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COVID-19 Fatigue and Middle School Students' Engagement and School Aversion: The Mediational Roles of Emotion Regulation and Perceptions of School Climate

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Abstract: Learning during the COVID-19 pandemic has included disruption, uncertainty, and additional stress for students. Adverse learning outcomes are a growing concern, especially for vulnerable groups such as middle school students. While COVID-19 research is currently emerging, more research needs to address the specific experiences of middle school students. The current study examined the meditating role of coping (emotion regulation strategies) and perceptions of school climate on the relationship between COVID-19 fatigue and student outcomes (student engagement and school aversion) in a sample of middle school students (N = 301). Findings from parallel mediation path models indicated that COVID-19 fatigue was inversely related to student engagement and positively related to school aversion. School climate provided a moderate to strong mediation, and emotional regulation provided small partial mediation compared to school climate. The findings suggest that utilizing adaptive emotion regulation strategies can help promote student engagement and dampen school aversion in relation to COVID-19 fatigue. Additionally, positive perceptions of school climate can encourage school engagement and reduce school aversion. A deeper explanation of the importance of regulation and the way middle schoolers perceive school rules and support in the context of the COVID-19 pandemic is discussed.

Keywords: COVID-19 pandemic; middle school students; student engagement; school aversion; school climate; emotion regulation

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1. Introduction

The COVID-19 pandemic is an enduring, volatile, and ever-changing event in history with far reaching effects felt globally and on individual levels. The threats imposed by the pandemic go beyond disease mortality, and include implications related to mental health, well-being, and psychological adjustment, which disproportionately affect vulnerable populations [1]. School-aged students have experienced immense disruptions to their educational experiences, which could have negative associations with academic outcomes (e.g., attendance, performance, motivation, engagement). Young people, including students, are prone to experience disproportionately higher levels of stress, anxiety and depression [2]. Understanding how the pandemic impacts young people has been identified as an important target for COVID-19 research [3], but few studies have examined the experiences of middle school students. Early adolescence represents a unique developmental period where vulnerability to stressors is heightened, as the onset of psychological disorders such as depression and anxiety typically occurs during this time [4]. The current study examines how middle school students' coping strategies (emotion regulation) and individual perceptions of school climate affect the relationship between COVID-19-related stresses and middle school students' self-reported academic engagement and aversion to school.

1.1. COVID-19-Related Fatigue, Student Engagement, and School Aversion

During the pandemic, students have experienced abrupt changes in their typical schooling experience, including disruptions to their school year, extended breaks from instruction, shifts from in-class instruction to remote learning, enhanced government mandated health and safety regulations, and several COVID-19 school outbreaks. Students have been forced to adapt quickly to new regulations and routines as necessary. Lockdowns, restrictions on movement, disruption of routines, physical distancing, curtailment of social interactions and deprivation of traditional learning methods have led to increased stress, anxiety, and mental health concerns among learners worldwide [5]. Middle school students also face difficult pressures to prioritize the health and safety of others atop their social connections with friends, which could cause additional stress and tension. Recent research indicates that students are feeling heightened levels of general stress and anxiety during the pandemic [6,7]. Students reported that constant stress was the 'new normal' [6], and primary stressors for middle and high school students included feeling unable to concentrate, not feeling motivated at school, and falling behind in school during the pandemic [7].

Certain age groups are particularly vulnerable to undue stress. Middle school students are especially vulnerable to stressors as the transition from elementary to middle school introduces drastic social, environmental, and physical changes [8,9]. Heightened self-consciousness, increased significance placed on friendships and peer rejections, and decreased personal contact with teachers coupled with an increase in maladaptive coping strategies create a social environment in which social–emotional supports, sense of belonging, and personal acceptance is critical [10,11]. Stressors related to the pandemic can compound developmental stressors, which can indirectly impact students' academic experience. Acute life stressors (e.g., negative life changes and social conflict) have been shown to negatively impact school competencies, such as GPA [12], and exposure to adverse environmental factors contributes to the development and severity of negative outcomes related to stress [13]. The onset and duration of the COVID-19 pandemic can be conceived as an adverse environmental factor that has introduced additional sources of stress.

