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Exploring Parent and Peer Support as a Predictor of Adolescent Adjustment During the COVID-19 Pandemic

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EXPLORING PEER AND PARENT SUPPORT AS A PREDICTOR OF ADOLESCENT
ADJUSTMENT DURING THE COVID-19 PANDEMIC

by

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Submitted in Partial Fulfillment
of the requirements for the degree
Bachelor of Arts
in
Honours Psychology

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CERTIFICATE OF EXAMINATION

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Abstract

Research has demonstrated that adolescents' social relationships have been negatively impacted by the COVID-19 pandemic (Ayers et al., 2021). Considering adolescence is characterized by a need for peer belonging and autonomy from parents, isolation from peers has been particularly challenging (Magson et al., 2021). Prior literature has noted the ability of parent connectedness to promote resiliency and instill self-care practices (Bender & Ingram, 2018), and for peers to provide additional necessary support and feelings of belongingness (Brown & Larson, 2009). Information on whether the same outcomes can result during the pandemic remains unknown. The purpose of this study is to determine the impacts of adolescent peer and parent connectedness on health-related outcomes, specifically, exercise, alcohol use, cannabis use, and internalizing symptoms. Participants for this study included 493 students aged 15-19 (79.1% female) residing in Ontario, Canada who completed a survey in June 2021, a year after the initial COVID-19 lockdown and at the end of another stay-at-home order. It was hypothesized that adolescents with weaker parent connectedness would engage in less exercise, more alcohol use, more cannabis use, and would report higher levels of internalizing symptoms. Further, the adolescent-parent relationship would be moderated by peer connectedness in that negative health outcomes would be significantly reduced when teens have stronger peer connectedness. Findings indicated that, in line with hypotheses, weaker parent connectedness only predicted more cannabis use when peer connectedness was also low, and peer and parent support independently predicted internalizing symptoms. Strengths, limitations, implications, and future directions are discussed.

Keywords: peer connectedness, parent connectedness, internalizing symptoms, cannabis, alcohol, exercise, COVID-19 pandemic

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Introduction

The progression of the COVID-19 pandemic has resulted in unavoidable changes to our interpersonal relationships. Seldom has the world seen a time where individuals were universally restricted from interacting within their social relationships for numerous months at a time. Schools and workplaces were closed indefinitely, and the looming threat of contracting COVID-19 through social interaction halted in-person activities. While social restrictions have now been lifted, determining the long-term implications of isolation on overall well-being remains critical. When examining pandemic impacts, it is of significant importance to consider adolescents, who are immersed in a developmental period in which peer interactions are incredibly important (Brown & Larson, 2009). Adolescence is developmentally characterized by the need for peer belonging and seeking autonomy from parents (Brown & Larson, 2009). Without a typical level of peer social support and increased parent-child interactions during the pandemic, it is uncertain how effectively adolescents can adjust and what protective factors they may adopt. Furthermore, school settings provide a necessary means of socialization (Allen et al., 2018). With online learning replacing important social interactions in the school environment, the ability to make meaningful friendships and increase closeness and trust within pre-existing relationships may be hindered. While present research on adolescents during the pandemic has noted increased loneliness and depression (Ellis et al., 2020), little is known about the interacting effects of both peer and parent support on specific health-related adjustment outcomes. Therefore, the goal of the present study is to examine the role of peer and parental support in adolescent adjustment during the COVID-19 crisis.

Ontarians have endured numerous stay-at-home orders as a result of the COVID-19 pandemic. In compliance with government mandates, individuals have been forced to spend

