AUTHENTIC CONNECTIONS

High Achieving Schools Survey: Individual Student Attributes During COVID

March 2023

Individual Student Attributes During COVID

Executive Summary

In this paper, we report on individual student attributes most likely to be linked with resilience in adolescent mental health during the fall semester of the 2020-2021 school year. The sample consists of 4,182 middle and high school students from 10 independent and public schools across the U.S.

Findings showed two individual attributes that emerged as top predictors of symptoms. **Loneliness** was strongly linked with **Depression**, **Anxiety**, and **Rule Breaking**, overall and for most subgroups. Low **Sleep Quality** was the strongest predictor of **Substance Use** overall and for most subgroups.

Additional analyses were conducted to determine which subgroups of adolescents might be most vulnerable. Compared to male and female students, non-binary students showed notably higher vulnerability on all symptoms and all key predictors. Considered by age group, high school students were significantly more likely than middle school students to report high levels of **Loneliness**, low **Sleep Quality**, and low **Satisfaction with Life**.

Research clearly shows that resilience rests on relationships, and that the strength of relationships with parents, peers, and adults at school is powerfully linked to adolescent mental health and well-being (e.g., Luthar et al., 2015). While individual attributes do contribute to student resilience, it is important to reiterate that relationships remain most important.

Overall, findings provide directions for preventive interventions as schools continue to recover from COVID-related stressors, with particular attention to the individual student attributes noted above and the subgroups of students identified as especially vulnerable.

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INDIVIDUAL STUDENT ATTRIBUTES DURING COVID

In this report, we describe findings on individual student attributes in relation to student mental health during COVID. This report is the fifth in a five-part series, with Part 1 introducing underlying theory and methods and presenting data on symptom rates within different student subgroups, and with each of Parts 2 - 5 focusing on a specific aspect of student life with essential implications for mental health and well-being. The aspects are **Parent Relationships** (Part 2), **Peer Relationships** (Part 3), **School Climate** (Part 4), and **Individual Student Attributes**.

INDIVIDUAL STUDENT ATTRIBUTES AND WELL-BEING

The COVID-19 pandemic has had wide-ranging impacts on nearly all aspects of children's daily lives. In particular, the disruptions due to remote schooling and social isolation have been especially damaging to the mental health and well-being of students and of their caregivers.

In a recent scientific review published in the *Journal of the American Academy of Child & Adolescent Psychiatry*, researchers found that **social isolation and loneliness increased the risk of depression and anxiety** in children and adolescents, and that **longer duration of loneliness was more strongly correlated with symptoms** than greater intensity of loneliness (Loades et al., 2020).

At the same time, the many **disruptions to daily routines have also had consequences for students' sleep rhythms**. Pandemic schooling has resulted in shifted sleep and wake schedules, increased screen time, and decreased physical activity – all of which have been linked with lower sleep quality (Xu et al., 2019).

> "Because of the COVID-19–related school closures and social distancing measures, millions of children have been confined at home. Although families, communities, and schools have attempted to adapt, at times successfully, many children and youth have been deprived of structured support, trapped in dysfunctional family settings, and are relying largely on peer relations through the unsupervised use of social media." (Rousseau & Mconi, 2020)

There is a growing body of scientific evidence showing that **sleep quality is critical for the mental health and well-being of adolescents** (e.g., Carskadon & Barker, 2020; Vyazovskiy, 2015; Jaworska & MacQueen, 2015). A recent analysis of data from over 65,000 high school students found that **lower sleep duration – fewer than 6 hours per night – was strongly associated with poor mood, higher rates of self-harm, and increased frequency of substance use and risk-taking behaviors** (Weaver et al., 2018).

To help our partner schools identify and measure the top drivers of student well-being during COVID, the **2020-2021 High Achieving Schools Survey** assessed five individual attributes in relation to student mental health symptoms: ***Loneliness***, ***Satisfaction with Life***, ***Feeling Seen & Loved***, ***Authenticity***, and ***Sleep Quality***.

The **HASS** also included three open-ended questions designed to capture students' feelings about issues that were top of mind for them. Illustrative responses are presented in Figures 1-3.