Converging research shows that stressors associated with the COVID-19 pandemic are associated with diminished mental health and well-being of the global population [1,14,15]. In school contexts, students also appear to be displaying a new form of stress in relation to the extended duration of the pandemic. After a full year in the COVID-19 pandemic, many schools returned to school and provided face-to-face instruction. Mask wearing combined with continuously evolving restrictions imposed by public health orders were increasingly coupled with waves of public push back and resistance [16]. The construct COVID-19 fatigue emerged to refer to the emotional exhaustion students feel (e.g., frustration) about the pandemic, and the extent to which students believe the pandemic has impacted their enjoyment of school [17–19]. Despite some inconsistencies in the use of the term, e.g., [18,19], COVID-19 fatigue is directly linked to rule adherence and behaviour where continued exposure to strict health and safety measures (e.g., lockdown) will leave people in a state of fatigue, which may lead them to adhere less to the mandated COVID-19 rules [17]. Labrague and Ballad [19] described COVID-19 fatigue in relation to mandatory lockdowns and found that during lockdowns, university students experienced moderate levels of COVID-19 fatigue, which included physical exhaustion, tiredness, decreased motivation, and increased worry. Notably, resiliency and adaptive coping strategies were associated with lower levels of COVID-19 fatigue [19]. Rates of emotional exhaustion have also been reportedly higher since the onset of the COVID-19 pandemic [18]. In the current study, COVID-19 fatigue in a school context refers to students' feelings of exhaustion and frustration with pandemic rules at school, and a general lack of enjoyment at school because of the pandemic. Additionally, COVID-19 fatigue taps into how motivated students feel about following the pandemic rules, rather than their subsequent behaviours.

Increased COVID-19 fatigue likely impacts students' academic functioning by decreasing student school engagement. Student engagement refers to the degree to which students

demonstrate a willingness to participate and engage in school, which includes activities and behaviours that relay adherence to school norms, participation in class, and involvement in extracurriculars, which are strongly related to educational accomplishment [20]. Emerging evidence is demonstrating that students are less academically engaged during the pandemic. For example, a longitudinal study of Finnish middle school students measuring student engagement before and during the pandemic found that approximately 75% of students in two samples experienced diminished engagement [21].

Another key issue exacerbated by the pandemic is students' aversion to school. School aversion refers to a student's current feelings of dislike towards school, indicated by hating school and feeling tired of it [22,23]. The concept of school aversion can overlap with elements of emotional engagement and school satisfaction. Students who are emotionally engaged are likely to look forward to school and feel that school puts them in a good mood, which is the inverse of school aversion [24]. It is possible that during the pandemic, students who are emotionally engaged will also feel low aversion to school and will utilize adaptive behaviours for learning, which are associated with academic performance. On the other hand, students with low emotional engagement will likely report high aversion to school, which may be indicated by absenteeism, or diminished academic performance. Relatedly, school aversion may be an indication of school dissatisfaction, which refers to students' perceptions of their level of contentment with school [25]. In pandemic contexts, the COVID-19 lockdown has been associated with a steep drop in school satisfaction [26].

Therefore, student engagement and aversion to school can be considered important indicators of student experiences at school during the pandemic. In the current study, student engagement includes behavioural and cognitive indicators of engagement, whereas, school aversion relates to the attitudes and feelings students hold about school, specifically if they hate school or if they are tired of school. In the context of the pandemic, COVID-19 fatigue likely diminishes school engagement and heightens school aversion. However, these relationships might be conditioned upon how well students are able to adapt to and cope with their changing school experience.

1.2. Coping as a Mediator of COVID-19-Related Stresses and Student Engagement and School Aversion

Experiencing pandemic distress or fatigue over time may overwhelm students' capacity to effectively regulate their emotions. Heightened stress and chronic stress have been linked to maladaptive responses to stress over time. The allostatic load model explains that prolonged exposure to stress can compromise physical health functioning, leading to an increased risk of illness [27,28]. Exposure to stress has been linked to cognitive, behavioural, and emotional impairment in children [27]. Students who are overwhelmed with COVID-19-related stresses may not have the capacity to regulate their emotions adaptively, especially if stressors persist over time. Students likely vary in the number of external stressors they endured during the pandemic. For example, some students may have parents who lost their jobs during the pandemic, some may have been exposed to the virus personally, some may be worried about the health of loved ones, and some may feel social strain because of the health and safety restrictions [29]. Indeed, stressors reported over the course of the COVID-19 pandemic are multifaceted and can manifest as distress, fear, or excessive worries [30]. In addition to these external forces, students likely vary in the way they perceive their academic lives during the pandemic. Some students may feel heightened academic stress and worry that their schooling experience will be irreversibly changed, and others may struggle with the strict rules, such as mask wearing and social distancing. Additionally, relative to external factors such as vaccine availability, lifted or sanctioned restrictions, new variants, or school exposures, students' individual experiences with stress may wane at times and swell at others. The variability in student experiences with stressors makes it plausible to consider students' coping abilities as an important mediator of COVID-19 fatigue and school engagement and aversion. Students experiencing high levels of stress may cope poorly, and those with more manageable levels of stress may

cope better, because high levels of distress or fatigue may overwhelm their ability to utilize adaptive strategies.