more time with their immediate households. For adolescents, this change in the frequency of time spent with parents may infringe on the developmentally salient goals of seeking social status and peer belonging. However, despite the increased importance of peer relations, parents cannot be discounted in their ability to provide support and enhance adolescent well-being. Secure attachment relationships with parents communicate to adolescents that they are worthy of care (Bowlby, 1969). Recent research by Bender and Ingram (2018) has noted a connection between the parent-child relationship and adolescent resiliency. Specifically, secure attachment bonds appear to enhance resilience through self-efficacy and self-care. It is thought that individuals with more secure attachment relationships have stronger beliefs in their own efficacy, and more frequent employment of self-care practices (Bender & Ingram, 2018). Presumably, an increase in self-care via strong parental relationships can lead to positive health-related behaviours and coping strategies, such as exercise and meditation, as opposed to negative ones, such as substance use, and may therefore also promote better mental health. Notably, Coulombe and Yates (2021) found that adolescents who had greater attachment security prior to the pandemic showed a smaller increase in mental health symptoms during the first phase of the pandemic. Additionally, they concluded that the effect of attachment security predicted adolescents' engagement in COVID-related health-protective behaviours. While these findings are important in looking at the broader context of adolescent pandemic adjustment, the literature has yet to determine the specific health outcomes for individuals who do not have close parent relationships, and whether there are protective factors, such as peer relationships, that can help to prevent negative outcomes.

Peer relationships are of critical importance for overall well-being and support during the adolescent period (Brown & Larson, 2009). Individuals begin to spend more time with friends

and therefore more strongly value opinions and support from peers instead of parents. Additionally, acceptance and rejection by peers are used to guide behaviours, shape self-concept and gauge self-worth (Connell & Wellborn, 1991). As a result, relationships with parents tend to decrease in importance (Underwood & Rosen, 2011). While parents do become less socially important, the critical impact of the parent-child relationship on adjustment outcomes and well-being remains significant (Larson et al., 1996). Prior research has noted that the peer buffering effect (the ability for peer relationships to protect against negative outcomes experienced in other domains) can act as a protective factor for poor parent-child relationships (Sullivan, 1953). Re-examining this phenomenon during the COVID-19 pandemic is necessary due to its socially unusual nature. Importantly, it has been found that peer acceptance has a protective-stabilizing effect on the relationship between closeness to parents and global self-esteem (Birkeland et al. 2014). That is, when adolescent-parent relationships are distant and self-esteem is low, having peer support can moderate these effects. Low levels of closeness to parents may be associated with loneliness and depressive symptoms. Yet, experiencing acceptance in a peer group can protect against this effect by offering an arena where the adolescent belongs (Birkeland et al., 2014). Additionally, Underwood and Rosen (2011) note that peers can buffer the effects of negative parent relationships on mental health and poor coping, even in the case of abusive or neglectful parents. These findings are therefore promising for outcomes in the case of negative parent relationships. However, information is needed to determine if the peer buffering effect can persist at a time when adolescents are more likely to be at home in constant contact with parents and have more limited in-person peer interactions, such as during the COVID-19 pandemic. Furthermore, research must address specific health outcomes related to these differences in support.

An important adjustment-related outcome to assess when determining the predictive value of peer and parent support during the COVID-19 pandemic is internalizing symptoms. Internalizing symptoms are characterized by a disturbance in mood or emotion and incorporate both depression and anxiety (Hughes & Gullone, 2008). They are contrasted with externalizing symptoms, which are characterized primarily by a disturbance in the regulation of behaviour. Research indicates that adolescents are more reactive to stress due to hormonal and brain development changes (Romeo, 2013). With this high reactivity and underdeveloped cognitive mechanisms, it is no surprise that there is an increase in mental health issues amongst adolescents (Lewinsohn et al., 1994). Additionally, research on the effects of previous pandemics, such as H1N1, and the stressors and changes that result reveal greater negative mental health impacts for adolescents as compared to other age groups (Murray, 2009). Knowing that adolescents are already susceptible to mental health concerns, and have been more severely impacted by past pandemics, it is clearly important to examine the severity of outcomes, and potential mitigating factors during the COVID-19 pandemic. Recent findings by Magson et al. (2021) have shown that the early months of the pandemic were detrimental for adolescent mental health, finding a significant increase in depression and anxiety, and a decrease in life satisfaction. While pandemic-specific research on the effects of social support on mental health is still in its infancy, pre-pandemic literature concludes a positive protective relationship. For example, Mackin et al. (2016) found that social support from peers and parents was effective in protecting against adverse effects of life stress on certain dimensions of depressive symptoms, such as suicidality. Undoubtedly, the pandemic has been an added negative variable toward life stress, and thus assessing whether social support persists in buffering adverse outcomes is critical. If

social support is unable to moderate internalizing symptoms during COVID-19, this finding will be important to determine how else adolescents can protect their well-being.

