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Impact of High School Climate and Bullying on Depression and Anxiety in Emerging Adulthood

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Abstract

Depression and anxiety disorders are a significant public health concern, especially among adolescents and emerging adults. Education is a central component of adolescents' lives that shapes their development and experiences. School climate refers to the overall nature and quality of a school's environment. Social relationships, teaching and learning practices, school facilities, safety, and school connectedness all contribute to school climate. Previous studies have found that positive school environments serve as a protective factor against adverse mental health outcomes. However, many of these studies focus on a single aspect of school climate, and there is conflicting evidence on how school climate interacts with other factors, such as bullying. Thus, the current study examined the relations between high school climate, past bullying victimization, and depression and anxiety in emerging adults recently graduated from high school ($N = 939$). Several domains of high school climate, including relationships with peers and teachers, respect for individual differences, and school safety, were significantly negatively correlated with depression and anxiety symptoms in emerging adulthood. Further, those who were bullying victims exhibited more symptoms of depression and anxiety than non-victims. No significant interaction effect was found between high school climate and bullying victimization on depression or anxiety. Implications and future directions are discussed.

Keywords: depression, anxiety, school climate, bullying, victimization

Impact of High School Climate and Bullying on Depression and Anxiety in Emerging Adulthood

Depression and anxiety are common problems faced by adolescents and emerging adults. As such, it is important to understand how adolescents' daily activities and environments might contribute to these outcomes. Since education is a prominent aspect of adolescent life, it is necessary to understand how school climate can influence students' mental health. The purpose of this study is to assess the relations between high school climate, bullying, and depression and anxiety in emerging adulthood using a multidimensional model of school climate. The prevalence and impairment of depression and anxiety, school climate, bullying victimization, and interactions between these factors are discussed.

Depression

Depression is one of the most common mental health disorders among adolescents and emerging adults (age 18-25 years; Arnett, 2000). Major depressive disorder (MDD) is characterized by depressed mood and loss of interest or pleasure in activities (American Psychiatric Association [APA], 2022). Symptoms of depression can include depressed or irritable mood, lack of energy, unintentional weight loss or weight gain, sleep disturbance, feelings of worthlessness or excessive guilt, and suicidal thoughts and behaviors (APA, 2022). A complete list of symptoms and diagnostic criteria for MDD are attached as Appendix A. MDD is most common among adolescents and emerging adults, with 18.6% of emerging adults experiencing at least one major depressive episode within the past year (National Institute of Mental Health [NIMH], 2023). The prevalence of MDD differs significantly based on both gender and race; MDD is most common among women and individuals who report two or more races or Hispanic ethnicity (NIMH, 2023).

In addition to being a common disorder, depression causes substantial harm to individuals and society at large. Adolescents and emerging adults with MDD experience impairment in many domains of functioning, including social, financial, and occupational functioning (Scott et al., 2014). Youth with MDD are also more likely to suffer from substance use problems, which cause further impairment (Scott et al., 2014). Moreover, the burden caused by a disorder can be quantified using measures such as disability weights (DWs). A DW measures the impairment that individuals with a disorder experience; DWs range from 0 (no disability) to 1 (complete disability; Klaufus et al., 2022). A study of over 50,000 high school students in the Netherlands found that depression without suicidal ideation has a DW of 0.26, and depression with suicidal ideation has a DW of 0.30 (Klaufus et al., 2022). Based on these DWs, depression causes a similar level of impairment as early-stage cancer, HIV, and tuberculosis, which have DWs of 0.265, 0.351, and 0.308 respectively (Haagsma et al., 2015). Due to its high prevalence and debilitating symptoms, MDD is a major concern for adolescents and emerging adults.

Anxiety

Anxiety is another common disorder that is a major concern for adolescents and emerging adults. There are many types of anxiety disorders, but they all involve excessive worry or fear that causes behavioral disturbances and impairment (APA, 2022). According to the World Health Organization (WHO), anxiety disorders are the most common class of mental illness worldwide (WHO, 2022). Generalized anxiety disorder (GAD) is the most common anxiety disorder (APA, 2022). GAD is characterized by excessive anxiety and worry about many events or activities. Symptoms of GAD include restlessness, fatigue, difficulty concentrating, irritability, muscle tensions, and sleep disturbance (APA, 2022). A complete list

of symptoms and diagnostic criteria for GAD are attached as Appendix B. Approximately 2% of emerging adults have generalized anxiety disorder (NIMH, n.d.b). Anxiety disorders peak in adolescence and emerging adulthood, and are most common among women and girls (NIMH, n.d.a).

Individuals with anxiety disorders experience significant difficulties. Anxiety disorders can cause social, occupational, financial, and educational impairment (APA, 2022). Some anxiety disorders are also associated with increased medical resource use and increased risk of physical health problems such as heart disease (APA, 2022). Anxiety has a DW of 0.24 (Klaufus et al., 2022). Although anxiety has a slightly lower DW than depression, it is a more common diagnosis, and causes notable impairment and adverse outcomes. For these reasons, anxiety disorders are a significant public health concern, especially for adolescents and emerging adults.

School Climate and Bullying

School climate plays a significant role in adolescents' mental health outcomes, including depression and anxiety. School climate refers to the "quality and character of school life," encompassing not only the academic environment but also the social and emotional contexts in which students interact and grow (Cohen et al., 2009, p. 180). Previous research has identified several domains that make up school climate, including safety, social relationships, teaching and learning, physical school environment, and school connectedness (Gage et al., 2016). Each of these domains can increase or decrease adolescents' risk of developing mental health disorders.

The relationships that students have with their peers and teachers are one of many important aspects of school climate (Cohen et al., 2009). There is evidence that positive relationships with peers and teachers contribute to a healthy school climate, and act as a buffer against mental illness (Shochet et al., 2011; Wright & Wachs, 2022). Teachers are the primary

point of contact between students and the education system, and they are directly involved in promoting students' emotional and academic well-being. One way that teachers can promote positive relationships with students is by providing consistent support, which helps build trust and a sense of safety in the learning environment (Wright & Wachs, 2022). A recent study found that students who perceived their teachers as more supportive were less likely to develop negative mental health outcomes, including depression, nonsuicidal self-injury, suicidal ideation, and subjective health complaints (Wright & Wachs, 2022). One defining feature of this study is that it occurred during a shared negative experience: isolation due to the COVID-19 pandemic. Because of this, this study shows that teacher support serves as a protective factor as well as a positive influence that facilitates students' growth and development.

Peer relationships, alongside those with teachers, play a vital role in adolescents' social and emotional development. High school is a transitory period where students face significant changes and challenges. Friendships with peers can provide emotional support that lowers the risk of negative mental health outcomes (Shochet et al., 2011). A study of secondary school students in Taiwan found that adolescents with positive peer relationships tended to experience lower levels of depressive symptoms (Wu, 2017). On the other hand, negative peer relationships increase adolescents' risk of depression and anxiety. Bullying is a prevalent and powerful factor that undermines the quality of school social relationships, and increases the risk of developing mental disorders (Clark et al., 2022). Hundreds of studies have assessed the relation between bullying victimization and depressive symptoms, and there is strong evidence that bullying is a cause of mental illness (Jadambaa et al., 2020). A recent systematic review and meta-analysis found that bullying is responsible for 7.8% of the burden of anxiety disorders and 10.8% of the burden of depressive disorders (Jadambaa et al., 2020). Overall school climate may serve as a

moderator in the relation between bullying victimization and negative mental health outcomes, but the evidence is mixed (Clark et al., 2022; Holfeld & Baitz, 2020; Morlat et al., 2022). Studies by Clark et al. (2022) and Holfeld & Baitz (2020) concluded that positive school climate exacerbates the relation between some forms of bullying and depressive symptoms. In a predominantly supportive school environment, bullied students may feel isolated and perceive themselves as targets in an otherwise caring and happy community, which may make victimization even more harmful; this phenomenon is known as the healthy context paradox (Clark et al., 2022; Holfeld & Baitz, 2020). However, not all studies confirm this finding. Another study by Morlat et al. (2022) did not find a significant interaction effect between victimization and school social climate. Clark et al. (2022) found that the interaction was only present for online victimization, but not in-person victimization. The conflicting results of these studies represent a gap in the existing body of research.

Although bullying is an obvious concern, many other factors contribute to school safety. Physical fighting and weapon use are especially problematic behaviors that undermine students' sense of security and trust in their peers (Kim et al., 2020). Although most students do not experience school violence, it is far from uncommon. Around 11% of male students and 6% of female students have been involved in a physical fight at school (Kim et al., 2020). Additionally, 10% of male students and 9% of female students have been threatened with a weapon at school (Kim et al., 2020). Individuals who experience school violence have more concerns about school safety and have a greater risk of depression (Kim et al., 2020). Perceptions of school safety, in addition to experiences, can influence mental health outcomes. Concerns about school safety are associated with greater levels of depression and lower

academic achievement (Kim et al., 2020). Unsafe school environments are a significant risk factor for mental illness.