This report will present findings on student symptoms in relation to individual student attributes. We will seek to answer two key questions: **1) Which individual attributes matter most for students' mental health?** and **2) Which subgroups of students are most at-risk?**

VERBATIM STUDENT RESPONSES

These days, what are you most worried about?

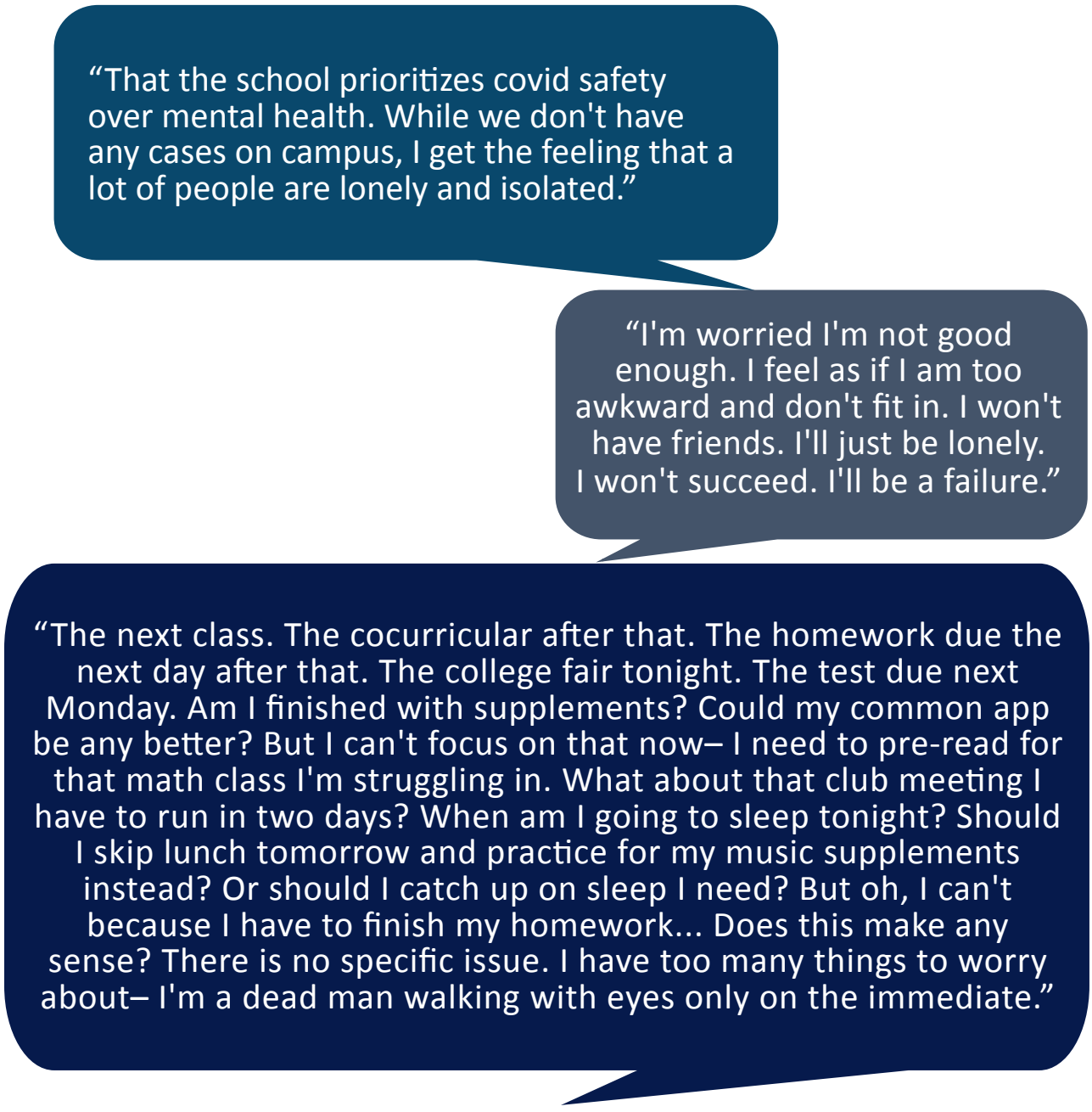

Figure 1. Verbatim Responses: Top Concerns

What could your teachers be doing to improve things for you?