An additional area of concern is the possibility of adolescents turning to other, more maladaptive coping mechanisms when experiencing internalizing symptoms and less than ideal forms of support. Existing research has noted a decrease in social substance use by adolescents since prior to the COVID-19 pandemic (Dumas et al., 2020), with results likely due to the impact of stay-at-home restrictions. Adolescent alcohol and cannabis use are often socially motivated (Gerrard et al., 2008), and thus without consistent interactions with peers to reinforce this behaviour (either directly or indirectly) during COVID-19 stay-at-home orders, a decrease can be expected. However, Graupensperger et al. (2021) found that youth, on average, increased coping motivations for alcohol use at the beginning of the pandemic. Thus, we can expect that since the pandemic has had such a notable impact on adolescent mental health (Magson et al., 2021), they may be engaging in substance use to cope. Indeed, research by Wagner (1993) concluded that stress is a significant predictor of adolescent substance use. Depression and stressful circumstances, including familial or social tensions, that occur during the critical adolescent period can cause increased reactivity to addictive drugs and thus heighten the potential for a substance use disorder to occur (Whitesall et al., 2013). Therefore, the unique impact of COVID-19 on social relationships and the evident increase in depressive symptomatology lend the need for an analysis of whether peer and parent support can inhibit such negative outcomes. Finally, these findings will be important for long-term trajectories, as prior research has noted solitary drinking in response to negative affect during adolescence predicts escalation of alcohol use alcohol problems in young adulthood (Creswell et al., 2014).

Coping and adjustment outcomes during the pandemic are not solely adverse. Recent literature has found that those who exercised more during the pandemic had better overall mood than those who exercised less, suggesting that frequent exercise during the pandemic significantly improves mood (Brand et al., 2020). An explanation for this behaviour in adolescents, as previously mentioned, may be the instillation of resilience by strong peer and parent support relations. These individuals may have increased self-efficacy and may thus be more likely to engage in self-care behaviours as a result of their greater belief in themselves. Moreover, exercise has been found to have an antidepressant effect. Schuch et al. (2016) found robust evidence concluding that exercise can be considered an evidence-based treatment for the management of depression. Considering the increase in loneliness and depression in adolescents during the pandemic, exercise is an essential variable of examination for adjustment. Of important note for the present study is a finding by Gilic et al. (2020) on parental influence on adolescent physical activity during the pandemic. Results indicated that familial conflict was negatively correlated with physical activity levels before and during the pandemic. This study highlights the importance of the parent-child relationship and support on promoting physical activity, especially during crises and health challenging situations, such as the COVID-19 pandemic.

It is known that adolescents' social relationships have been negatively impacted by the pandemic (Ayers et al. 2021), however specific information on health-related outcomes that may result from these impacts have yet to be studied. Thus, the present study aims to address this gap in the literature by exploring internalizing symptoms, exercise, alcohol use, and cannabis use. A large sample of Ontarian teens completed a self-report survey during the pandemic lockdown in June 2021, with questions assessing their adjustment to the COVID-19 pandemic. In examining

this data, it is first hypothesized that adolescents who have weaker parent connectedness will report higher levels of internalizing symptoms (H1), less frequent exercise (H2), more alcohol use (H3), and more cannabis use (H4). Further, the adolescent-parent relationship will be moderated by peer connectedness in that negative health outcomes will be significantly reduced when teens have stronger peer connectedness (H5).

Method

Participants

Participants for this study were 493 adolescents from Ontario, Canada aged 15-19 years ($M_{age} = 17.96$, $SD = .96$; 87 males (17.6%), 390 females (79.1%), 14 (2.8%) "you don't have an option that applies to me" and 2 (.4%) "prefer not to answer"). The only inclusion criteria other than age, was that participants must have used social networking sites.