In addition to social relationships and safety, school connectedness and belonging are important aspects of school climate that can influence students' mental health outcomes. A longitudinal study by Gunnarsdóttir et al. (2021) found that poor school connectedness in adolescence is associated with depression up to mid-adulthood. Another longitudinal study that used a multidimensional construct of school belonging found that school belonging factors predicted negative affect after a one-year follow up, even when initial negative affect was accounted for (Shochet et al., 2011). Additionally, These studies provide convincing evidence that school connectedness, and potentially other aspects of school climate, have long-lasting effects on students' mental health.

Finally, it is important to consider students with mental health conditions may perceive school climate differently than their peers. Students with emotional and behavioral disorders tend to have more negative perceptions of school climate across all school climate domains (Gage et al., 2021). There are several possible explanations for this. First, students with mental health disorders tend to have more negative outlooks and may experience academic impairment; because of this, the effects of mental disorders could cause students to perceive their school's climate more negatively than their peers. Second, students' emotional and behavioral disorders can lead to peer rejection and other negative social interactions; therefore, students with existing mental disorders could have more negative peer relationships and a more negative view of their school climate. Alternatively, a maladaptive school climate can increase the risk of students developing mental health disorders. In order to account for this possible confound, Brière et al. conducted a multilevel longitudinal study that assessed school climate at the school, rather than

individual, level (2012). Assessing school climate on a per-school basis allowed this study to assess the quality of each school's environment while minimizing the differences caused by individual perceptions of the environment. Students in more positive school environments were shown to have reduced risk of developing depressive symptoms, even after accounting for confounding variables at the individual and school level (Brière et al., 2012). The existing evidence clearly shows that school climate contributes to students' mental health outcomes.

Current Study

Education is an influential aspect of adolescents' life, and there is growing evidence that school climate affects students' mental health and wellbeing. Much of the existing research on how school-related factors relate to students' mental health outcomes focus on a single factor rather than a multidimensional view of school climate (Gunnarsdóttir et al., 2021; Morlat et al., 2022; Shochet et al., 2011; Wright & Wachs, 2022). Additionally, it is unclear whether there is an interaction effect between bullying and school climate on depression and anxiety (Clark et al., 2022; Morlat et al., 2022). The current study attempted to fill these gaps in the literature by examining the relation between these variables using a comprehensive model of high school climate.

Hypothesis 1

I predict that all subscales of the school climate measure (adult support at school, peer support, respect for differences, aggression toward others, school safety, adult support at home, and academic support at home) will negatively correlate with both depression and anxiety in emerging adulthood. That is, the better the high school climate in each of these domains, the lower the mental health concerns in emerging adulthood.

Hypothesis 2

I predict that students who were victimized in high school will experience greater levels of depression and anxiety in emerging adulthood. That is, individuals who experienced frequent and severe bullying during high school will display greater mental health concerns in emerging adulthood than individuals who did not experience bullying.

Hypothesis 3

I predict that a positive high school climate will strengthen bullying's relation to depression and anxiety in emerging adulthood. That is, bullying is a stronger risk factor for developing depression or anxiety if the bullying occurred in the context of a positive school environment (i.e., the healthy context paradox; Clark et al., 2022; Holfeld & Baitz, 2020).

Methods

Participants

The participants in this study were emerging adults attending four-year universities in the United States. After exclusionary criteria were applied (details below), the sample consisted of 939 participants. Participant age ranged from 18 to 23 years. Of the 939 participants, 27% identified as male, 71% identified as female, and 2% identified as transgender or non-binary. Additionally, 22% identified as Asian, 8% as Black, 2% as Native American, 3% as Middle Eastern, 4% as Pacific Islander, and 65% as White; 21% of participants reported Hispanic ethnicity. Finally, 83% identified as heterosexual, 2% identified as gay or lesbian, 10% identified as bisexual or pansexual, and 5% identified as another sexual orientation. Participants received research credit for a psychology course as compensation for completing the study.

Measures

The larger Undergraduate Learning, Emotion, and Attention Research Network (U-LEARN) survey included several additional measures, but only the measures relevant to this study are described in detail. The U-LEARN demographics form, Meriden School Climate Survey–Student Version, Depression Anxiety and Stress Scale, Retrospective Bullying Questionnaire, and U-LEARN attention check items were used in the current study, and are described below.

Demographics

Participants reported their age, sex, gender identity, sexual orientation, race, ethnicity, and other demographic information. The demographics form was created for the U-LEARN study and is attached as Appendix C.

Meriden School Climate Survey–Student Version–Adapted

The Meriden School Climate Survey–Student Version (MSCS-SV; Appendix D) is a 38-item survey developed by Gage et al. (2016) to assess students' perceptions of school climate. Each question uses a 5-point Likert-type scale (1 = *strongly disagree*; 5 = *strongly agree*). The MSCS-SV was designed to capture a broad definition of school climate and includes seven subscales: adult support at school, peer support, respect for differences, school safety, aggression toward others, adult support at home, and academic support at home. Preliminary research found that the MSCS-SV has acceptable reliability and validity (Gage et al., 2016). To adapt the measure for this study, the items were modified to be in the past tense and specifically refer to high school, given that the participants were emerging adults enrolled in college. Sample items include: "the adults in my high school treated students with respect" and "in high school, I had a friend who really cared about me." In the current study, the adult

support at school subscale consisted of 11 items (α = .89), the peer support subscale consisted of 4 items (α = .95), the respect for differences subscale consisted of 5 items (α = .74), the school safety subscale consisted of 8 items (α = .81), the aggression toward others subscale consisted of 3 items (α = .88), the adult support at home subscale consisted of 4 items (α = .90), and the academic support at home subscale consisted of 3 items (α = .81). The MSCS-SV consisted of 38 items and had excellent internal reliability (α = .91).

Depression Anxiety and Stress Scale

The Depression Anxiety and Stress Scale (DASS-21; Appendix E) is a 21-item survey developed by Lovibond & Lovibond (1995) to measure symptoms and impairment related to depression, anxiety, and stress. Each question uses a 4-point Likert-type scale (0 = *did not apply to me at all*; 3 = *applied to me very much or most of the time*). Sample items include: "I couldn't seem to experience any positive feeling at all" and "I felt scared without any good reason." The DASS-21 is divided into three subscales: depression, anxiety, and stress. The depression and anxiety subscales, but not the stress subscale, were used in the current study. In the current study, the depression subscale consisted of 7 items (α = .92), and the anxiety subscale consisted of 7 items (α = .86).

Retrospective Bullying Questionnaire

The Retrospective Bullying Questionnaire (RBQ; Appendix F) is a 44-item survey developed by Schäfer et al. (2004) to assess individuals' past experiences and recollections related to bullying. I used a shortened version of the RBQ containing six items, each with several follow up questions, for a total of 22 questions. The RBQ assesses three types of bullying: physical bullying, verbal bullying, and relational bullying. The RBQ contains two yes or no questions for each type of bullying about whether the individual experienced a specific

behavior exemplified that type of bullying; for example, the item measuring physical bullying asks whether an individual was ever hit or punched. Each type of bullying also has three questions on 5-point Likert-type scales that assess the frequency (1 = *never*; 5 = *constantly*), severity (1 = *I wasn't bullied*; 5 = *extremely serious*), and duration (1 = *I wasn't bullied*; 5 = *a year or more*) of the bullying experiences. Schäfer et al. (2004) determined that the RBQ had acceptable test-retest reliability (r = .87). The RBQ also had acceptable parallel-forms reliability with other school-based self report measures (Schäfer et al., 2004).

Attention Check Items

Four attention check questions were included in the larger U-LEARN study to ensure participants were paying attention to the study and not responding randomly. The attention check items were common knowledge questions such as "A puppy refers to a… (cat, elephant, monkey, dog)." A list of all attention check items used in this survey is attached as Appendix G.

Procedures

Data were collected as part of the U-LEARN study. U-LEARN is a multi-site study of college students conducted by eight four-year universities in the United States. Participants were recruited through SONA, an online participant management system, at all of the participating universities. Participants completed an online survey administered through Qualtrics. The first page of the Qualtrics survey was an informed consent document, and participants indicated their consent by proceeding to the next page of the survey. If they did not consent or chose to withdraw from the study, participants could close the Qualtrics website at any time. After consenting to participate in the survey, participants completed a demographics form followed by a battery of questionnaires. The entire U-LEARN survey took approximately 45 minutes to one hour to complete. To reduce the length of participation, participants were divided into two

groups based on whether their birthday was on an even or odd day. Only those individuals with odd birthdays were included in the current study.

