerable

to stressors, mental health problems and are making important decisions regarding education, work, family, which can impact their lives thereafter.

In terms of limits, the sample is not population-based, and it over-sample adolescents at high risk for high school dropout. Thus, the results cannot be generalized to the adolescent population in general. Furthermore, as discussed, a limitation of this study is the brief assessment of social support based on dichotomous items. Using such dichotomous items to assess social support is not ideal, and when possible multi-item scales assessing various dimensions of social support are to be preferred (Gottlieb & Bergen, 2010; Tardy, 1985). To adequately measure perceptions of social support, Heitzman & Kaplan (1988) posit that a social support measure should cover many aspects of the construct. Cohen & Willis (1985) also highlight that for measuring a buffering effect of social support on stress, instruments should ideally specifically assess the resources that are directly relevant to the needs produced by the particular stressful events experienced. Working with dichotomous variables can yield misleading results via truncated effect sizes and limited power, as the measurement cannot fully capture individual differences and relationships between variables (MacCallun et al., 2002). Moreover, the dichotomous items used were not all equivalent, in the sense that some implied a degree or quality of emotional support (e.g., having a "special relationship" with an adult at school) whereas others simply implied the presence of the source of support, regardless of the "special" nature of the relationship (e.g., receiving help from a mental health professional). Nevertheless, brief evaluations based on a handful of categorical yes/no answers have often been successfully used in the literature, with sufficient if not ideal validity and reliability (Gottlieb & Bergen, 2010).

Therefore, it would be important in future research to have a more comprehensive understanding of the risks and protective factors that play a role in school dropout. It would be interesting to more fully assess the buffering hypothesis by investigating the buffering role not only of social support but also of personal psychosocial assets like coping self-efficacy skills. Future research could also comprise a more comprehensive measurement not only of recent stressors experienced in adolescence but also of past adverse experiences from childhood.

Practical and Policy Implications

Adolescence is a critical period in the life course for future educational attainment, and schools are in a crucial position to support school perseverance. This study found no direct or moderating role for social support in the stressor exposure-high school dropout link. Even if this null finding is replicated in future studies using more sophisticated social support measures, it does not mean that social support is irrelevant, but perhaps only insufficient. In other words, in high adversity contexts, social support might be only one piece of the puzzle and work best in conjunction with other forms of help. To illustrate, one program effectively preventing dropout in disadvantaged communities in Canada offers not only social support in the form of counselling but also academic support in the form of tutoring, direct financial support, and subsidies, as well as interventions targeting positive youth development (Lavecchia et al., 2020; Oreopoulos et al., 2017). Similar comprehensive approaches have also been found to be particularly effective elsewhere, in the United States notably (Dobbie & Fryer, 2011). Thus, social support may play a role consistent with the vast literature suggesting a protective role for social support in relation to adolescents' well-being and mental health outcomes (Demaray & Malecki. 2014; Herdee et al. 2018), but this role may express itself only in favourable contexts characterized by multi-pronged interventions. Helping vulnerable adolescents develop more supportive interpersonal relationships in school may be an important target in school-based prevention and intervention programs even though it might not be sufficient to prevent dropout by itself in times of intense stressor exposure. In other words, webs of support and wraparound services matching the multiple emotional, material, and learning needs of each student might be necessary to effectively help students to deal with the hurdles of experiencing stress and adversity in life (Center for Promise, 2015). This conclusion is aligned with recent literature reviews showing that preventing dropout is very difficult and that the few effective approaches tend to be comprehensive (Freeman & Simonsen, 2015). Moreover, efforts to mitigate the detrimental effects of life adversity and intense stressors might require evidence-based mental health interventions, such as training in coping self-efficacy skills to at-risk youth, which can enable them to develop their personal resources to cope effectively with stress and adversity (Benight & Bandura, 2004; Hess and Copeland, 2001; Pinto et al., 2017).

Conclusion

In theory, according to the stress process and the life course framework (Duperé et al., 2015; McDermott et al., 2019), social support should contribute to shielding adolescents exposed to significant stressors and help them persevere in school even in the presence of significant adversity. In fact, the results of the present study suggest that reality could be more complex. Indeed, the results suggest that social support alone may not be enough to buffer the apparent impact of experiencing high levels of adversity and exposure to significant stressors in late high school. Social support may need to be complemented by other interventions, for instance, tutoring programs targeting academic learning or interventions developing youth personal assets such as coping self-efficacy skills. Finding the right combination appears crucial, to better support adolescents from disadvantaged socioeconomic backgrounds exposed to intense adversity. To avoid enduring inequalities in the intergenerational transmission of poverty, these adolescents need to persevere in school and obtain their high school diploma.

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