Procedure

Participants for this study came from an original pool of 1068 adolescents who completed an earlier survey for our research team. This participant pool was originally recruited from April 4th to April 16th, 2020, three weeks after secondary schools in Ontario were closed indefinitely due to the COVID-19 pandemic. They were recruited through an advertisement that was posted to the Huron Health & Peer Relationships Lab's *Instagram* page. The advertisement was promoted using *Instagram*'s promotion feature for one week to teens who were 16-18 years of age and live in Ontario. Adolescents younger than 16 years of age were not recruited in this way due to logistical issues of having to secure online parental consent. The survey link was further e-mailed to a group of adolescents ($n = 155$; 14-18 years of age) who were at the time

completing a longitudinal survey for the researchers and for whom those under age 16 had already received parental consent.

In early June 2021, adolescents from the original April 2020 participant pool were sent a survey link via text or email with an invitation to participate in the present study. At this time, social restrictions in Ontario were beginning to loosen after another stay-at-home order.

Participants were first provided with a Letter of Information and provided informed consent. Considering the study was conducted online using Qualtrics, participants provided their consent by clicking a checkbox that states “I consent to participate in this study” and provided their name. In the survey itself, participants created a unique participant ID to maintain anonymity. Several measures were included in the survey. For instance, measures not related to the present study included information on pandemic fear, online behaviour, and romantic relationships.

The survey took approximately 30 minutes to complete. As reimbursement for participating in the survey, participants received a \$15 e-gift-card to Tango.com.

Measures

The measures specific to the study are described below.

Peer and Parent Connectedness

Two items from the Vaux Social Support Record (Vaux, 1988) were used to measure general feelings of connectedness and support from peers and parents. Items were: “in general, I have a parent I can talk to, who cares about my feelings and what happens to me”, and “in general, I have a friend I can talk to, who cares about my feelings and what happens to me”.

These items were measured on a 4-point scale ranging from 1 (not at all true for me) to 4 (very true for me).

Internalizing Symptoms

A 14-item subscale of the Brief Symptom Inventory (BSI) was used to measure symptoms of depression and anxiety (Derogatis & Melisaratos, 1983). This scale has demonstrated effectiveness for use for adolescents above age 13. Additionally, Cronbach's alpha revealed high internal consistency ($\alpha = .93$). Participants were asked to think about the past 7 days and rank how they felt (e.g., "feeling hopeless about the future" and "spells of terror or panic") on a 5-point scale ranging from 1 (not at all) to 5 (extremely). Items were averaged to create a single index, with higher scores indicating higher responses across items.

Exercise

The Godin Leisure-Time Exercise Questionnaire was used as a measure of physical activity. Participants were provided with the question "In the past 7 days, how much time did you spend in the following kinds of exercise?" and were asked to record their number of hours per week ranging from 0 to 20 for: strenuous (heart beats rapidly) (e.g., jogging, hockey, soccer), moderate (not exhausting) (e.g., fast walking, easy bicycling, dancing, yoga), and mild exercise (minimal effort) (e.g., easy walking). The number of hours for each type of exercise were added together to obtain a total exercise score for each participant.

Substance Use

Participants reported retrospectively on the number of days in the last 3 weeks that they engaged in: 1) any alcohol use and 2) cannabis use.

Analytic Plan

Linear regression analyses were run using the PROCESS macro in SPSS statistical software Version 27 to test all hypotheses. Four regression analyses were run, each using parent connectedness as the independent variable, peer connectedness as a moderator variable and exercise, internalizing symptoms, alcohol use, and cannabis use as the dependent variables.

Results

Descriptive Statistics

Table 1 reports the means, standard deviations, and correlations between all variables. Average total exercise per week during this point in the pandemic showed a mean of 13.63 hours ($SD = 10.24$). Average internalizing symptom scores were 1.47 ($SD = .98$), indicating that overall, participants reported ‘moderately’ experiencing depression and anxiety. Participants, on average, had used both alcohol ($SD = 2.7$) and cannabis ($SD = 4.5$) 1.59 times in the past three weeks. Finally, an average score of 3.09 was reported for peer support ($SD = .82$), which indicates that most participants felt that they often had a friend who they can talk to, who cares about their feelings and what happens to them. For parent support, an average of 2.99 was found ($SD = 1.02$) showing that adolescents felt, in general, that their parents were there for them to talk to and cared about their feelings and what happens to them.