Results

Data Cleaning and Preparation

The dataset was cleaned and composite variables were calculated before conducting analyses. Data cleaning and analysis were conducted using R (R Core Team, 2022). First, the exclusionary criteria were applied to the dataset. Participants who missed attention check questions (n = 35), took less than 25 minutes to complete the survey (n = 150), or did not complete the school climate measure (n = 175) were removed. Participants who graduated high school before 2022 (n = 477) were also excluded to ensure that all responses were relevant to the current study (i.e., all participants were recently in high school). Responses that were missing variables required for the analysis were temporarily omitted before each statistical analysis; omitting responses with missing values was done to satisfy the requirements of the software and should not influence the results (R Core Team, 2022).

After applying the exclusionary criteria, composite variables were created. Total values, factoring in reverse scoring, were calculated for each subscale of the school climate measure; higher values on each subscale indicate a more positive school climate in that domain. A total high school climate variable was created by taking the sum of all the school climate subscale totals. Finally, based on the analysis used by Schäfer et al. (2004), the results of the Retrospective Bullying Questionnaire were used to categorize participants as bullying victims or non-victims. Participants were categorized as bullying victims if they reported a frequency of "sometimes" or higher and an intensity of "quite serious" or higher for any type of bullying.

Hypothesis 1

The first hypothesis was that all subscales of the school climate measure (adult support at school, peer support, respect for differences, aggression toward others, school safety, adult support at home, and academic support at home) would be negatively correlated with both depression and anxiety. Pearson's correlations were used to assess the relations between variables. First, for depression, there was a moderate negative correlation with total high school climate, $r = -0.39$, $p < .001$. Similarly, depression was significantly negatively correlated with all subscales (adult support at school, peer support, respect for differences, school safety, adult support at home, and academic support at home) of the school climate measure, except aggression toward others. The correlations between depression and the school climate subscales can be found in Table 1. Thus, in terms of depression, hypothesis 1 was supported for all school climate subscales except one.

As for anxiety, similarly, there was a moderate negative correlation with total high school climate, $r = -0.35$, $p < .001$. Anxiety was also significantly negatively correlated with all subscales (adult support at school, peer support, respect for differences, school safety, adult support at home, and academic support at home) of the school climate measure, except aggression toward others. The correlations between anxiety and the school climate subscales can be found in Table 1. Thus, in terms of anxiety, hypothesis 1 was supported for all school climate subscales except one.

Table 1

Descriptive Statistics and Correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. DASS depression total	4.81	5.07	—							
2. DASS anxiety total	4.48	4.46	.71** [.68, .74]	—						
3. Adult support at school	42.68	7.48	-.29** [-.35, -.23]	-.22** [-.28, -.16]	—					
4. Peer support at school	16.91	3.64	-.14** [-.21, -.09]	-.10** [-.16, -.03]	.54** [.49, .58]	—				
5. Respect for differences	17.71	3.97	-.26** [-.32, -.20]	-.27** [-.33, -.21]	.55** [.50, .59]	.28** [.22, .34]	—			
6. School safety	27.29	6.12	-.36** [-.41, -.30]	-.39** [-.44, -.34]	.45** [.40, .50]	.22** [.16, .28]	.60** [.55, .64]	—		
7. Aggression toward others	4.28	2.21	.01 [-.05, .08]	.05 [-.02, .11]	-.22** [-.28, -.15]	-.20** [-.26, -.14]	-.22** [-.28, -.16]	-.33** [-.39, -.27]	—	
8. Adult support at home	17.42	3.09	-.22** [-.28, -.16]	-.21** [-.27, -.14]	.46** [.41, .51]	.35** [.30, .41]	.35** [.29, .41]	.26** [.20, .32]	-.30** [-.35, -.24]	—
9. Academic support at home	11.79	2.81	-.30** [-.36, -.24]	-.27** [-.33, -.21]	.43** [.37, .48]	.30** [.24, .36]	.37** [.31, .42]	.32** [.26, .38]	-.15** [-.21, -.08]	.66** [.62, .69]

Note. Values in square brackets indicate the 95% confidence interval for each correlation. Range of values for DASS Depression, 3-21; for DASS Anxiety, 3-21; for adult support at school, 11-55; for peer support at school, 4-20; for respect for differences, 5-25; for school safety, 8-40; for aggression toward others, 3-15; for adult support at home, 4-20; for academic support at home, 3-15. *p < .05. **p < .01.

Hypothesis 2

The second hypothesis was that bullying victims would experience greater levels of depression and anxiety than non-victims. Welch's *t*-tests were used to compare the levels of depression and anxiety between bullying victims and non-victims. Victims ($M = 6.90$, $SD = 5.85$) reported significantly higher levels of depression than non-victims ($M = 4.31$, $SD = 4.74$), $t(250.33) = 5.61$, $p < .001$. Based on Cohen's *d*, the effect size for depression was medium ($d = .52$). Similarly, victims ($M = 6.86$, $SD = 5.46$) reported significantly higher levels of anxiety than non-victims ($M = 3.91$, $SD = 3.99$), $t(237.75) = 6.95$, $p < .001$. The effect size for anxiety was medium ($d = .69$). Thus, hypothesis 2 was supported.

Hypothesis 3

The third hypothesis was that a positive high school climate would strengthen bullying's relation to depression and anxiety in emerging adulthood. Stated another way, I predicted that bullying would increase the risk for developing depression or anxiety if the bullying occurred in the context of a positive school environment. Moderated regression models were used to test whether total high school climate moderated the relation between bullying victimization and depression and anxiety symptoms in early adulthood. The results of the moderated regressions for depression and anxiety can be found in Table 2 and Table 3 respectively. The results of the regressions indicated that total high school climate significantly predicted depression ($\beta = -0.09$, $p < .001$), but bullying victimization ($\beta = 4.19$, $p = .10$) and the interaction term between total high school climate and bullying victimization ($\beta = -0.02$, $p = .28$) did not. Similarly, total high school climate significantly predicted anxiety ($\beta = -0.07$, $p < .001$), but bullying victimization ($\beta = 3.44$, $p = .13$) and the interaction term between total high school climate and bullying victimization ($\beta = -0.01$, $p = .55$) did not. Thus, hypothesis 3 was not supported.

Table 2

Regression results using DASS depression total as the criterion

Predictor	*b*	*b* 95% CI [LL, UL]	sr^2	sr^2 95% CI [LL, UL]	Fit
(Intercept)	16.96**	[14.34, 19.57]			
School Climate	-0.09**	[-0.11, -0.07]	.08	[.05, .11]	
Victim	4.19	[-0.83, 9.21]	.00	[-.00, .01]	
School Climate:Victim	-0.02	[-0.06, 0.02]	.00	[-.00, .00]	
					R^2 = .163** 95% CI[.12,.20]

Table 3

Regression results using DASS anxiety total as the criterion

Predictor	*b*	*b* 95% CI [LL, UL]	sr^2	sr^2 95% CI [LL, UL]	Fit
(Intercept)	13.63**	[11.32, 15.93]			
School Climate	-0.07**	[-0.09, -0.05]	.06	[.03, .09]	
Victim	3.44	[-0.98, 7.87]	.00	[-.00, .01]	
School Climate:Victim	-0.01	[-0.04, 0.02]	.00	[-.00, .00]	
					R^2 = .159** 95% CI[.12,.20]

Exploratory Analyses

Welch's *t*-tests were used to compare levels of depression and anxiety based on biological sex and sexual orientation. Men (M = 4.09, SD = 4.76) reported lower levels of depression than women (M = 5.07, SD = 5.17), $t(491.69) = -2.74$, $p = .006$. Similarly, men (M = 3.20, SD = 3.70) reported lower levels of anxiety than women (M = 4.96, SD = 4.63), $t(564.88) = -6.04$, $p < .001$. Next, those who identified as heterosexual (M = 4.14, SD = 4.60) reported lower levels of depression than those who identified as another sexual orientation (M = 8.02, SD = 5.94), $t(203.14) = -7.84$, $p < .001$. Similarly, those who identified as heterosexual (M = 3.92,

SD = 4.09) reported lower levels of anxiety than those who identified as another sexual orientation (*M* = 7.00, *SD* = 5.13), $t(205.72) = -7.67$, $p < .001$.