"Not assign so much work to the point where I sleep <6 hours a day."

"Stick to the homework limit of 30 minutes per night. I think it would be helpful if they understood that I'm pretty busy at school, so them assigning 2 hours of homework for one class means I'm either not going to do it, or I'm going to be sacrificing my sleep, and therefore my health, to do homework for their class."

"As a senior with a lot of extra-curricular responsibilities, on top of school work, college applications, etc., I really hope that as I get closer to early application deadlines that teachers will be as understanding as possible of individual situations. For example, I have literally been sleeping at 2am for the past two weeks straight just to find time to get all of my work done, and I appreciate that my advisor and my music teacher have been flexible in scheduling appointments, giving me a bit of leniency if I show up a bit late, or just ask me how I'm doing."

"I think my school could have more diversity because even though I'm friends with everyone, it still feels kind of lonely as one out of two black kids in my grade. I do think that my teachers this year are fun and awesome, and they definitely help me be happy and wanted. I wouldn't change my friend group, I just think that we could have more diversity with ethnicities and races."

Figure 2. Verbatim Responses: Suggestions for Improvement

What is your school doing well to support your well-being?

Figure 3. Verbatim Responses: Going Well

THE FALL 2020 HIGH ACHIEVING SCHOOLS SURVEY

During the Fall semester of the 2020-2021 school year, **AC** partnered with independent and public schools across the country to administer the **High Achieving Students Survey (HASS)** to 4,182 middle and high school students (for more details about the sample, see Authentic Connections, June 2021). The **HASS** is a comprehensive mixed-methods survey with both quantitative and open-ended questions that is designed to be completed online by students in a single class period (approximately 30-45 minutes). At the time of assessment, participating schools were in either fully in-person or in a hybrid format including both in-person and remote learning.

MEASURES

Student Symptoms

The **HASS** measured four components of student mental health and well-being: ***Depression***, ***Anxiety***, ***Rule Breaking*** (i.e., behaviors such as cheating and stealing), and ***Substance Use***. For each component, five questions asked students to report how frequently they experienced the symptom in question on a 5-point scale (0 = never, 4 = very often). The items used are from the **Well-Being Index**, a psychometrically-validated measure of adolescent mental health symptoms (Luthar et al., 2020).

Individual Student Attribute Predictors

The **HASS** assessed five constructs related to individual student attributes. Table 1 presents examples of items for each construct (all were rated on a 5-point Likert scale: 1 = strongly disagree/not at all, 5 = strongly agree/very much).

Construct	Number of Items	Sample Item
Loneliness	1	I feel lonely.
Satisfaction	1	I am satisfied with my life.
Seen & Loved	2	My friends make me feel seen and loved for who I am.
Authenticity	3	I feel comfortable being my true self with others.
Sleep Quality	3	On a typical school day, how rested do you feel when you wake up?

Table 1. Individual Student Attributes Constructs and Items

KEY FINDINGS

Top Individual Student Attributes Predicting Symptoms

We conducted multiple regression analyses to identify which of the individual student attribute constructs were most strongly linked to student mental health symptoms. Figure 4 presents the **top individual student attribute predicting each symptom**, overall and within each subgroup.

	Depression	Anxiety	Rule Breaking	Substance Use
OVERALL	**Loneliness**	**Loneliness**	**Loneliness**	**Sleep Quality**
Male	Loneliness	Loneliness	Loneliness	Sleep Quality
Female	Loneliness	Loneliness	Loneliness	Sleep Quality
Non-Binary	Loneliness	Loneliness	Loneliness	Seen / Loved
White	Loneliness	Loneliness	Loneliness	Sleep Quality
Black	Loneliness	Loneliness	Sleep Quality	–
Asian	Loneliness	Loneliness	Sleep Quality	Satisfaction with Life
Hispanic	Loneliness	Loneliness	Loneliness	Loneliness
Other Ethnicities	Loneliness	Loneliness	Loneliness	Loneliness
Middle School	Loneliness	Loneliness	Sleep Quality	Loneliness
High School	Loneliness	Loneliness	Sleep Quality	Sleep Quality
In-Person Learning	Loneliness	Loneliness	Seen / Loved	Sleep Quality
Hybrid Learning	Loneliness	Loneliness	Seen / Loved	Sleep Quality
Remote Learning	Loneliness	Loneliness	Seen / Loved	Sleep Quality
Day Student	Loneliness	Loneliness	Loneliness	Sleep Quality
Boarding Student	Loneliness	Loneliness	Sleep Quality	Sleep Quality
International Student	Loneliness	Loneliness	Loneliness	–
Domestic Student	Loneliness	Loneliness	Loneliness	Loneliness
Receives Financial Aid	Loneliness	Loneliness	Loneliness	Sleep Quality
No Financial Aid	Loneliness	Loneliness	Seen / Loved	Sleep Quality