Several correlations were found amongst the variables. The most predominant correlation was the relationship between peer and parent connectedness ($r = .33, p = .05$) and parent connectedness and internalizing symptoms ($r = -.33, p = .05$) (see Table 1). Additionally, a significant negative correlation was found between peer connectedness and internalizing symptoms ($r = -.27, p = .05$). Alcohol use was positively correlated with peer connectedness ($r =$

Table 1. *Descriptive Statistics: Means, Standard Deviations, and Correlations*

	<i>M (SD)</i>	1	2	3	4	5	6
1. Peer Support	3.09 (.82)	--	.33**	-.27**	.09*	.01	.05
2. Parent Support	2.99 (1.02)	--	--	-.33**	.08	-.03	.02
3. Internalizing Symptoms	1.47 (.98)	--	--	--	-.01	.11*	-.05
4. Alcohol Use	1.59 (2.7)	--	--	--	--	.24**	.07
5. Marijuana Use	1.59 (4.5)	--	--	--	--	--	.01
6. Exercise	13.63 (10.24)	--	--	--	--	--	--

Note: * $p = .05$, ** $p = .01$

.09, $p = .01$), but not parent connectedness. Cannabis use and exercise were not correlated with either peer or parent connectedness.

Hypothesis Testing

In the first regression, significant main effects were found for internalizing symptoms, such that both stronger peer and parent connectedness were independently associated with lower reported levels of internalizing symptoms (see Table 2). The significant relation with parental connectedness is in line with H1. However, inconsistent with H5, the interaction term between these two variables was not a significant predictor.

In the second and third regression analyses for exercise (H2) and alcohol use (H3) neither main effects nor interaction terms were significant. That is, parent and peer connectedness did not predict differences in alcohol use or amount of exercise.

In the final regression, it was found that the interaction term between peer and parent connectedness was a significant predictor of cannabis use (see Table 2). Simple slopes analysis revealed that, in line with H5, weaker parent connectedness predicted more cannabis use, but only when peer connectedness was also weak (1 SD below the mean; $b = -.749$, $p = .008$) rather than strong (1 SD above the mean; $b = .514$, $p = .09$) (see Figure 1).

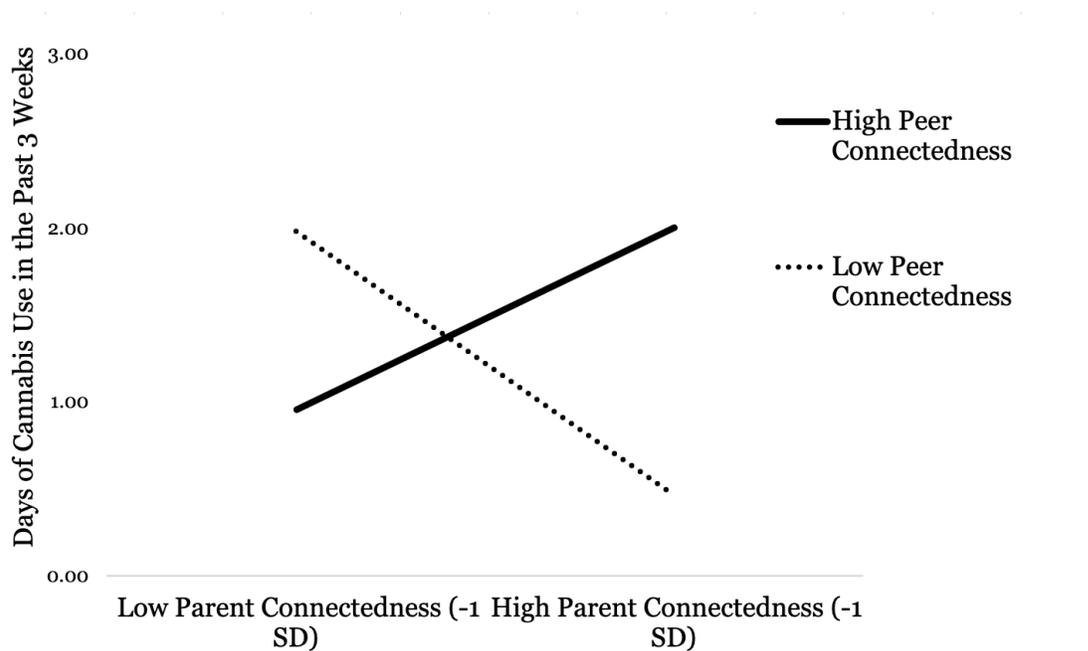
Table 2. Results of Regression Analysis Predicting Health Outcomes from Parent and Peer Connectedness