The way students cope with stress may explain the relationship between stress and diminished academic outcomes. For example, students' ability to utilize adaptive coping strategies to reduce stress and anxiety has been shown to boost academic performance in university students [31]. Importantly, students who readily deploy adaptive coping strategies (i.e., cognitive reappraisal emotion regulation strategies) may be equipped to manage the stresses associated with the pandemic more effectively, which may be related to better school engagement and diminished aversion to school. Maladaptive coping techniques, such as disengaged coping strategies, are associated with lower academic performance [32] and lower satisfaction with school [33]. On the other hand, adaptive coping, such as effective utilization of emotion regulation strategies, may mollify the negative impact of COVID-19 fatigue on school engagement and aversion.

Emotion regulation is regulatory in nature and can be a response to stress or emotions [34]. Emotion regulation includes one's ability to accurately perceive and identify experiences, approach and accept emotions, pursue personal goals despite negative emotions, and select strategies for changing the intensity of emotions [35]. In the context of the pandemic, rising stress and fatigue levels may overwhelm or impede effective emotion regulation which can, in turn, decrease academic engagement or heighten school aversion. For example, students experiencing high levels of COVID-19 distress or fatigue may be less equipped to utilize cognitive reappraisal strategies, such as controlling their thoughts to stay calm when faced with stressful situations, which may be related to them feeling like they hate school and are tired of it.

1.3. Perceptions of School Climate as a Mediator of COVID-19-Related Stresses and Student Engagement and School Aversion

School climate is a multifaceted construct that depicts the environment or context in which students learn, which can include students' perception of school safety, peer and teacher relationships, quality of teaching and learning, fairness and equity, and belonging or connectedness [36,37]. Negative school climates have been linked with school outcomes including lower perceptions of fairness and equity, school safety, higher levels of school violence and peer victimization, as well as lower academic performance compared to schools with more positive climates [38,39]. Students experiencing heightened COVID-19-related fatigue may be more inclined to interpret their school environments negatively. COVID-19 fatigue is characterized by feeling exhausted by the pandemic rules, believing the pandemic has made school less enjoyable, and feeling less motivated to follow the COVID-19 rules [40], all of which may lead students to dislike their school or feel the rules are unfair, and too harsh. Pandemic conditions may have contributed to students feeling less connected to their school, teachers, and classmates. For example, students and teachers were encouraged to stay home if they had any illness symptoms, which contributes to higher than usual absence rates. Additionally, some students only physically attended part of the school year because they opted to learn remotely. Due to these realities, students may have missed opportunities for connection at school, which can lower school engagement. For example, if students feel less connected to their teachers and peers, they may feel less comfortable sharing their ideas in class. While extant COVID-19 research specifically linking stress indicators and school climate is sparse, reductions in general social connectedness that is attributed to the pandemic, e.g., [41], can have cascading effects on students' perceptions of school climate. COVID-19 is likely to increase the risk of burnout and decrease student engagement in elementary and middle school. Change and stability in student engagement is often accompanied with change and stability in social emotional factors, such as social belongingness [21]. Students experiencing heightened COVID-19 fatigue may feel that the pandemic has made school less enjoyable, which increases aversion towards school.

The current study aims to assess how emotion regulation and school climate may explain the association between COVID-19 fatigue and student engagement and aversion

in a sample of Canadian middle school students. Specifically, we examine how middle school students' coping strategies (emotion regulation) and individual perceptions of school climate mediate the relationship between COVID-19-related stresses and middle school students' self-reported academic engagement and aversion to school.

2. Methods

2.1. Procedure

Teachers from one school (grades 6–8) in a western school district of British Columbia, Canada, implemented an instructional unit that covered skills and challenges related to self-regulated learning. Instructional units included activities and questionnaires which provided opportunities for students to reflect, self-assess, and develop metacognitive awareness of their approach to learning. Teachers completed the instructional unit with their classes as part of their regular schooling experience over 1 week, 25 min a day for 5 school days. Topics included strategies for engaging in school including effective ways to apply self-regulated learning practices, perceptions of school context including strategies to build social connection and school belonging, and COVID-19-related stresses including ways to cope with pandemic-related stressors and knowing where to seek help. Corresponding online questionnaires were administered on each of the five school days.