Additionally, one-way ANOVAs were used to test whether there were differences in depression and anxiety depending on how many types of bullying a person experienced. As described before, the Retrospective Bullying Questionnaire evaluates three types of victimization: physical bullying, verbal bullying, and relational bullying. Participants were divided into four categories depending on the number of bullying types they experienced a with frequency of "sometimes" or higher and an intensity of "quite serious" or higher: one type of bullying (*n* = 111), two types of bullying (*n* = 60), three types of bullying (*n* = 13), and individuals who did not experience bullying (*n* = 750). For depression, there were significant differences in mean score between the conditions, $F(3, 930) = 14.21$, $p < .001$. Post hoc comparisons using the Tukey HSD test indicated that the mean depression score for individuals who experienced one (*M* = 6.48, *SD* = 5.50) or two (*M* = 7.80, *SD* = 6.37) types of bullying was significantly higher than individuals who experienced three (*M* = 6.23, *SD* = 5.90) types of bullying or did not experience bullying (*M* = 4.31, *SD* = 4.74). There was no significant difference between individuals who experienced one or two types of bullying, and there was not a significant difference between individuals who experienced three types of bullying and individuals who did not experience bullying. The lack of a significant difference between people who experienced three types of bullying and people who did not experience bullying is likely due to only a small number of participants being classified as bullying victims for all three types of bullying assessed by the Retrospective Bullying Questionnaire (*n* = 13), and thus this analysis was not sufficiently powered.

Similarly, there were significant differences in mean anxiety scores between the conditions, $F(3, 930) = 23.23$, $p < .001$. Post hoc comparisons using the Tukey HSD test indicated that the mean anxiety score for individuals who experienced one ($M = 6.74$, $SD = 5.43$), two ($M = 7.06$, $SD = 5.42$), or three ($M = 7.08$, $SD = 5.69$) types of bullying was significantly higher than individuals who did not experience bullying ($M = 3.91$, $SD = 3.99$). However, there was no significant difference between individuals who experienced one, two, or three types of bullying. Based on the ANOVA results, bullying victims experience greater levels of depression and anxiety than non-victims, but the number of bullying types does not influence mental health outcomes among bullying victims.

Table 4

Fixed-Effects ANOVA results using DASS depression total as the criterion

Predictor	Sum of Squares	*df*	Mean Square	*F*	*p*	$_{partial}\eta^2$	$^{partial}\eta^2$ 90% CI [LL, UL]
(Intercept)	13962.26	1	13962.26	564.18	.000		
Victimization Types	1055.16	3	351.72	14.21	.000	.04	[.02, .06]
Error	23015.34	930	24.75				

Table 5

Fixed-Effects ANOVA results using DASS anxiety total as the criterion

Predictor	Sum of Squares	*df*	Mean Square	*F*	*p*	$_{partial}\eta^2$	$^{partial}\eta^2$ 90% CI [LL, UL]
(Intercept)	11485.63	1	11485.63	617.53	.000		
Victimization Types	1296.04	3	432.01	23.23	.000	.07	[.04, .10]
Error	17297.45	930	18.60				

Discussion

This study was designed to assess whether bullying and various aspects of high school climate are associated with adverse mental health outcomes in emerging adulthood. Based on

prior studies, it was hypothesized that low levels of adult support at school, peer support, respect for differences, school safety, adult support at home, and academic support at home, and low levels of aggression toward others would be associated with high levels of depression and anxiety. Additionally, it was hypothesized that bullying victims would experience higher levels of both depression and anxiety than non-victims. Finally, it was hypothesized that the association between bullying victimization and depression and anxiety in emerging adulthood would be stronger if the bullying occurred in the context of a positive high school climate. In short, the results of this study suggested that poor high school climate and bullying victimization are significantly negatively associated with both depression and anxiety in emerging adulthood. More details on the findings of the current study are provided below.

Hypothesis 1 was supported for all subscales of high school climate except for aggression toward others. That is, adult support at school, peer support, respect for differences, school safety, adult support at home, and academic support at home were all negatively correlated with both depression and anxiety in emerging adulthood. Adult support at school and peer support refer to the quality of the social relationships a person has with their teachers and classmates. Positive social relationships are a known protective factor that decreases the risk of developing depression and anxiety (Shochet et al., 2011; Wright & Wachs, 2022; Wu, 2017). Having social support during high school reduces students' risk of developing adverse mental health outcomes during high school that carry over into early adulthood. People with close friendships in high school are also more likely to maintain those relationships over time, which can continue to serve as a protective factor (Narr et al., 2019). Additionally, respect for differences can benefit individuals and the school as a whole. Students who feel valued and accepted by their peers and teachers feel a greater sense of belonging within their school

community, which is associated with lower levels of depression and anxiety (Gunnarsdóttir et al., 2021; Shochet et al., 2011). Members of minority groups are also likely to have higher social support and self-esteem in a tolerant, inclusive environment, which is associated with positive mental health outcomes (Shochet et al., 2011; Wu, 2017).

On the other hand, displaying aggressive behavior toward others was the only aspect of high school climate that was not associated with depression and anxiety in emerging adulthood. The aggression toward others subscale measured individuals' behavior within the context of their high school climate rather than the behavior of their peers. Because of this, this subscale may reflect individual characteristics rather than the overall school environment.

Additionally, hypothesis 2 was supported. Bullying victims (i.e., those who were bullied in high school) experienced significantly higher levels of both depression and anxiety symptoms in emerging adulthood than non-victims. The relation between bullying victimization and adverse mental health outcomes is well-established. Hundreds of studies have concluded that bullying is associated with adverse mental health outcomes, and there is evidence that bullying victimization is a direct cause of depression and anxiety (Jadambaa et al., 2020). The results of the current study contribute to a growing body of research which shows that bullying is associated with adverse mental health outcomes, both during high school and into adulthood (Jadambaa et al., 2020; Lee, 2021).

Next, hypothesis 3 was not supported. The current study found no significant interaction between high school climate and bullying victimization in predicting depression and anxiety; therefore, this study found no evidence of the healthy context paradox. Instead, a positive school climate was equally beneficial for both bullying victims and non-victims. This conclusion conflicts with the results of a study by Holfeld & Baitz (2020), who found that

school climate had a significant moderation effect on the relation between bullying and mental health outcomes. Holfeld & Baitz (2020) studied bullying and school climate in middle school rather than high school and specifically assessed cyberbullying and online victimization, which may explain the differences in the results. The current study aligns with prior studies by Clark et al. (2022) and Morlat et al. (2022), which studied traditional bullying. Although being bullied within the context of a positive school climate may make victims feel more isolated, a healthy environment still provides advantages to victims (Shochet et al., 2011; Wright & Wachs, 2022). For example, a bullying victim who has close relationships with classmates or teachers has access to a circle of support and more ways to cope with victimization (Wright & Wachs, 2022). The positive influence of a healthy environment may outweigh the subjective feelings of isolation thought to contribute to the healthy context paradox.

I also ran a series of exploratory analyses to test for differences in depression and anxiety symptoms based on demographic variables, and the number of ways a person experienced bullying. Overall, women reported higher levels of depression and anxiety symptoms than men. This is in line with prevalence data for depressive and anxiety disorders, since these disorders are significantly more common in women (APA, 2022; NIMH, 2023). Gay, lesbian, and bisexual participants also reported more depression and anxiety symptoms than their heterosexual peers. This supports many prior studies that found that LGBT individuals experience greater levels of depression and anxiety symptoms as well as higher rates of depressive and anxiety disorders (King et al., 2008; Wilson & Cariola, 2020). LGBT individuals are more likely to experience bullying and other forms of victimization (King et al., 2008; Wilson & Cariola, 2020), which may contribute to the difference in mental health outcomes. Finally, bullying victims experienced higher levels of both depression and anxiety

than non-victims, but experiencing multiple types of bullying did not increase this difference. Although this analysis was underpowered, it provides marginal evidence that the severity and duration of victimization may be more influential than the number of ways that bullying manifests.

Implications

The results of the current study have implications for high school staff, college counselors and undergraduate service providers, and educational funding. At the high school level, interventions that reduce bullying and promote a healthy school climate can have a lasting positive impact on students' mental health (Gaffney et al., 2019; Jadambaa et al., 2020; Monsillion et al., 2023). The current study found that people who experience bullying during high school experience greater levels of depression and anxiety in emerging adulthood. Reducing bullying is critical for student mental health (Jadambaa et al., 2020). Researchers and clinicians have developed many evidence-based programs for reducing bullying in schools, including the Olweus Bullying Prevention Program, KiVa, Steps to Respect, and Friendly Schools, and NoTrap! (Olweus & Limber, 2010; Palladino et al., 2016; Smith, 2016). A meta-analysis of 100 studies found that school-based bullying prevention programs reduced rates of bullying perpetration by 20% and reduced bullying victimization by 15% (Gaffney et al., 2019). However, current interventions tend to be less effective for adolescents, and many evidence-based bullying prevention programs are designed specifically for elementary and middle school students (Smith, 2016). Based on the results of the current study and prior research, high school bullying is a significant problem that is associated with students' current and future mental health outcomes (Jadambaa et al., 2020; Morlat et al., 2022). More research needs to be done on designing and validating anti-bullying interventions for people in late

adolescence and following them through emerging adulthood. Further, researchers have identified characteristics that make bullying prevention interventions more effective. Specifically, interventions that included curriculum materials for teachers and supported informal peer involvement resulted in greater decreases in both bullying perpetration and victimization (Gaffney et al., 2021). Evidence-based bullying prevention programs are effective interventions that can promote student mental health when implemented successfully.