	Alcohol Use		Cannabis Use		Internalizing Symptoms		Exercise	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Parent Connectedness	.15	.13	-.12	.22	-.27***	.04	.05	.48
Peer Connectedness	.26	.16	.16	.26	-.22***	.05	.58	.59
Parent x Peer Connectedness	.16	.15	.77**	.25	-.07	.05	.46	.58

Note: * $p \leq 0.05$, ** $p < .01$, *** $p < .001$

Figure 1

The Interaction Between Peer and Parent Connectedness as a Predictor for Cannabis Use



Note. A depiction of the significant interaction between peer and parent connectedness predicting increased cannabis use.

Discussion

The goal of this study was to determine whether feelings of connectedness to peers and parents were predictive of adolescent adjustment during the COVID-19 pandemic, as well as whether peer connectedness could buffer the relationship between parent connectedness and internalizing symptoms, exercise, alcohol use, and cannabis use. Parent and peer support are uniquely important to adolescent well-being (Bender & Ingram, 2018; Brown & Larson, 2009), and thus, with ongoing disruptions to usual means of support and high feelings of stress and uncertainty, assessing peer and parent connectedness as predictors of health outcomes during the pandemic is essential. In the beginning of the pandemic, lockdowns, a lack of concrete information, and fear of contracting the virus led to pertinent feelings of uncertainty (Imran et al., 2020). Initially, many had hoped that the lockdown would end in a few weeks' time, as news and media coverage had yet to portray or understand the severity and rapid spreading of COVID-19. While lockdowns undoubtedly affected individuals of all ages worldwide, adolescents have become a particular cohort for which concern may be most necessary not only because of their developmental sensitivity, but also because their experiences in school fluctuated throughout the year. While most adults and university students endured an all-online format, high-schools went back and forth between in-person and online learning. Therefore, this lack of a consistent structure and constant change leads to the necessity of the present research. While findings have begun to conclude that the pandemic did, at least initially, elicit poor psychological outcomes (Magson et al., 2021), more information is needed specifically on protective factors. The current research aids in beginning to understand variables that may protect or impede positive pandemic-related outcomes and adolescent coping more generally. Overall, findings indicated an interaction between peer and parent connectedness as a predictor for cannabis use, and

significant main effects indicating that parent and peer connectedness uniquely predicted adolescent internalizing symptoms.

Cannabis use during adolescence is associated with mental health disorders (particularly anxiety and psychosis amongst heavy users), educational under-achievement, and overall negative effects on the adolescent developing brain (Fergusson & Boden, 2011). Thus, the significant findings in the present study should be assessed critically. Results clearly indicate that, when considering cannabis use as a health outcome variable, peers are an essential protective factor. That is, when adolescents do not feel supported by their peers, low support from parents predicts increased cannabis use. However, when peer support is high, low parent support no longer predicts increased cannabis use. These findings support the peer buffering hypothesis. Further, since adolescents were enduring a lockdown order at the time of data collection, it is perhaps likely that these reports of cannabis use were solitary rather than social. The fact that adolescents experiencing low overall social connectedness reported the greatest cannabis use adds additional support for the likelihood of solitary use, as the opportunity for social use may again be less likely. Solitary cannabis use is particularly concerning, since solitary substance use in adolescence is often for the purpose of coping, leading to risk for later substance use disorder symptoms, diminished academic performance and perceived health (Mason et al., 2019).