Figure 4. Top Individual Predictor of Each Student Symptom [1]

As shown in Figure 4, a high level of ***Loneliness*** was the strongest predictor of both ***Depression*** and ***Anxiety*** in the overall sample of students and for all demographic subgroups examined. High ***Loneliness*** was also the strongest predictor of ***Rule Breaking*** overall and for most subgroups. Low ***Sleep Quality*** was the strongest predictor of ***Substance Use*** overall and for most subgroups.

	Loneliness	Sleep Quality	Seen & Loved	Satisfaction
Depression	0.37	-0.15	-0.03	-0.18
Anxiety	0.27	-0.13	–	-0.07
Rule Breaking	0.11	-0.13	-0.11	-0.06
Substance Use	0.09	-0.11	–	–

Table 2. Regression Beta Coefficients

Table 2 presents regression beta coefficients showing the strength of the effect of each predictor on each outcome. In psychological research, a beta coefficient larger than ±0.20 is generally considered "meaningful" or "noteworthy."

As shown in Table 2, a large beta coefficient was observed for high ***Loneliness*** with ***Depression*** (0.37) and ***Anxiety*** (0.27). Other relationships approaching the meaningful cutoff include low ***Satisfaction*** with ***Depression*** (-0.18) and low ***Sleep Quality*** with ***Depression*** (-0.15).

The next section of this report presents clinically significant levels of the top four individual student attributes most powerfully linked to mental health symptoms – ***Loneliness***, ***Sleep Quality***, ***Seen & Loved***, and ***Satisfaction*** – separately by gender, ethnicity / race, and grade level division.

Rates of Individual Attribute Predictors in Student Subgroups

Part 1 of this report introduced the underlying theory and methods and presented data on symptom rates within different student subgroups. To reiterate the findings on symptom rates, we found that four particular subgroups stood out. First, **non-binary students had higher levels of all symptoms** assessed than males and females. Second, **high school students had higher levels of all symptoms assessed** than middle school students. Third, **students in remote learning had higher levels of *Anxiety* and *Substance Use*** than students attending school in person or in hybrid format. Finally, considered by ethnicity / race, **White students were most likely to report serious rates of *Substance Use***.

Rates of High Loneliness

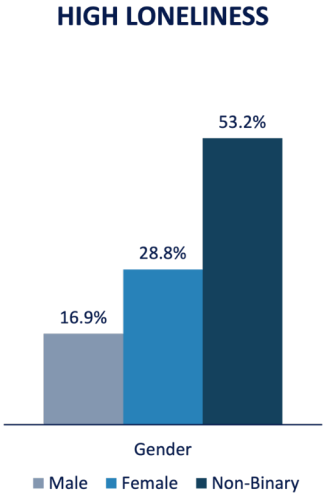

Figure 5.
Loneliness by Gender Identity

Figure 5 shows the percentage of students reporting high levels of ***Loneliness*** separately by gender identity. As shown, the percentage of students reporting high levels of ***Loneliness*** was significantly higher among gender non-binary students than among males or females.[2]

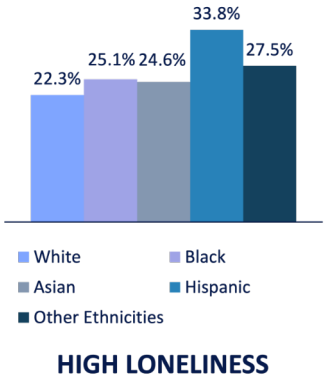

Figure 6.
Loneliness by Ethnicity / Race

Figure 6 shows the percentage of students reporting high ***Loneliness*** separately by race / ethnicity. As shown, rates were highest among Hispanic students and lowest among White students; the differences were statistically significant.[3]

