

Mental Health Needs in a Large Urban School District: Findings from a Web-based Survey

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Objective: To explore the mental health needs of students, and the professional development and support needs of teachers and school health professionals, as a way to foster community engagement and help set priorities for a comprehensive school mental health system in the Detroit Public Schools Community District (DPSCD).

Setting: The study team surveyed all DPSCD staff in June 2019 and all students in grades 8-12 between October-December 2019.

Study Design: A descriptive study based on anonymous, web-based surveys focused on student trauma exposure and mental health symptoms; student mental health resource utilization; and staff burnout and professional development needs.

Data Collection: All students (grades 8-12) and all district staff were eligible to participate; the student survey was made available in six languages. Parents/guardians could opt children out; schools could exclude children unable to complete the survey independently. Student surveys were administered in school; staff surveys were sent via email.

Principal findings: 34% of DPSCD students reported moderate/severe depression symptoms; 22% had seriously considered suicide in the past year. Rates exceed national averages. 37% of students with severe depression and 34% of those with suicidal ideation had not accessed mental health supports. Staff indicated high levels of burnout and substantial interest in learning about self-care strategies or coping with vicarious trauma. Over 75% of teachers and school mental health professionals expressed interest in learning about best practices for supporting students impacted by trauma or mental illness.

Conclusions: A large number of DPSCD students are experiencing symptoms of depression and anxiety, and many students who need care are not accessing it. Addressing the mental health needs of students is a high priority for staff, but they need more training and support, as well as support for their own vicarious trauma and high levels of burnout.

Key words: school mental health services, adolescent health, community health planning, community mental health services, surveys and questionnaires, needs assessment

What is known on this topic:

- Nearly half of adolescents will experience symptoms of a mental illness by age 18; nearly 40% will meet criteria for more than one diagnosis.
- Many do not get the mental health support they need.
- Schools are well-positioned to help expand access to mental health services and school staff want to support the social and emotional needs of their students.

What this study adds:

- This study presents new empirical data about the prevalence of youth mental health needs in one large urban district serving substantial numbers of students of color.
- Students in this district are experiencing symptoms of depression and anxiety at rates higher than national averages and over a third of those who need care are not accessing it.
- Addressing the mental health needs of students is a high priority for staff, but they need more training and support, as well as support for their own vicarious trauma and high levels of burnout.

Introduction

Lack of access to effective adolescent mental health treatment is a significant public health concern in the United States. Nearly half of adolescents will experience symptoms of a mental illness by age 18, and almost 40% will meet criteria for more than one diagnosis.¹ Youth with mental health disorders are at higher risk of school failure, substance use, co-morbid illnesses, self-injury, and suicide,^{2,3,4,5} as well as lower quality of life and social productivity.^{6,7,8,9,10} Suicide is the second leading cause of death among those aged 10-34,¹¹ and current rates of child and adolescent suicide are at their highest in nearly 50 years.^{12,13}

Youth of all backgrounds are impacted by mental illnesses, but children contending with poverty and environmental stress (e.g., homelessness, food insecurity, exposure to violence) or Adverse Childhood Experiences (ACEs; e.g., abuse, family instability) have disproportionately high rates of behavioral health difficulties.^{14,15,16} Systemic racism, socially enforced segregation, and frequent experiences of marginalization in lower-income, predominantly Black communities,^{17,18,19} and significant racial disparities in access to high quality health and mental health care,^{20,21} are hypothesized to fuel higher rates of both mental illness and self-injurious or suicidal behavior in Black youth.

Evidence-based practices can significantly improve clinical symptoms;^{22,23,24} and youth impacted by a mental illness who are connected to effective treatment demonstrate reductions in rates and severity of illness, and improved educational outcomes.^{25,26,27} However, most young people with a diagnosable mental illness never access treatment, much less an evidence based practice.^{28,29,30,31,32,33} Access to effective mental health care is particularly low among racial and ethnic minority groups and those living in both rural and urban under-resourced areas,³⁴ reflecting disproportionalities in practical barriers (e.g., work schedules, transportation, insurance

coverage) and a long history of medical racism.³⁵

Schools offer a promising avenue for expanding access to mental health services by providing treatment to students *where they are*, utilizing school health professionals (e.g., school social workers, counselors, psychologists) with whom students are comfortable, and eliminating the need to access treatment in settings that are far away, threatening, or cost prohibitive. Students express more willingness to seek mental health care in school than in any other setting,^{36,37} and are more likely to complete treatment if it is delivered in their school building.³⁸ Clinical trials have shown that school mental health programs can be delivered with fidelity and student recipients experience clinical benefit similar to that observed in medical settings.^{39,40} As a result, there is an intensifying call for comprehensive, standardized service models to assist schools in developing effective mental health policies and programs.^{41,42} However, more research is needed in several areas to help school districts determine how to deliver student mental health services effectively at scale, particularly in urban settings serving youth of color.