The finding that the relationship between poor parent connectedness and increased cannabis use was no longer significant when adolescents had strong peer connectedness is in line with the peer buffering hypothesis. However, in Figure 1, it can be seen that when both parent and peer connectedness were high, cannabis use also appears higher. It is possible that these results suggest cannabis use in two different contexts, such that when social support is poor,

adolescents are using as a negative coping mechanism, while when social support is high, they are using socially with friends. Future research should explore this idea further to determine whether different levels of social support predict differences in the context of cannabis use.

Interestingly, while significance was found for cannabis use, alcohol use was not predicted by parent or peer support. It has been established that adolescents tend to consume alcohol primarily for social reasons (Gerrard et al., 2008). In a review of adolescent drinking motives, Kuntsche (2005) concluded that alcohol use is socially motivated and tied to popularity. Thus, considering the data in the present study was collected during a lockdown, where social gatherings were mostly restricted, it may be that the lack of normal opportunity to consume alcohol predicted alcohol use, not levels of social support. Consequently, alcohol use should be further examined in future research to assess coping-related alcohol behaviours. The present study assessed general alcohol use within the past three weeks, without any indication of the motives behind use or the contexts in which it occurred. It is therefore unknown whether the reports of alcohol use in this study were coming from teens using at gatherings, celebrating, spending time with friends, or using alone. A greater exploration in this area is therefore needed, regardless of the pandemic, and predictors beyond social connectedness should be explored. For instance, alcohol use could be examined beyond number of days of use, and instead assessed based on use for coping. It is possible that in looking more closely at alcohol use specifically for coping, findings will be able to better assess its relationship to social connectedness.

The significant main effects for internalizing symptoms are essential to understanding adolescent mental health during the pandemic. Previous research exploring the impacts of the pandemic on mental health has noted a significant increase in these symptoms, particularly for adolescents (Ellis et al. 2020). However, specific protective factors and predictors of this

increase remained generally unknown. The significant main effects for peer and parent support on internalizing symptoms therefore bring novelty to this important area of pandemic research. It is evident that, at least during the June 2021 lockdown, feelings of support from both parents and peers were essential to adolescent symptoms of anxiety and depression. With poor mental health in adolescence being a significant predictor for suicidal ideation, school underachievement, and substance use (Glide & Pine, 2002), these findings are critically important. For adolescents, the pandemic was most concerningly characterized by a lack of access to peers. Thus, the findings suggest that even if parents were trying to be supportive, attempting to engage adolescents in activities to reduce stress, and striving to maintain connectedness, the lack of connectedness resulting from lack of access to peers could still contribute to heightened symptoms of anxiety and depression. That is, adolescents need the support from their peers as well. Thus, it is perhaps most concerning that the peer buffering effect was not detected for internalizing symptoms. When parent support is low, peer support does not appear to moderate that relationship and elicit more positive mental health outcomes. Future research must critically examine this finding to determine what specific factors can protect against a lack of social support.

Exercise was hypothesized to be predicted by parent support due to the ability for strong parent relationships to instill a sense of self-worth and self-efficacy (Bender & Ingram, 2018). Previous research by Gilic et al. (2020) found that family conflict was negatively correlated with physical activity levels before and during the pandemic, and therefore emphasized the importance of the parent-child relationship on promoting physical activity during a stressful time like the pandemic. The lack of significant findings to support this hypothesis may indicate that exercise at this age is generally not considered a self-care behaviour. Based on the age of adolescents in the sample, it is possible that primary forms of exercise tend to occur through