Pandemic context. Data were collected in the academic spring term of 2021. Students had been navigating their schooling experience during the pandemic for over a year and had just returned to face-to-face instruction in the fall term of 2020. Throughout the course of the academic year, the school district implemented strict health and safety mandates including sanitization protocols, mandatory mask wearing, narrowing cohorts to limit exposures, and removed extracurricular activities and applied skill development classes (e.g., woodwork or sewing). During the time of data collection, several exposures occurred at the middle school where the study took place, causing many students and staff to isolate or quarantine. Moreover, at the time of data collection, in April 2021, just over 15% of Canadians had received at least 1 dose of the vaccine [42]. Children 12–17 were not eligible for vaccination at this time. In May, after data collection, it was announced that the vaccine was approved for children 12–17 [43].

2.2. Participants

Participants were 301 middle school students grades 6 (n = 146), 7 (n = 98), and 8 (n = 101). Forty-five percent of students identified as female and 43% male, 1% nonbinary and two-spirted, and 4% preferred not to disclose.

2.3. Measures

COVID-19 Fatigue. The COVID-19 fatigue scale included 3 items that tapped (a) feeling tired and frustrated with the COVID-19 rules, (b) feeling a lack of enjoyment at school because of the COVID-19 pandemic, and (c) feeling diminished motivation to follow the COVID-19 rules ($\alpha = 0.77$). Students responded to COVID-19 fatigue items on a 5-point scale: *(1) not at all to (5) extremely.* High scores indicate high levels of COVID-19 fatigue.

Student Engagement. The New Zealand Council for Educational Research's 'Me and My school' (see [24]) behavioural and cognitive engagement subscale was used to assess student engagement. These included 10 items that used a 5-point scale: (1) strongly disagree to (5) strongly agree. Students were asked to base their responses on their experiences at school this year (e.g., "I pay attention in class", "I look for ways to improve my schoolwork"). High scores on the student engagement scale indicates that a student has high levels of engagement ($\alpha = 0.85$). An additional item was added to target class participation, which is an aspect of behavioural engagement [44].

Daily School Aversion. Lewis et al.'s [22] 2-item school aversion scale assessed how students feel "right now" about school ("hate school" and "tired of school") on a 4-point scale (1 = No; 2 = Not Really; 3 = Sort of; 4 = Yes ($\alpha = 0.92$)). High scores indicate high levels of hating school and being tired of school.

Emotion Regulation. The 6-item cognitive reappraisal subscale from the Emotion Regulation Questionnaire (ERQ) [45] was used as a measure of adaptive emotion regulation strategies. Students responded to items on a 5-point scale, (1) strongly disagree to (5) strongly agree, to questions based on their general experience with emotions (e.g., "I control my emotions by changing the way I think about the situation I am in"). High scores indicate that students readily utilize adaptive emotion regulation strategies ($\alpha = 0.88$).

School Climate. A shortened version of the Delaware School Climate Scale (DSC-S) [46] was used to measure students' perceptions of their school climate that tapped teacher–student relations (e.g., "teachers care about their students"), student–student relations (e.g., "students really care about each other"), fairness and rules (e.g., "school rules are fair"), school safety (e.g., "students feel safe at this school"), and liking of school (e.g., "I like this school"). The scale included 10 items and used a 5-point scale, (1) strongly disagree to (5) strongly agree, with high scores indicating more positive school climate ($\alpha = 0.88$).

2.4. Data Analytic Strategy

Mediational path analyses were used to analyze the hypothesized pathways between COVID-19 fatigue, emotional regulation, school engagement, aversion, and climate using the Hayes PROCESS Macro in SPSS Version 4.0. Separate models were examined for school engagement and school aversion as outcomes associated with COVID-19 fatigue. Emotional regulation and school climate were included as parallel mediators in the relationship between COVID-19 fatigue and school engagement and aversion [47]. Indirect effects were estimated using bootstrap 95% confidence intervals (CIs) to determine evidence of mediation [48,49]. Bootstrapping is a resampling method that can be used to construct a CI for the indirect effect.

3. Results

3.1. Descriptives

Means, standard deviations, and correlations are provided in Table 1. COVID-19 fatigue was inversely related to emotion regulation, school climate, student engagement (rs = −0.13, −0.42, −0.28; ps < 0.05), and positively associated with daily school aversion ($r = 0.54$, $p < 0.001$). Both mediators, emotion regulation and school climate, were positively associated with student engagement (rs 0.48 and 0.57, ps < 0.001, respectively) and inversely related to daily school aversion (rs = −0.39 and −0.68, ps < 0.001, respectively). Emotion regulation and school climate were positively associated ($r = 0.53$, $p < 0.001$).

Table 1. Correlations and descriptive statistics of main variables.