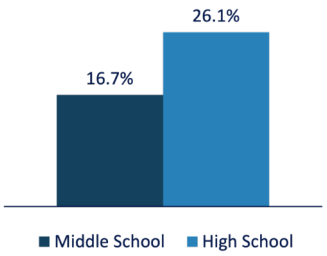

Figure 7.
Loneliness by Grade Level

Figure 7 shows the percentage of students reporting high ***Loneliness*** separately by grade level division. As shown, high school students were significantly more likely than middle school students to report high levels of Loneliness.[4]

Rates of Low Sleep Quality

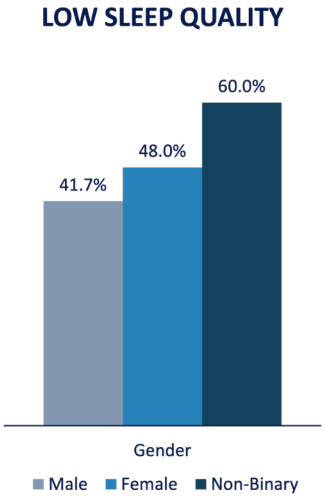

Figure 8.
Sleep Quality by Gender Identity

Figure 8 shows the percentage of students reporting low ***Sleep Quality*** by gender identity. As shown, the percentage of students reporting low ***Sleep Quality*** was higher among gender non-binary students than among males or females; the difference was statistically significant.[5]

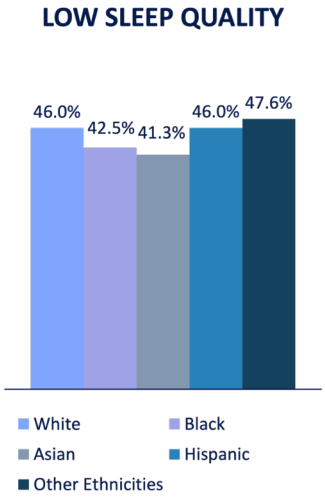

Figure 9.
Sleep Quality by Ethnicity / Race

Figure 9 shows the percentage of students reporting low ***Sleep Quality*** by race / ethnicity. As shown, rates of low ***Sleep Quality*** were slightly higher among Hispanic students and slightly lower among Asian students but differences were not statistically significant.[6]

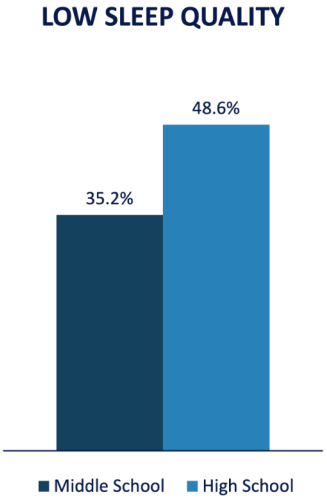

Figure 10.
Sleep Quality by Grade Level

Figure 10 shows the percentage of students reporting low ***Sleep Quality*** by division. As shown, high school students more frequently reported low ***Sleep Quality*** than middle school students; the difference was statistically significant .[7]

It is important to note that the above analyses used the variable ***Sleep Quality*** – measured by the question, **"On a typical school day, how rested do you feel when you wake up?"** – to predict mental health. This differs from ***Sleep Amount*** – the average number of hours of sleep students receive on a typical school night – which was also measured (Figure 11).