As there is growing evidence that high school climate contributes to student mental health (Brière et al., 2013; Gunnarsdóttir et al., 2021; Shochet et al., 2011; Wu, 2017), researchers have developed evidence-based programs for improving school climate in addition to preventing bullying. The current study found that several dimensions of high school climate, including peer and teacher relationships, respect for diversity, and school safety, are negatively related to depression and anxiety symptoms. School-wide Positive Behavioral Interventions and Supports (PBIS) programs have been implemented in thousands of schools to promote prosocial behaviors (Bradshaw et al., 2009). A recent experimental study found that PBIS interventions can significantly improve certain dimensions of high school climate (Kubiszewski et al., 2023). Specifically, PBIS programs were shown to improve student-teacher relationships, school safety, and educational environment; however, the interventions did not affect peer relationships, fairness, or belonging. PBIS is a popular intervention that is able to improve some aspects of school climate. However, it fails to address critical dimensions, and supplementary programs may be needed to address these gaps. There is emerging evidence that mindfulness-based interventions may be effective for improving high school climate (Monsillion et al., 2023). Mindfulness interventions can improve students' relationships with peers and teachers, sense of safety, and sense of community and belonging (Monsillion et al.,

2023). Although more research needs to be done, school-based mindfulness programs may be a promising intervention for enhancing aspects of high school climate that are not addressed by PBIS.

The current study also has implications for the transition from high school to college. Transitioning to college is a significant stressor for many students (Conley et al., 2014). New college students tend to experience sharp mental health declines upon entering college, and issues related to transition persist throughout the first year (Conley et al., 2014). Therefore, it is important for colleges to identify at-risk individuals and ensure all transitioning college students have access to mental health resources. Unfortunately, few evidence-based college transition programs exist, and there is little evidence that the existing programs are effective (Devoe et al., 2022). For instance, over half of the interventions examined did not specify what mental health condition they were designed to address, and the modules within the interventions were vague (Devoe et al., 2022). College transition programs can be informed by research on how high school factors are related to mental health in emerging adulthood. College transition programs should use this information to proactively identify students at risk of depression and anxiety by assessing their high school experiences with bullying and school climate, allowing for targeted support and interventions as they enter college. Researchers and clinicians should also focus on developing and testing evidence-based programs for promoting transitioning students' mental health and academic success.

In addition, college counseling centers are critical in efforts to improve student mental health. Effective treatment for college students begins with a thorough initial assessment (Downs et al., 2016), which can be informed by patients' past experiences. Understanding patients' high school experience in terms of school climate and victimization can help inform

the assessment process. Psychoeducation and cognitive behavioral therapy (CBT) are common strategies used in college counseling (Cuijpers et al., 2016; Downs et al., 2016). Teaching students about mental health issues can improve treatment outcomes by informing patients about their mental health and actively involving them in the treatment process (Downs et al., 2016). For patients who experienced bullying during high school or had a maladaptive high school environment, incorporating information about how these experiences impact mental health outcomes into CBT or psychoeducation-based treatment may be a valuable part of the treatment process (Lydecker, 2022). These strategies can help mitigate the impact of past negative experiences and promote a healthier environment for all students.

Finally, these findings have implications for educational funding. Many of the suggestions above require resources to implement, including money, time, and personnel. Mental health programs in public schools are currently underfunded, and it is difficult for schools to maintain ongoing programs to address students' mental health needs (Heinrich et al., 2023). School-based mental health services are effective and accessible options for reaching adolescents in need of counseling and treatment (Kern et al., 2017). When they are successfully implemented, mental health programs provide benefits that make up for their costs in terms of both money and societal impact (Kern et al., 2017). Since the results of the current study and prior research highlight the importance of high school interventions, more federal and state funding should be provided to meet students' mental health needs.

Limitations and Future Directions

The current study had several limitations. First, the current study used a cross-sectional survey design. Although this design made it possible to collect data from many participants and complete a study in a short time frame, it has limitations. Data collected from surveys can be

shallow, and they do not capture details of participants' lived experience. Self-report measures are prone to various response patterns (e.g., under-reporting, over-reporting). Additionally, survey answers may be interpreted differently by participants; for example, the "strongly agree" option on a Likert-type scale can mean different things to different people. Finally, cross-sectional designs cannot provide evidence for the temporal precedence of variables, which limits their ability to make inferences about cause and effect. Future researchers may use other types of designs, such as longitudinal designs or case studies, and measurements, such as observer ratings, to address these issues.

Similarly, unlike some previous studies (Brière et al., 2012), the current study assessed high school climate at the individual level rather than the school level. Because of this, it was not possible to control for differences in how individual participants retrospectively perceived school climate. Although perceived school climate is important and past studies have found that poor high school climate is associated with adverse mental health outcomes even after controlling for individual differences (Brière et al., 2012), systematic biases in how students with depression and anxiety perceive school climate make it difficult to separate the objective quality of the school environment from individual students' perceptions of that environment. Future researchers may use multilevel modeling to assess the role of both objective and perceived school climate. Researchers who are specifically interested in objective rather than perceived school climate may consider measuring high school climate at the school level by aggregating responses from many students attending each school.

Additionally, the measures used in this study restricted the types of analyses performed. In particular, the Retrospective Bullying Questionnaire had strengths and weaknesses. While it provided rich information on types of bullying, it was designed to be scored as a binary variable

(Schäfer et al., 2004), and thus did not lend itself to being scored as a continuous variable. This limited the amount of variability in the measure and restricted the ways its data could be analyzed. Future researchers may consider using continuous measures of bullying experiences, such as the Forms of Bullying Scale (Shaw et al., 2013), depending on their research questions.

There are also limitations with regards to generalizing the results of this study to the general population. Most participants in this study were White women. Although there were also considerable numbers of Hispanic and Asian participants, several racial groups were under-represented in the sample, including African American, Native American, Middle Eastern, Pacific Islander, and those who identified as multiracial. Due to the characteristics of the current sample, the results primarily reflect the experiences of White women, and it is unclear whether these same results would generalize to other groups. Future researchers who are interested in understanding the relation between high school climate, bullying, and mental health outcomes among many racial groups may use stratified random sampling to ensure each group receives adequate representation. Further, the sample was also limited to young adults who recently graduated from high school; because of this, the results of this study do not provide information about how high school climate and bullying victimization influence mental health outcomes later in life, or in other cohorts.

A final limitation of this study is that it measured symptoms of anxiety and depression but did not measure diagnoses of these disorders. It also used a community rather than clinical sample, so most participants did not have a depressive or anxiety disorder. Because of this, the results of this study may tell us more about how high school climate and bullying are related to subclinical levels of depression and anxiety, but not necessarily how they relate to depressive

and anxiety disorders. Future researchers may want to collect information about participants' diagnostic status in addition to their symptoms.

Conclusions

This study supports the hypotheses that poor high school climate and bullying victimization are related to depression and anxiety in emerging adulthood. Specifically, adult support at school, peer support, respect for differences, school safety, adult support at home, and academic support at home were negatively associated with both depression and anxiety in emerging adulthood. Additionally, bullying victims experienced higher levels of depression and anxiety symptoms than non-victims. The results of this study highlight the importance of school factors in students' mental health outcomes and provide support for school-based interventions to improve mental wellbeing.

References

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). American Psychiatric Association Publishing. https://doi.org/10.1176/appi.books.9780890425787

Arnett, J. J. (2000, May). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, *55*(5), 469-480. APA PsycInfo. http://dx.doi.org/10.1037/0003-066X.55.5.469

Bradshaw, C. P., Koth, C. W., Thornton, L. A., & Leaf, P. J. (2009). Altering school climate through school-wide Positive Behavioral Interventions and Supports: Findings from a group-randomized effectiveness trial. *Prevention Science*, *10*(2), 100-115. APA PsycInfo. http://dx.doi.org/10.1007/s11121-008-0114-9

Brière, F. N., Pascal, S., Dupéré, V., & Janosz, M. (2013). School environment and adolescent depressive symptoms: A multilevel longitudinal study. *Pediatrics*, *131*(3), e702-e708. APA PsycInfo. http://dx.doi.org.proxy.lib.uni.edu/10.1542/peds.2012-2172

Clark, K. N., Strissel, D., Demaray, M. K., Ogg, J., Eldridge, M. A., & Malecki, C. K. (2022). Victimization and depressive symptoms in early adolescence: The role of perceived school climate. *School Psychology*, *37*(5), 355–366. APA PsycInfo. http://dx.doi.org.proxy.lib.uni.edu/10.1037/spq0000511

Cohen, J., McCabe, E. M., Michelli, N. M., & Pickeral, T. (2009). School climate: Research, policy, practice, and teacher education. *Teachers College Record*, *111*(1), 180-213. APA PsycInfo.