	1	2	3	4	5
1. CO-F	1.00				
2. ER	−0.13 *	1.00			
3. SC	−0.42 ***	0.53 ***	1.00		
4. SE	−0.28 ***	0.48 ***	0.57 ***	1.00	
5. DSA	0.54 ***	−0.39 ***	−0.68 ***	−0.56 ***	1.00
M	3.22	3.34	3.68	3.60	5.03
SD	1.07	0.76	0.64	0.61	1.84
α	0.77	0.88	0.88	0.85	0.92

Note: N = 301. The result scale for variables 1 through 4 ranged from 1 to 5, and DSA ranged from 1 to 8. CO-F = COVID-19 fatigue; ER = emotion regulation; SC = school climate; SE = student engagement; DSA = daily school aversion; α = Cronbach's alpha. * $p < 0.05$. *** $p < 0.001$.

3.2. Student Engagement and Mediating Effects of Emotional Regulation and School Climate

Figure 1 depicts the estimated paths of the parallel mediation model of COVID-19 fatigue predicting student engagement with emotional regulation and school climate modeled as mediators. COVID-19 fatigue inversely predicted emotion regulation ($\beta = -0.13$, $p = 0.02$), and emotion regulation was positively related to student engagement ($\beta = 0.25$, $p < 0.001$). As demonstrated in Table 2, indirect effects confirmed that emotion regulation

is a significant mediator (estimate = −0.02; SE 0.01) based on bootstrapped 95% CI [48]. COVID-19 fatigue was inversely related to school climate (β = −0.42, $p < 0.001$) and school climate was, in turn, positively associated with student engagement (β = 0.41, $p < 0.001$). The indirect effect through school climate was also significant based on bootstrapped CIs (estimate = −0.10; SE 0.02). With the inclusion of both mediators, the direct effect between COVID-19 fatigue and student engagement was not significant (β = −0.08, $p = 0.13$), suggesting the presence of a full mediation [50]. As indicated in Table 2, the total indirect effects supported full mediation, with school climate contributing to a larger effect.