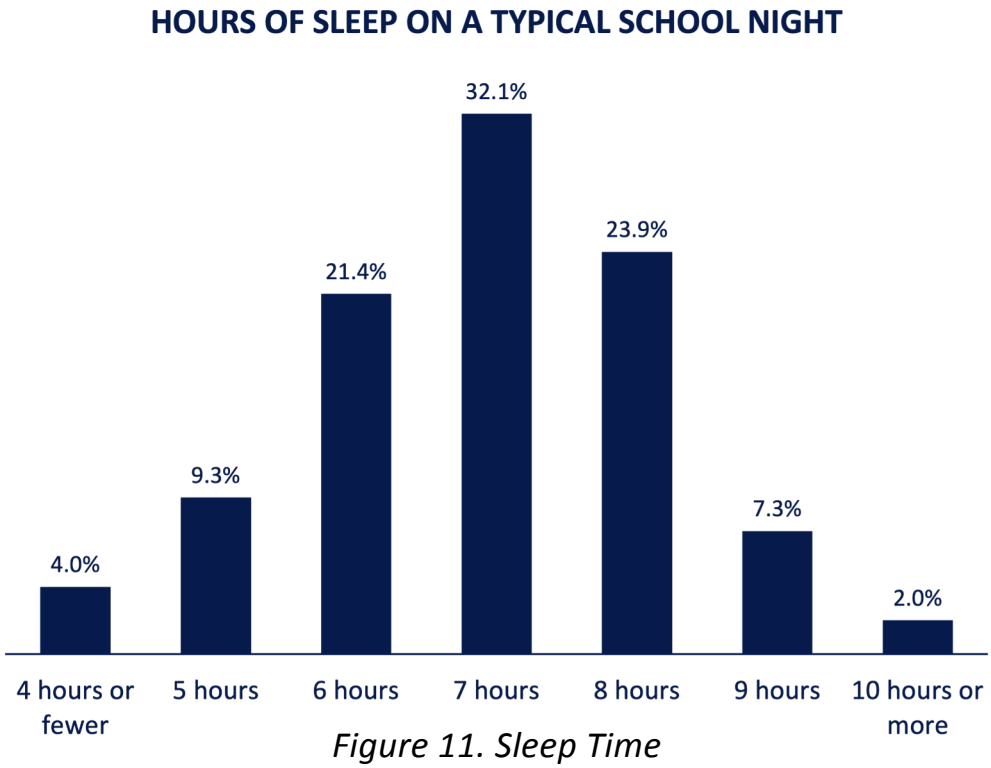

Figure 11. Sleep Time

Results from the HASS showed that two-thirds of students report sleeping for 7 hours or fewer on a typical school night, less than the pediatrician-recommended 9 to 9½ hours of sleep per night.

> "How much sleep someone needs depends on their age. The American Academy of Sleep Medicine has recommended that children aged 6–12 years should regularly sleep 9–12 hours per 24 hours and teenagers aged 13–18 years should sleep 8–10 hours per 24 hours." (CDC Healthy Schools, 2020)

Rates of Low Seen & Loved

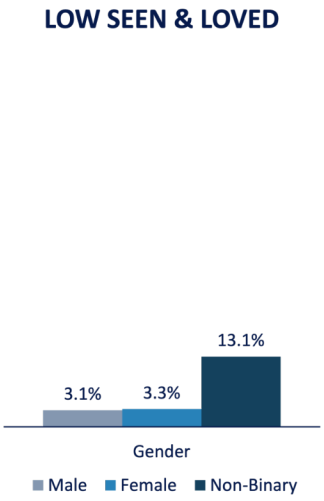

Figure 12.
Low Seen & Loved by Gender Identity

Figure 12 shows the percentage of students reporting low levels of feeling ***Seen & Loved*** by gender identity. As shown, low levels of feeling ***Seen & Loved*** were significantly higher among gender non-binary students than among male or female students.[8]

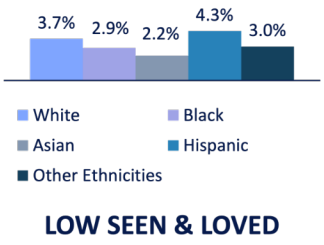

Figure 13.
Low Seen & Loved by Ethnicity / Race

Figure 13 shows the percentage of students reporting low levels of feeling ***Seen & Loved*** by race / ethnicity; group differences were not statistically significant.[9]

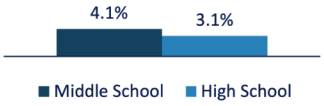

Figure 14.
Low Seen & Loved by Grade Level

Figure 14 shows the percentage of students reporting low feelings of being ***Seen & Loved*** by grade level division; as shown, group differences were not statistically significant.[10]