Conley, C. S., Kirsch, A. C., Dickson, D. A., & Bryant, F. B. (2014). Negotiating the transition to college: Developmental trajectories and gender differences in psychological

functioning, cognitive-affective strategies, and social well-being. *Emerging Adulthood*, *2*(3), 195-210. APA PsycInfo. http://dx.doi.org/10.1177/2167696814521808

Cuijpers, P., Cristea, I. A., Ebert, D. D., Koot, H. M., Auerbach, R. P., Bruffaerts, R., & Kessler, R. C. (2016). Psychological treatment of depression in college students: A metaanalysis. *Depression and Anxiety*, *33*(5), 400-414. APA PsycInfo. http://dx.doi.org/10.1002/da.22461

Devoe, D. J., Lange, T. C., MacPherson, P., Traber, D. K., Perry, R., Schraeder, K., Patten, S. B., Arnold, P., & Dimitropoulos, G. (2022). Supporting the transition to postsecondary institutions for students with mental health conditions: A scoping review. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *31*(2), 64-74. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9084379/

Downs, N. S., Alderman, T., Schneiber, K., & Swerdlow, N. R. (2016). Treat and teach our students well: College mental health and collaborative campus communities. *Psychiatric Services*, *67*(9), 957-963. APA PsycInfo. http://dx.doi.org/10.1176/appi.ps.201500465

Gaffney, H., Ttofi, M. M., & Farrington, D. P. (2019). Evaluating the effectiveness of school-bullying prevention programs: An updated meta-analytical review. *Aggression and Violent Behavior*, *45*, 111-133. APA PsycInfo. http://dx.doi.org/10.1016/j.avb.2018.07.001

Gaffney, H., Ttofi, M. M., & Farrington, D. P. (2021, April). What works in anti-bullying programs? Analysis of effective intervention components. *Journal of School Psychology*, *85*, 37-56. APA PsycInfo. http://dx.doi.org/10.1016/j.jsp.2020.12.002

Gage, N. A., Larson, A., & Chafouleas, S. M. (2016). The Meriden School Climate Survey–Student Version: Preliminary evidence of reliability and validity. *Assessment for*

Effective Intervention, *41*(2), 67–78. APA PsycInfo. http://dx.doi.org.proxy.lib.uni.edu/10.1177/1534508415596960

Gunnarsdóttir, H., Hensing, G., & Hammarström, A. (2021, August). Poor school connectedness in adolescence and adulthood depressiveness: a longitudinal theory-driven study from the Northern Sweden Cohort. *European Journal of Public Health*, *31*(4), 797–802. APA PsycInfo. http://dx.doi.org/10.1093/eurpub/ckab027

Haagsma, J. A., Maertens de Noordhout, C., Polinder, S., Vos, T., Havelaar, A. H., Cassini, A., Devleesschauwer, B., Kretzschmar, M. E., Speybroeck, N., & Salomon, J. A. (2015). Assessing disability weights based on the responses of 30,660 people from four European countries. *Population Health Metrics*, *13*(1). https://doi.org/10.1186/s12963-015-0042-4

Heinrich, C. J., Colomer, A., & Hieronimus, M. (2023). Minding the gap: Evidence, implementation and funding gaps in mental health services delivery for school-aged children. *Children and Youth Services Review*, *150*, 1-11. APA PsycInfo. http://dx.doi.org/10.1016/j.childyouth.2023.107023

Holfeld, B., & Baitz, R. (2020). The mediating and moderating effects of social support and school climate on the association between cyber victimization and internalizing symptoms. *Journal of Youth and Adolescence*, *49*(11), 2214-2228. APA PsycInfo. http://dx.doi.org/10.1007/s10964-020-01292-0

Jadambaa, A., Thomas, H. J., Scott, J. G., Graves, N., Brain, D., & Pacella, R. (2020). The contribution of bullying victimisation to the burden of anxiety and depressive disorders in Australia. *Epidemiology and Psychiatric Sciences*, *29*. APA PsycInfo. http://dx.doi.org/10.1017/S2045796019000489

Kern, L., Mathur, S. R., Albrecht, S. F., Poland, S., Rozalski, M., & Skiba, R. J. (2017). The need for school-based mental health services and recommendations for implementation. *School Mental Health: A Multidisciplinary Research and Practice Journal*, *9*(3), 205-217. APA PsycInfo. http://dx.doi.org/10.1007/s12310-017-9216-5

Kim, Y. K., Sanders, J. E., Makubuya, T., & Yu, M. (2020). Risk factors of academic performance: Experiences of school violence, school safety concerns, and depression by gender. *Child & Youth Care Forum*, *49*(5), 725-742. APA PsycInfo. http://dx.doi.org/10.1007/s10566-020-09552-7

King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008, August). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry*, *8*. APA PsycInfo. http://dx.doi.org/10.1186/1471-244X-8-70

Klaufus, L., Verlinden, E., van der Wal, M., Cuijpers, P., Chinapaw, M., & Smit, F. (2022). Adolescent anxiety and depression: Burden of disease study in 53,894 secondary school pupils in the Netherlands. *BMC Psychiatry*, *22*. APA PsycInfo. http://dx.doi.org.proxy.lib.uni.edu/10.1186/s12888-022-03868-5

Kubiszewski, V., Carrizales, A., & Lheureux, F. (2023). Can School-Wide Positive Behavioral Interventions and Supports (SWPBIS) improve adolescents' perceptions of school climate? *Journal of School Psychology*, *99*. https://doi.org/10.1016/j.jsp.2023.101223

Lee, J. (2021). Pathways from childhood bullying victimization to young adult depressive and anxiety symptoms. *Child Psychiatry and Human Development*, *52*(1), 129-140. APA PsycInfo. http://dx.doi.org/10.1007/s10578-020-00997-4

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*(3), 335-343. APA PsycInfo. http://dx.doi.org/10.1016/0005-7967(94)00075-U

Lydecker, J. A. (2022). Conceptual application of trauma-focused cognitive behavioral therapy to treat victims of bullying. *Journal of prevention and health promotion*, *3*(2), 231-245. https://doi.org/10.1177%2F26320770221074008

Monsillion, J., Zebdi, R., & Romo-Desprez, L. (2023). School Mindfulness-Based Interventions for Youth, and Considerations for Anxiety, Depression, and a Positive School Climate-A Systematic Literature Review. *Children (Basel)*, *10*(5). https://doi.org/10.3390/children10050861

Morlat, P., Lei, C. W., Tse, S. Y., & Guerra, C. (2022). Polyvictimization and depressive symptomatology in adolescents: Evaluation of the role of school social climate. *Children & Schools*, *44*(3), 163-171. APA PsycInfo. http://dx.doi.org/10.1093/cs/cdac009

Narr, R. K., Allen, J. P., Tan, J. S., & Loeb, E. L. (2019). Close friendship strength and broader peer group desirability as differential predictors of adult mental health. *Child Development*, *90*(1), 298-313. APA PsycInfo. http://dx.doi.org/10.1111/cdev.12905

National Institute of Mental Health. (n.d.). *Any Anxiety Disorder*. NIMH. Retrieved October 5, 2023, from https://www.nimh.nih.gov/health/statistics/any-anxiety-disorder

National Institute of Mental Health. (n.d.). *Generalized Anxiety Disorder*. NIMH. Retrieved October 5, 2023, from https://www.nimh.nih.gov/health/statistics/generalized-anxiety-disorder

National Institute of Mental Health. (2023, July). *Major Depression*. NIMH. Retrieved October 5, 2023, from https://www.nimh.nih.gov/health/statistics/major-depression

Olweus, D., & Limber, S. P. (2010). Bullying in school: Evaluation and dissemination of the Olweus Bullying Prevention Program. *American Journal of Orthopsychiatry*, *80*(1), 124-134. APA PsycInfo. http://dx.doi.org/10.1111/j.1939-0025.2010.01015.x

R Core Team. (2022). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. https://www.R-project.org/

Schäfer, M., Korn, S., Smith, P. K., Hunter, S. C., Mora-Merchán, J., Singer, M. M., & van der Mulen, K. (2004). Lonely in the crowd: Recollections of bullying. *British Journal of Developmental Psychology*, *22*(3), 379-394. APA PsycInfo. http://dx.doi.org/10.1348/0261510041552756

Scott, J., Scott, E. M., Hermens, D. F., Naismith, S. L., Guastella, A. J., White, D., Whitwell, B., Lagopoulos, J., & Hickie, I. B. (2014). Functional impairment in adolescents and young adults with emerging mood disorders. *The British Journal of Psychiatry*, *205*(5), 362-368. APA PsycInfo. http://dx.doi.org/10.1192/bjp.bp.113.134262