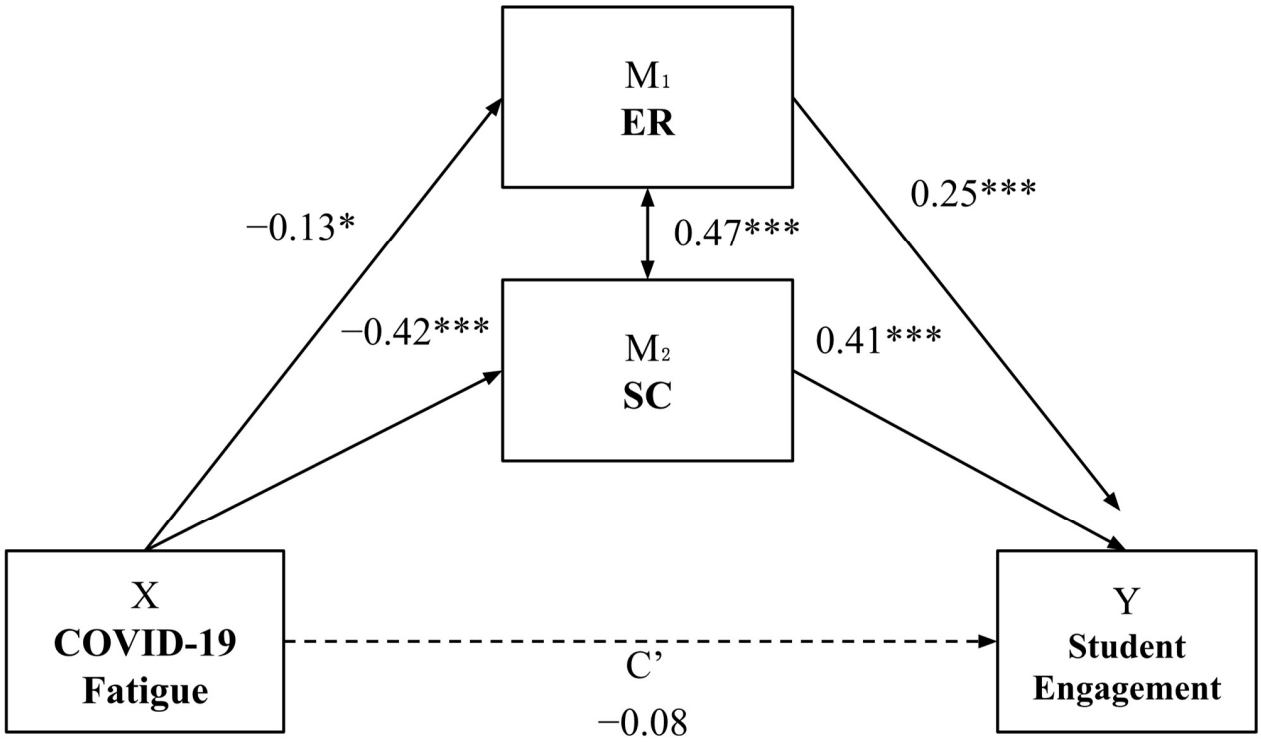

Figure 1. Parallel mediation model: COVID-19 fatigue and student engagement. Note: standardized coefficients are presented. * $p < 0.05$. *** $p < 0.001$.

Table 2. Bootstrap indirect and total effects of emotional regulation and school climate on COVID-19 fatigue and student engagement and school aversion.

	Effect	SE	LL 95% CI	UL 95% CI
Student Engagement				
COVID-19 fatigue predicting student engagement with emotion regulation and school climate as the parallel mediators (M_1 and M_2)				
ER (M_1)	−0.02	0.01	−0.04	−0.00
SC (M_2)	−0.10	0.02	−0.13	−0.06
Total Indirect	−0.12	0.02	−0.16	−0.07
Total Effect	−0.16	0.03	0.00	−0.22
School Aversion				
COVID-19 fatigue predicting student engagement with emotion regulation and school climate as the parallel mediators (M_1 and M_2)				
ER (M_1)	0.02	0.01	−0.00	0.05
SC (M_2)	0.36	0.05	0.26	0.47
Total Indirect	0.38	0.05	0.28	0.49
Total Effect	0.54	0.07	0.00	0.40

Note: ER = emotion regulation; SC = school climate; unstandardized coefficients are presented using 5000 bootstrap samples.

3.3. School Aversion and Mediating Effects of Emotional Regulation and School Climate

As shown in Figure 2, COVID-19 fatigue was inversely related to emotion regulation (β = −0.13, p = 0.02), but emotion regulation did not predict daily school aversion (β = −0.08, p = 0.13). COVID-19 fatigue was inversely related to school climate (β = −0.42, $p < 0.001$), and school climate was, in turn, inversely related to daily school aversion (β = −0.51, $p < 0.001$). The total effects and total indirect effects indicate that COVID-19 fatigue significantly accounts for school aversion. The COVID-19 fatigue direct effect was positively related to daily school aversion (β = 0.32, $p < 0.001$), suggesting the presence of a partial mediation. The indirect effects (Table 2) demonstrated that school climate was a significant mediator of the relationship between COVID-19 fatigue and daily school aversion (estimate = 0.36; SE 0.05), but emotional regulation was not.