Rates of Low Satisfaction with Life

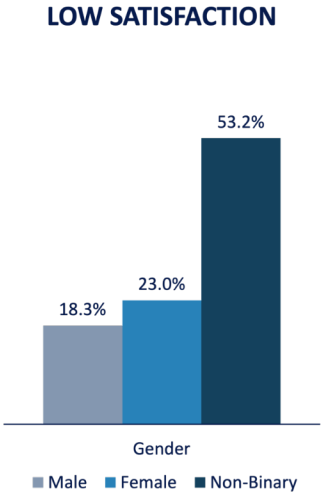

Figure 15.
Low Satisfaction by Gender Identity

Figure 15 shows the percentage of students reporting low ***Satisfaction with Life*** by gender identity. As shown, rates of low ***Satisfaction with Life*** were significantly higher among gender non-binary students than among male or female students.[11]

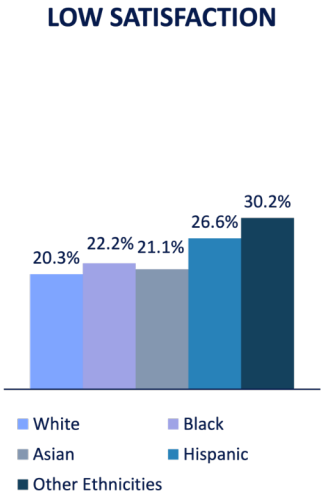

Figure 16.
Low Satisfaction by Ethnicity / Race

Figure 16 shows the percentage of students reporting low ***Satisfaction with Life*** by race / ethnicity. As shown, White students were least likely to report low ***Satisfaction with Life*** while students in the Other races / ethnicities group were most likely to report low ***Satisfaction with Life***; group differences were statistically significant.[12]

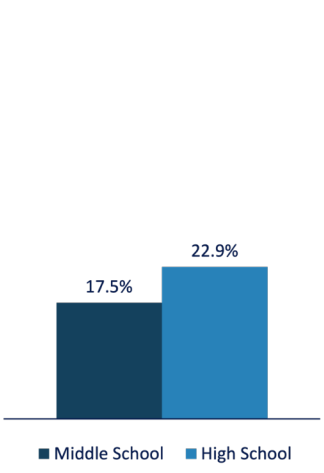

Figure 17.
Low Satisfaction by Grade Level

Figure 17 shows the percentage of students reporting low ***Satisfaction with Life*** by grade level division; as shown, high school students were significantly more likely to report low ***Satisfaction with Life***.[13]

DISCUSSION AND RECOMMENDATIONS

Our analysis of symptom rates among 4,182 students surveyed between September and December of 2020 revealed several important patterns regarding the role of individual student attributes in adolescent resilience during COVID. We summarize findings on the two key questions addressed and provide associated recommendations for schools.

Which individual attributes matter most for students' mental health?

Of the five aspects of individual student attributes we examined, two emerged as top predictors of student symptoms. First, high levels of ***Loneliness*** were strongly linked with both ***Depression*** and ***Anxiety***, overall and for all subgroups; high levels of ***Loneliness*** were also strongly linked with ***Rule Breaking*** overall and for most subgroups. Second, low ***Sleep Quality*** was the strongest predictor of ***Substance Use*** overall and for most subgroups.

Statistically significant beta coefficients exceeding the "meaningful" cutoff of ±0.20 were observed for ***Loneliness*** with ***Depression*** (0.37) and ***Anxiety*** (0.27).

The finding that student loneliness was especially powerful in predicting student mental health symptoms echoes findings from other national surveys of college students and young adults showing that 61% of young adults surveyed in October 2020 reported feeling lonely "frequently" or "almost all the time or all the time" and that nearly 63% of young adults surveyed in June 2020 reported increases in anxiety, depression, and substance use since the beginning of the pandemic.

The finding that sleep quality was strongly predictive of substance use in particular is congruent with sleep science research showing links between poor sleep and lower mood and increased risky behavior.

Which subgroups are most at-risk in terms of individual attributes predicting poor mental health?