Shaw, T. M., Dooley, J. J., Cross, D. S., Zubrick, S. R., & Waters, S. K. (2013). The Forms of Bullying Scale (FBS): Validity and reliability estimates for a measure of bullying victimization and perpetration in adolescence. *Psychological assessment*, *25*(4). https://ro.ecu.edu.au/cgi/viewcontent.cgi?article=1743&context=ecuworks2013

Shochet, I. M., Smith, C. L., Furlong, M. J., & Homel, R. (2011). A prospective study investigating the impact of school belonging factors on negative affect in adolescents. *Journal of Clinical Child and Adolescent Psychology*, *40*(4), 586–595. APA PsycInfo. http://dx.doi.org/10.1080/15374416.2011.581616

Wilson, C., & Cariola, L. A. (2020, June). LGBTQI+ youth and mental health: A systematic review of qualitative research. *Adolescent Research Review*, *5*(2), 187-211. APA PsycInfo. http://dx.doi.org/10.1007/s40894-019-00118-w

World Health Organization. (2022, June 8). *Mental disorders*. World Health Organization. Retrieved October 9, 2023, from https://www.who.int/news-room/fact-sheets/detail/mental-disorders

Wright, M. F., & Wachs, S. (2022). Self-isolation during the beginning of the COVID-19 pandemic and adolescents' health outcomes: The moderating effect of perceived teacher support. *School Psychology*, *37*(1), 47–53. APA PsycInfo. http://dx.doi.org.proxy.lib.uni.edu/10.1037/spq0000460

Wu, P.-C. (2017). The developmental trajectories of depressive symptoms in early adolescence: An examination of school-related factors. *Journal of Psychoeducational Assessment*, *35*(8), 755-767. APA PsycInfo. http://dx.doi.org.proxy.lib.uni.edu/10.1177/0734282916660415

Appendix A

DSM-5-TR Major Depressive Disorder Symptoms and Diagnostic Criteria (APA, 2022, p. 184)

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.
   Note: Do not include symptoms that are clearly attributable to another medical condition.
   1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad, empty, hopeless) or observation made by others (e.g., appears tearful). (Note: In children and adolescents, can be irritable mood.)
   2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation).
   3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. (Note: In children, consider failure to make expected weight gain.)
   4. Insomnia or hypersomnia nearly every day.
   5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).
   6. Fatigue or loss of energy nearly every day.
   7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).
   8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).
   9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

C. The episode is not attributable to the physiological effects of a substance or another medical condition.
   Note: Criteria A–C represent a major depressive episode.
   Note: Responses to a significant loss (e.g., bereavement, financial ruin, losses from a natural disaster, a serious medical illness or disability) may include the feelings of intense sadness, rumination about the loss, insomnia, poor appetite, and weight loss noted in Criterion A, which may resemble a depressive episode. Although such symptoms may be understandable or considered appropriate to the loss, the presence of a major depressive episode in addition to the normal response to a significant loss should also be carefully considered. This decision inevitably requires the exercise of clinical

judgment based on the individual's history and the cultural norms for the expression of distress in the context of loss.

D. At least one major depressive episode is not better explained by schizoaffective disorder and is not superimposed on schizophrenia, schizophreniform disorder, delusional disorder, or other specified and unspecified schizophrenia spectrum and other psychotic disorders.

E. There has never been a manic episode or a hypomanic episode.
Note: This exclusion does not apply if all of the manic-like or hypomanic-like episodes are substance-induced or are attributable to the physiological effects of another medical condition.

Appendix B

DSM-5-TR Generalized Anxiety Disorder Symptoms and Diagnostic Criteria (APA, 2022, pp. 251-252)

A. Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).
B. The individual finds it difficult to control the worry.
C. The anxiety and worry are associated with three (or more) of the following six symptoms (with at least some symptoms having been present for more days than not for the past 6 months):
   Note: Only one item is required in children.
   1. Restlessness or feeling keyed up or on edge.
   2. Being easily fatigued.
   3. Difficulty concentrating or mind going blank.
   4. Irritability.
   5. Muscle tension.
   6. Sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep).
D. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
E. The disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition (e.g., hyperthyroidism).
F. The disturbance is not better explained by another mental disorder (e.g., anxiety or worry about having panic attacks in panic disorder, negative evaluation in social anxiety disorder, contamination or other obsessions in obsessive compulsive disorder, separation from attachment figures in separation anxiety disorder, reminders of traumatic events in posttraumatic stress disorder, gaining weight in anorexia nervosa, physical complaints in somatic symptom disorder, perceived appearance flaws in body dysmorphic disorder, having a serious illness in illness anxiety disorder, or the content of delusional beliefs in schizophrenia or delusional disorder).

Appendix C

U-LEARN Demographics Form

1. What is your biological sex?
    - Male
    - Female
    - Intersex
    - Not listed (please specify)
    - Prefer not to answer

2. What is your gender identity?
    - Male
    - Female
    - Transgender
    - Nonbinary/Gender fluid
    - Genderqueer/Gender non-conforming
    - Agender
    - Bigender
    - Not sure (exploring my gender identity)
    - Not listed (please specify)
    - Prefer not to answer

3. What is your sexual orientation?
    - Heterosexual (straight)
    - Gay or lesbian
    - Bisexual
    - Queer/Fluid queer
    - Pansexual
    - Asexual
    - Demisexual
    - Not sure (exploring my sexual orientation)
    - Not listed (please specify)
    - Prefer not to answer

4. Please enter your age in years.

The following items ask about your racial and ethnic identification. The first set of questions ask whether you are of Hispanic, Latino, or Spanish origin because people of Hispanic origin may be of any race. The second set of items then ask about your race.

5. Are you of Hispanic, Latino, or Spanish origin?
    - No
    - Yes

6. Please select the item which best describes your ethnic identification.
    - Mexican, Mexican American, Chicano
    - Puerto Rican
    - Cuban
    - Venezuelan
    - Spanish/Spanish American
    - Uruguayan
    - Salvadorian
    - Peruvian
    - Panamanian
    - Honduran
    - Guatemalan/Guatemalan American
    - Ecuadorian
    - Dominican
    - Columbian
    - Chilean
    - Brazilian
    - Argentinian
    - Another Hispanic, Latino, or Spanish origin (please specify)

Although the categories to describe race listed below may not represent your full identity or use the language you prefer, for the purpose of this survey please select the answers that most accurately describe your racial identification.

7. Please select the item which best describes your racial identification.
    - Native American or American Indian or Alaska Native or Indigenous
    - Asian or East Asian or South Asian or Asian American or Southeast Asian or Central Asian
    - Black or Black African or African American
    - Middle Eastern or North African
    - Pacific Islander or Native Hawaiian
    - White
    - Multiracial
    - Not listed (please specify)
    - Prefer not to answer

8. Which Asian subgroup do you primarily identify with?
    - Asian Indian
    - Chinese
    - Filipino
    - Japanese
    - Korean
    - Vietnamese
    - Other (please specify)

9. Multiracial people can identify in various ways. For example, some people identify with a specific racial heritage, and some identify as "multiracial." Please describe the race with which you primarily identify. Please also describe any other races that are part of your identity.

10. Select the choice that you think best describes your hometown.
    - Urban
    - Suburban
    - Rural

11. Are you an international student?
    - Yes, I am in the U.S. on a student visa (e.g., F-1, J-1)
    - No

12. What year are you currently in?
    - First year
    - Second year
    - Third year
    - Fourth year
    - Fifth year or more

13. Is this your first ever semester of college (first-semester freshman)?
    - Yes
    - No

14. What is your college grade point average (GPA)?

15. What was your high school grade point average (GPA)?

16. What scale was your high school grade point average (GPA) on (e.g., 4-point scale, 5-point scale)?

17. Was your high school grade point average (GPA) weighted?
    - Yes
    - No
    - I don't know

18. Are you a competitive athlete (e.g., student athlete, weightlifter, runner, cyclist) OR do you hold a position that requires you to be physically fit or frequently engage in physical exercise (e.g., athletic trainer, yoga instructor, outdoor program trip leader)?
    - No
    - Yes (please specify)

19. Were you adopted by your family as a child?
    - No
    - Yes

20. Are you a first generation college student?
    - No
    - Yes

21. Were you ever homeschooled before college (i.e., primarily taught by parent(s) or another adult outside of a formal school setting)?
    - No
    - Yes

22. Father’s highest education achieved.
    - Elementary or middle school
    - Some high school
    - High school diploma/GED
    - Some college
    - Associate's degree
    - Bachelor's degree
    - Some graduate school (Master's, PhD, JD, MD, etc)
    - Graduate degree
    - Don’t know

23. Mother’s highest education achieved.
    - Elementary or middle school
    - Some high school
    - High school diploma/GED
    - Some college
    - Associate's degree
    - Bachelor's degree
    - Some graduate school (Master's, PhD, JD, MD, etc)
    - Graduate degree
    - Don’t know