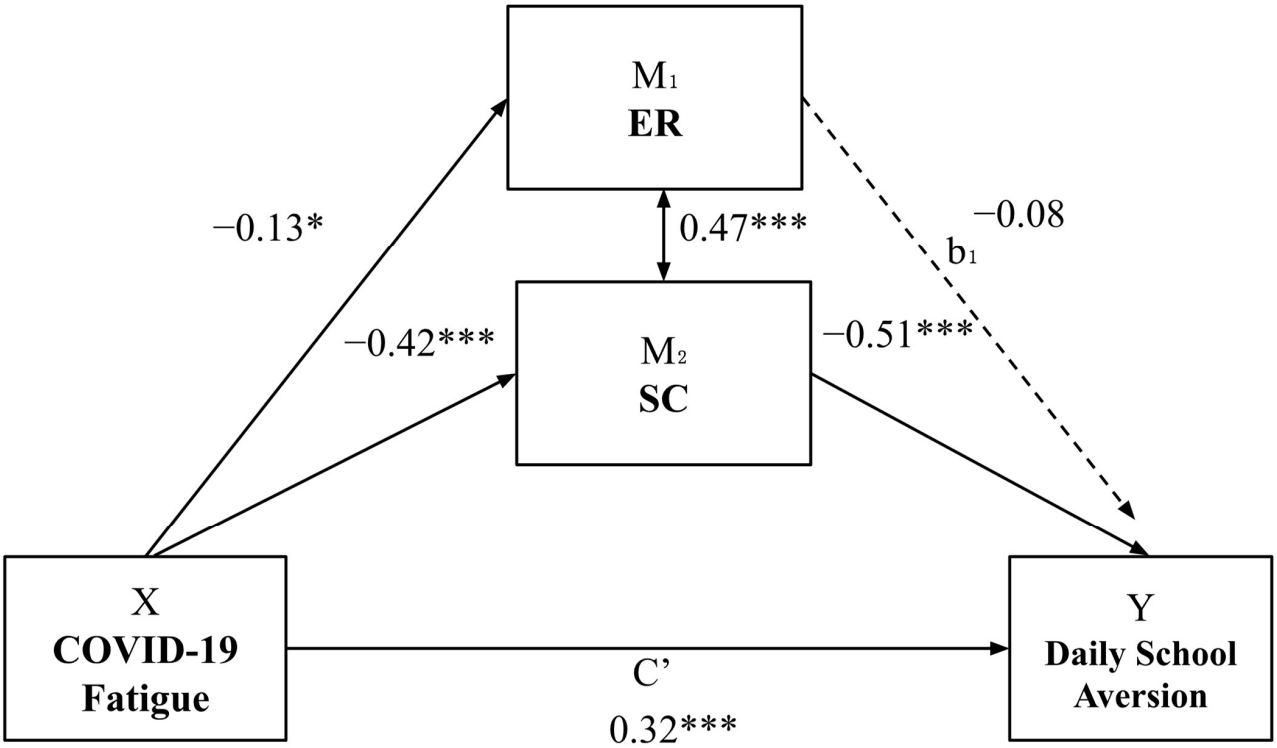

Figure 2. Parallel mediation model: COVID-19 fatigue and daily school aversion. Note: standardized coefficients are presented. * $p < 0.05$. *** $p < 0.001$.

4. Discussion

The current study examined how pandemic fatigue relates to student engagement and aversion to school, and whether emotion regulation and school climate play mediating roles in this relationship. Research into the pandemic experiences of middle school students provides insight on an understudied, vulnerable population. The findings showed that students with higher levels of COVID-19 fatigue were less engaged in school and held more adverse attitudes toward school compared to students with lower levels of fatigue. Poor emotional regulation skills partially mediated the relationship between COVID-19 fatigue and student engagement, which suggests that students who feel exhausted and frustrated with the pandemic are less likely to participate in class and pay attention, and are more likely to dislike school because they may have trouble regulating their emotions effectively in the face of pandemic stresses. School climate was also a significant mediator of COVID-19 fatigue and both student engagement and daily school. Not feeling connected or supported at school, in addition to having poor emotional regulatory competencies, can explain why students are less likely to stay engaged and maintain positive attitudes about school under pandemic conditions.

These finding are consistent with emerging pandemic studies that link COVID-19 stress with poorer academic outcomes, e.g., [6,7,14,23,41]. While the World Health Organization has called attention to the need to mitigate public fatigue related to the pandemic, particularly with regards to adherence to preventative recommendations [40], few studies have examined how COVID-19 fatigue impacts the day-to-day lives of youths, particularly in their academic settings. According to Fu et al. [51], people likely acclimate to anxiety related to COVID-19 in cases when stressors are constant. The new normal at school includes various health and safety measures, such as mask wearing, hand sanitizing, and social restrictions. While students may have adapted to their new reality at school, feelings of frustration and fatigue about pandemic rules may fuel negative attitudes towards school. On the other hand, emerging research shows that enhanced school connectedness can help mitigate negative mental health outcomes associated with the pandemic [52].

4.1. Emotion Regulation and COVID-19 Fatigue, Student Engagement and School Aversion

Students' feelings of dissatisfaction and frustration with the pandemic rules were associated with poorer engagement in class, which is consistent with emerging studies that link decreases in engagement during pandemic conditions, e.g., [21]. Student engagement includes behaviours such as participating in class and completing homework, which has been shown to predict more positive academic performance such as GPA [20]. High engagement at school is often associated with high socioemotional skills [53]. The finding that emotion regulation mediates the relationship between COVID-19 fatigue and student engagement suggests that students' emotion regulation capabilities, specifically the use of adaptive strategies (i.e., cognitive reappraisal), play a key role in explaining how pandemic fatigue affects student engagement. When students utilize adaptive emotion regulation strategies as a way to cope with COVID-19 fatigue, they may not experience diminished school engagement in the same way as students who do not employ adaptive emotion regulation strategies.

High levels of COVID-19 fatigue were also related to higher levels of aversion to school. Feeling tired and frustrated with the pandemic rules, low levels of school enjoyment, and lacking motivation to follow the COVID-19 rules can fuel general school-related fatigue and aversion. This finding is consistent with emerging studies that found a steep drop in school satisfaction and an increase in absenteeism during the pandemic, e.g., [26]. As with student engagement, individual differences in the utilization of adaptive emotion regulation strategies mediated the relationship between COVID-19 fatigue and school aversion. This suggests that supporting students to utilize reappraisal strategies may protect against heightened levels of aversion to school during the pandemic. When encountering stressful experiences, individuals who utilize reappraisal strategies (adaptive emotion regulation) have been found to be more likely to focus on positive outcomes and repair their moods [45]. Therefore, using adaptive emotion regulation strategies frequently may enable students to reappraise their negative feelings about school and pandemic fatigue, and thereby mitigate feelings of aversion to school.