In examining levels of individual student attributes within each student subgroup, we identified some groups of students who may be particularly at risk.

Considered by gender, non-binary students were significantly more likely than males or females to be at-risk on all of the key individual attributes examined; a higher percentage of non-binary students reported high levels of ***Loneliness***, low levels of ***Sleep Quality***, low levels of ***Satisfaction with Life,*** and low feelings of being ***Seen & Loved***. As described in Part 1 of this report, non-binary students also had higher levels of all symptoms assessed than males and females.

In terms of developmental level, high school students were significantly more likely than middle school students to report high levels of ***Loneliness***, low ***Sleep Quality***, and low ***Satisfaction with Life***.

Recommendations for Schools

Taken together, the findings reported here indicate a need for schools to support students by working to address poor sleep quality and ongoing feelings of loneliness.

On this front, **it is critical for adults at school to promote positive relationships among members of the school community**. For example, consider creating a "support team" of students committed to ensuring strong connections among all in the community; this team should work to ensure that no student feels alone or friendless. For children who remain isolated, encourage advisors / counselors to help them develop personal friendships. Schools can also maintain a "reach out" page of students who may need a check-in from an adult; for each child on this page, have one adult – who knows the student – confirm that that they are taking responsibility for reaching out to the child.

Regarding sleep quality, **it is essential to find a balance between excellence in academics and extracurriculars and the physical and psychological well-being of students**. Have conversations about sleep quantity and quality with students. Coordinate assignment volume and schedule across faculty to ensure a manageable workload on a week-by-week basis. Encourage students to request changes if too much work is assigned; assure them that teachers will generally be open and will try to be accommodating.

CONCLUSION

In this final chapter of our five-part series on findings from the Fall 2020 administration of the **High Achieving Schools Survey (HASS)**, we examined individual student attributes most important for mental health and well-being. Of the five individual student attributes we examined– ***Loneliness***, ***Satisfaction with Life***, ***Feeling Seen & Loved***, ***Authenticity***, and ***Sleep Quality***– ***Loneliness*** and ***Sleep Quality*** emerged as top predictors of student symptoms.

Through this series, we have highlighted the aspects of students' daily lives, in and out of school, that are most strongly associated with student mental health symptoms. Within the domain of parent relationships, our findings showed that ***Parent Criticism / Perfectionism***, ***Excessive Hovering***, ***Low Parent Mood***, and ***Low Consequences for Drugs / Alcohol*** were most strongly linked with mental health symptoms. In the area of peer relationships, ***Social Media Comparisons***, ***Sexting***, and ***Peer Sexual Harassment*** were top predictors of student symptoms. In terms of school climate, the aspects of students' relationships with teachers and adults at school that showed important links to student mental health were ***School Standards***, ***Teacher Alienation***, and ***Low Equity / Inclusion***.

As schools continue to move beyond the disruptions of the COVID pandemic, it is essential to prioritize attending to the aspects of student life that are most important for their mental health and well-being. **AC** would like to thank you for your time and attention to the findings we have presented throughout this series. We are grateful for the opportunity to collaborate with the dedicated and caring educators in our partner schools.

NOTES

1. All regression coefficients (standardized beta weights) are statistically significant ($p < .05$).
2. Gender: $X^2(2, N = 3661) = 116.74, p < .001$.
3. Ethnicity: $X^2(4, N = 3629) = 13.16, p < .05$.
4. Grade: $X^2(1, N = 3668) = 33.71, p < .001$.
5. Gender: $X^2(2, N = 3666) = 22.76, p < .001$.
6. Ethnicity: $X^2(4, N = 3634) = 5.01$, *n.s.*
7. Grade: $X^2(1, N = 3668) = 50.99, p < .001$.
8. Gender: $X^2(2, N = 4089) = 30.42, p < .001$.
9. Ethnicity: $X^2(4, N = 4045) = 3.80$, *n.s.*
10. Grade: $X^2(1, N = 4089) = 2.89$, *n.s.*
11. Gender: $X^2(2, N = 3661) = 69.11, p < .001$.
12. Ethnicity: $X^2(4, N = 3629) = 17.53, p < .01$.
13. Grade: $X^2(1, N = 3663) = 11.98, p < .001$.

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