organized sports and school sports teams, not through a self-motivated desire to relieve stress or improve physical health. Sports teams are a common means of socialization for youth, and extracurricular activities have been recognized as opportunities to develop social skills, contribute to social capital, foster belonging to a community, and establish peer support networks (Eccles et al., 2003). Often, individuals form friendships with members of their teams, and spend time with teammates outside of practices and games. The possibility of these interactions was disrupted by restrictions that inhibited after school activities and sports practices. Further, while the average reported hours of exercise in the past seven days was surprisingly high (13.63), it should be noted that, despite school being online, adolescents have mandates for physical activity time. So, the 13-hour average of physical activity is not necessarily represented by self-determined or self-motivated exercise and may reflect time spent in online gym class. Many high schools additionally had to alter their class schedule structure to prevent students interacting with multiple teachers throughout the week. Thus, depending on their schedules, some students may have had gym class that lasted far longer than usual. It is therefore possible that exercise as an outcome variable is not a true reflection of coping and self-care since it is dependent upon school requirements. Future research should assess whether adolescents truly do engage in voluntary exercise at this age as a function of self-care, or if it is mostly through sports teams and school. Moreover, further examination is needed to determine how voluntary exercise might relate to parent and peer connectedness.

Overall, besides the significant interaction for cannabis use, data did not show evidence of the peer buffering effect during this time of the pandemic. The nature of pandemic social interactions may not provide the opportunity for the same positive outcomes that have been outlined by the peer buffering effect (Sullivan, 1953). That is, especially with continued

transition between online and in-person learning, it may have been challenging for adolescents to gain the same benefits of peer support. Schools are a place of significant socialization for youth, where peer belongingness and crowd affiliation significantly impact self-esteem (Brown & Lohr, 1987). Wearing masks, no longer being able to participate on sports teams or in after school activities and having almost every interaction monitored by teachers to ensure regulations were being followed, peers may not have been able to form or foster connections in a usual way. Thus, these abnormal experiences may support the general lack of evidence that peer support predicted pandemic-related health outcomes.

The findings should be considered in light of limitations. Specifically, the gender distribution should be closely noted, as the sample was primarily female (79.1%). The outcome variables used in the study, such as internalizing symptoms may vary as a function of gender. For instance, Crawford et al. (2003) found that parental conflict was significantly associated with internalizing symptoms in adolescent females but not adolescent males. Moreover, adolescent females are generally at a higher risk for anxiety and depression than adolescent males (Hoffman et al., 2004). Knowing this, future research may benefit from a similar examination with a more representative sample. Further, compared to other countries, Canada had particularly stringent pandemic restrictions. Not all individuals of this age group similarly endured lockdowns and complete social isolation, especially multiple times over the course of two years. It is therefore unclear whether these results are truly generalizable to non-Canadian individuals. In June of 2021, vaccines were already being administered in Ontario, and the eligibility of adolescents at this age was on the horizon. Therefore, the relatively moderate reports of internalizing symptoms, the high rates of average exercise, and the average use of substances of one to two days in the past three weeks may reflect feelings of hope amongst this population. The

approaching eligibility could perhaps have elicited the excitement that restrictions would lift, socialization would resume, and life would soon be back to normal. It is possible that these feelings of hope and excitement moderated the relationship between poor support and the health outcome variables. Finally, the cross-sectional nature of the study means that temporal ordering and causality cannot be claimed. Thus, a further examination of these variables is necessary to assess whether the findings change over time, especially now that social restrictions have been completely lifted in Ontario.

In conclusion, this study expands on previous research on adolescent adjustment to the COVID-19 pandemic by examining peer and parent support as protective factors. Results indicated that low parent connectedness is associated with more cannabis use, but only when peer connectedness is also low. Further, both feelings of peer connectedness and parent connectedness appear important for protection against experiencing internalizing symptoms. Professionals, parents, and prevention programs should consider the current findings closely. Considering the potential negative impacts of cannabis use on adolescent brain development and well-being (Fergusson & Boden, 2011), highlighting the need for fostering a sense of connectedness is especially critical. Additionally, researchers should continue to assess predictors of adolescent coping to gain a better understanding of how best to support this age group at a time when their developmentally typical milestones are being intensely disrupted. Since long-term mental health outcomes remain unknown, attention to this topic should persist to mitigate continued adverse impacts, especially when mental health is a concern for youth regardless of a global pandemic.

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