4.2. School Climate and COVID-19 Fatigue, Student Engagement and School Aversion

School climate also mediated the relationship between COVID-19 fatigue and student engagement, as well as between COVID-19 fatigue and school aversion. Extant research supports the notion that social contexts and coping strategies work together to promote well-being and positive academic outcomes for students [25,32,33,54–56]. Adaptive coping can be promoted through positive contexts, such as feelings of connectedness and relationships with peers or teachers [57–59], that are often associated with positive academic outcomes [37,60,61]. Schools provide an integral environment for students to develop and practice emotion regulation strategies and cultivate healthy relationships with peers and teachers. For example, students who are able to regulate their emotions adaptively (e.g., reappraise negative situations and shift to more positive thinking), may perceive their school environment and teacher relationships more positively, and may view feedback

from teachers as constructive and supportive instead of critical and negative. High levels of COVID-19 fatigue, which includes feeling that the pandemic has made school less enjoyable, may contribute to students feeling as though they dislike their school or that they wish they went to another school, both of which are indicators of negative perceptions of school climate. Negative perceptions of school climate can, in turn, deter student engagement (e.g., diminished participation and diminished attention in class) and induce school aversion. Students who perceive their school to be unsupportive, unfair, and unsafe are more likely to dislike their school when they experience COVID-19 fatigue.

4.3. Limitations and Future Directions

While the current study contributes to our understanding of how middle school students are academically functioning in the face of pandemic fatigue, there are several notable limitations to consider. First, this study relied on self-reported measures of middle school students, which may be subjected to respondent bias. Gathering data from multi-informants such as teachers and parents may provide a more comprehensive portrait of students' academic and social emotional functioning. The cross-sectional and nonexperimental design of this study limits our ability to determine the temporal sequencing of the variables involved. Future longitudinal research is needed to determine how students may academically and socially adapt in the face of changing pandemic conditions and evolving restrictions. Lastly, participants in this study were sampled from one middle school in a rural school district in Western Canada, which limits the generalizability of the findings.

Despite these limitations, this study has provided considerable insight into the experiences of middle school students during the COVID-19 pandemic, when extant pandemic research has often focused on university [62,63] and high school students [7,57]. Middle school students are considered a particularly vulnerable demographic, as the transition to middle school is often associated with diminished academic outcomes and weakened social and emotional capacities [8–10]. More research is needed to determine the long-term impacts of pandemic fatigue on the transition to high school. As the pendulum swings, following new variants of the COVID-19 virus or improved vaccination rates, students may oscillate between feelings of distress, fatigue, hope, or catastrophe. Centering focus on modifiable factors, such as adaptive emotion regulation strategies or positive perceptions of school climate, may be protective against pandemic-related stressors.

Offering opportunities to discuss mental health in the classroom in the context of not only pandemic-related stressors, but other global stressors that might be indirectly affecting students' learning such as the climate crisis or warfare may encourage students to recognize and manage their distress. Increasing students' mental health literacy through instructional units that offer skill-based lessons on mental health may enable students to better understand their own mental health, know where to seek help, and develop the confidence to support friends who may be experiencing mental health challenges. Dedicating class time to prioritize students' mental health can also reduce stigma around mental illness, and fosters a supportive school climate. As the onset of common psychological disorders occur in the adolescent years, middle school represents an important setting for mental health promotion, prevention, and early intervention. Moreover, it is imperative that school-wide mental health promotion planning address equity considerations when supporting marginalized students and their families. As the pandemic toll has disproportionately affected individuals among equity-deserving groups [64,65], future research may want to examine how to best support the mental health needs of marginalized youth. Culturally affirming approaches to school-based mental health promotion have the potential to promote inclusion, cultural resurgence, school belonging, and academic engagement [66,67].

5. Conclusions

Findings from this study suggest that fatigue related to global stressors such as the COVID-19 pandemic can negatively disrupt student engagement and heighten school aversion. Helping students develop more adaptive coping skills such as emotional regula-

tion may mitigate the negative effects of COVID-19 fatigue on student engagement and perceptions of school. Promoting a positive school climate may help students feel more engaged in school during times of stress.

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