24. Think of this ladder as representing where people stand in our society. At the top of the ladder are the people whose social class (income level, occupation and education level) is the most ideal, accepted, and valued in our society. At the bottom of the ladder are the people whose social class is the least ideal, accepted, and valued in our society. The higher up you are on this ladder, the closer you are to the people at the very top and the lower you are, the closer you are to the bottom. Where would you put yourself on the ladder? Please mark the bubble next to the rung where you think you stand.
    - __ (MOST IDEAL, VALUED, ACCEPTED SOCIAL CLASS)
    - __
    - __
    - __
    - __
    - __
    - __ (LEAST IDEAL, VALUED, ACCEPTED SOCIAL CLASS)

25. Are you currently employed?
    - No
    - Yes

26. Are you currently in a romantic relationship?
    - Yes
    - No

27. How long have you been in your current romantic relationship?
    - Less than 3 months
    - 3-5 months
    - 6-11 months
    - 1-2 years
    - >2 years

28. How would you characterize the “seriousness” of your current romantic relationship?
    - Starting to date
    - Dating
    - Seriously dating
    - Considering marriage
    - Engaged
    - Married

29. How satisfied are you with your current relationship?
    - Very dissatisfied
    - Dissatisfied
    - Neither satisfied nor dissatisfied
    - Satisfied
    - Very satisfied

30. What is the total number of romantic relationships you have had in your life?

31. Were you born on an odd or an even numbered day? For example, if you were born on the 10th of the month, you would select even.
    - Even
    - Odd

Appendix D

Meriden School Climate Survey–Student Version–Adapted (Gage et al., 2016)

Scoring: All items use a 5-point Likert-type scale ranging from “strongly disagree” to “strongly agree.” Items marked with (R) are reverse scored.

Subscales and items:

A. Adult Support at School
    1. There were teachers in my high school who helped me to really want to learn.
    2. The teachers in my high school made learning fun.
    3. The adults in my high school treated students with respect.
    4. I was happy to be at my high school.
    5. At my high school, there was a teacher or other adult who listened to me when I had something to say.
    6. At my high school, there was a teacher or other adult who told me when I did a good job.
    7. At my high school, there was a teacher or other adult who I could trust.
    8. There were teachers at my high school who cared about me.
    9. I tried to do my best in high school.
    10. I felt sad in high school (R).
    11. During high school, I felt I would be successful in life.

B. Peer Support
    1. In high school, I had a friend who talked with me about my problems.
    2. In high school, I had a friend who really cared about me.
    3. At my high school, I had a friend who I could really trust.
    4. In high school, I found someone to talk with when I had a problem.

C. Respect for Differences
    1. My high school handled student behavior problems fairly.
    2. The adults in my high school treated all students fairly.
    3. A person’s skin color could cause problems at my high school (R).
    4. At my high school, the color of my skin could get me in trouble (R).
    5. Students in my high school respected differences in other students.

D. School Safety
    1. I worried about many things during high school (R).
    2. I felt safe at my high school.
    3. I felt safe on my way to and from high school.
    4. Other students in my high school hurt my feelings (R).
    5. Other students at my high school spread rumors or lies about me (R).
    6. Students being mean to other students (harassment) was a problem in my high school (R).

7. There was physical fighting between students at my high school (R).
8. During high school, I was hit or threatened by other students (R).

E. Aggression Toward Others
1. During high school, I hit or pushed other students in anger (R).
2. During high school, I hit, pushed, or spread rumors at the bus stop or on the bus (R).
3. During high school, I spread rumors or lies about other students (R).

F. Adult Support at Home
1. During high school, I had a parent or other adult at home who always wanted me to do my best.
2. During high school, I had a parent or other adult at home who cared about my school work.
3. During high school, I had a parent or other adult at home who expected me to follow school rules.
4. During high school, I had a parent or other adult at home who listened to me when I had something to say.

G. Academic Support at Home
1. During high school, if I needed help with homework, a parent or adult would help me.
2. During high school, I had a quiet place at home to do my homework.
3. During high school, I had time to do my homework at home.

Appendix E

Depression Anxiety and Stress Scale (Lovibond & Lovibond, 1995)

Scoring: All items use a 4-point Likert-type scale. The rating scale is as follows:

- 0: Did not apply to me at all
- 1: Applied to me to some degree, or some of the time
- 2: Applied to me to a considerable degree, or a good part of time
- 3: Applied to me very much, or most of the time

Items and Subscales

A. Depression
    1. I couldn't seem to experience any positive feeling at all
    2. I found it difficult to work up the initiative to do things
    3. I felt that I had nothing to look forward to
    4. I felt down-hearted and blue
    5. I was unable to become enthusiastic about anything
    6. I felt I wasn't worth much as a person
    7. I felt that life was meaningless

B. Anxiety
    1. I was aware of dryness of my mouth
    2. I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)
    3. I experienced trembling (eg, in the hands)
    4. I was worried about situations in which I might panic and make a fool of myself
    5. I felt I was close to panic
    6. I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)
    7. I felt scared without any good reason

C. Stress
    1. I found it hard to wind down
    2. I tended to over-react to situations
    3. I felt that I was using a lot of nervous energy
    4. I found myself getting agitated
    5. I found it difficult to relax
    6. I was intolerant of anything that kept me from getting on with what I was doing
    7. I felt that I was rather touchy

Appendix F

Retrospective Bullying Questionnaire (Schäfer et al., 2004)

The following questions are about bullying. Bullying is intentional hurtful behavior. It can be physical or psychological. It is often repeated and characterized by an inequality of power so that it is difficult for the victim to defend themself.
Please think back to your experiences in elementary, middle and high school (5–18 years old).

A. Were you ever physically bullied?
    1. Hit/punched
        - Yes
        - No
    2. Stolen from
        - Yes
        - No
    3. Did this happen? Never, rarely, sometimes, frequently, constantly
        - Never
        - Rarely
        - Sometimes
        - Frequently
        - Constantly
    4. How serious did you consider these bullying-attacks to be?
        - I wasn't bullied
        - Not at all
        - Only a bit
        - Quite serious
        - Extremely serious
    5. How long did the bullying-attacks usually last? I wasn't bullied, just a few days, weeks, months, a year or more
        - I wasn't bullied
        - Just a few days
        - Weeks
        - Months
        - A year or more

B. Were you ever verbally bullied?
    1. Called names
        - Yes
        - No

2. Threatened
    - Yes
    - No
3. Did this happen?
    - Never
    - Rarely
    - Sometimes
    - Frequently
    - Constantly
4. How serious did you consider these bullying-attacks to be?
    - I wasn't bullied
    - Not at all
    - Only a bit
    - Quite serious
    - Extremely serious
5. How long did the bullying-attacks usually last? I wasn't bullied, just a few days, weeks, months, a year or more
    - I wasn't bullied
    - Just a few days
    - Weeks
    - Months
    - A year or more

C. Were you ever indirectly bullied (had lies or nasty rumors told about you behind your back or being deliberately excluded from social groups)
    1. Had lies told about you
        - Yes
        - No
    2. Excluded
        - Yes
        - No
    3. Did this happen?
        - Never
        - Rarely
        - Sometimes
        - Frequently
        - Constantly

4. How serious did you consider these bullying-attacks to be?
    - I wasn't bullied
    - Not at all
    - Only a bit
    - Quite serious
    - Extremely serious
5. How long did the bullying-attacks usually last? I wasn't bullied, just a few days, weeks, months, a year or more
    - I wasn't bullied
    - Just a few days
    - Weeks
    - Months
    - A year or more

D. Only answer the following questions if you were ever bullied. The following questions are scored using a Likert-type scale (0 = *never*; 1 = *rarely*; 2 = *sometimes*; 3 = *often*; 4 = *always*).
    1. Do you have vivid memories of the bullying events which keep coming back causing you distress?
    2. Do you have dreams or nightmares about the bullying events?
    3. Do you ever feel like you are re-living the bullying events again?
    4. Do you ever have sudden vivid recollections or flashbacks to the bullying events?
    5. Do you ever feel distressed in situations which remind you of the bullying events?

E. When did these bullying experiences occur (check all that apply)?
    - Elementary school (Kindergarten-5th grade)
    - Middle school (6-8th grade)
    - High school (8-12th grade)

F. When were your bullying experiences the most severe (check one)?
    - Elementary school (Kindergarten-5th grade)
    - Middle school (6-8th grade)
    - High school (8-12th grade)

Appendix G

Attention Check Items

1. A puppy refers to a…
    - Cat
    - Elephant
    - Monkey
    - Dog
2. A kitten refers to a…
    - Cat
    - Dog
    - Monkey
    - Elephant
3. An apple is a type of…
    - Meat
    - Vegetable
    - Fruit
    - Dairy
4. A carrot is a type of…
    - Fruit
    - Vegetable
    - Meat
    - Dairy