Rationale. A greater understanding of mental health needs and resources at the school district level is essential for designing effective programming. While various nationally representative surveys collect information about rates of depression, anxiety, suicidal ideation and trauma exposure, few are able to report that information at the school or district level. The Youth Risk Behavior Survey includes rates of suicidal ideation, which can be reported separately for several large districts, but collects limited information on depression, anxiety and trauma exposure. The National Comorbidity Survey-Adolescent Supplement reports information on rates of depression, anxiety, suicidal ideation, and trauma exposure among adolescents ages 13-18, which can be disaggregated by socioeconomic factors, but cannot provide information at the district level. Yet, prior research suggests that the structural characteristics of communities can

have a substantial impact on the mental health of children.⁴³

More information is also needed on the type of support that teachers and school health professionals need to effectively address student mental health concerns, particularly in under-resourced environments. Most school staff believe supporting student mental health is an important part of their role, yet, feel unprepared to address students' needs.^{44,45,46} However, only a few studies have explored the specific professional development staff desire. Moon et al. (2017) and Reinke et al. (2011) are two exceptions, but neither provide information about the unique needs of educators in large urban districts, and both focus on teachers, not school mental health professionals.^{47,48}

Objectives. This study explores the mental health needs of students, and the professional development and implementation support needs of teachers and school health professionals, in the Detroit Public Schools Community District (DPSCD). It is part of a large, multi-year, university-community partnership to collaboratively develop a comprehensive behavioral health system in DPSCD, the largest school district in Michigan. Specifically, the study addresses the following:

1. What are the most significant mental health needs (e.g., depression, anxiety, suicidal ideation, trauma exposure) of DPSCD students?
 - a. Do specific groups of students experience more acute needs than others?
 - b. What mental health resources are students currently utilizing?
2. What do DPSCD teachers and school health professionals need to support their students' mental health?
3. What do these findings imply for developing a comprehensive mental health system in DPSCD?

Methods

Study Design. This descriptive study took place in all 106 DPSCD schools and included comprehensive, anonymous, web-based surveys made available to all DPSCD staff and all students in grades 8-12. Surveys were developed by the research team and included validated survey items, items that had been used in previous data collection efforts, and a few items developed specifically for this study. Technical aspects of survey administration were piloted before administration. Items on both the staff and student surveys could be skipped, and individuals were able to navigate back and forth through the survey. Student surveys focused on mental health symptoms, trauma exposure, mental health resource utilization, stigma, school climate, and school engagement. Staff surveys explored perceptions of student mental health; school climate and available mental health programming; stigma; burnout/exhaustion; and professional development satisfaction and interests.

Student surveys were administered between October and December 2019. All students in 82 DPSCD schools serving grades 8-12 were eligible to participate, and the survey was available in six languages (English, Spanish, Arabic, Bengali, Hmong, and Romanian). Parents/guardians were provided information on the content of the surveys, and could opt their children out of survey participation. Schools were encouraged by the DPSCD superintendent to administer the survey to all eligible students, but were allowed to exclude children who could not complete surveys independently. Coordination of the survey was led by building-level staff, including management of opt-out requests, scheduling use of computer labs for survey completion, and establishing protocols for district social workers to assist students needing follow-up support.

Surveys were completed during the school day. In most schools, students were taken to a computer lab and in all cases were provided with a direct link to access the anonymous survey.

Staff read a prepared script prior to survey administration, and the first page of the survey explained confidentiality and the voluntary nature of participation. Schools were also provided information about how to assist students who needed follow-up support due to the nature of the questions asked. Survey participation was incentivized via five \$2,000 prizes awarded to schools with the highest response rates.

Staff surveys were administered in June 2019. Links to the web-based survey were sent via email by the DPSCD superintendent's office to approximately 5,000 staff in all 106 DPSCD buildings (K-12), including administrators, teachers, paraprofessionals/teaching assistants, counselors, social workers, school nurses, and clerical staff. Staff who completed the survey were sent a \$10 gift card and were entered into a raffle for a chance to win one of five \$100 gift cards. All surveys were voluntary and anonymous. IP addresses were compared to identify duplicates and were removed from the sample, retaining either the first or most complete response.

Participants. For the student survey there were 18,121 eligible students, of which 346 opted out. When the survey closed, 12,794 surveys had been submitted, of which 2,047 were less than 50% complete and dropped from analysis. The final analytical sample of 10,747 equates to a 64% response rate. Complete and incomplete survey respondents were compared. They were comparable on key mental health outcomes. Ninety percent of DPSCD schools serving grades 8-12 are represented. The eight schools with no student responses include three high schools, three middle schools, and two special education schools. 124 students took the survey in Spanish, 2 in Bengali, and 24 in Arabic. The remainder completed the survey in English. There were 2,153 teachers (60% response rate) and 199 health professionals (71% response rate) who responded to the staff surveys. Surveys that were less than 50% complete were dropped from analysis. The

average scores of complete and incomplete survey responses on measures of depression, anxiety, suicidal ideation, and trauma exposure were comparable and not statistically significantly different across groups.

Variables. Student surveys contained 97 items. For this study, we focus only on depression, anxiety, adverse childhood experiences, suicidal ideation, and student help-seeking behavior (See Table 1 for details). Symptoms of **depression** were assessed via the Patient Health Questionnaire-9 Item, Modified for Adolescents (PHQ-9A)⁴⁹, a 9-item self-report tool, widely used to evaluate depression symptoms. Cronbach's α for the PHQ-9A as measured across three time points in one study was 0.879, 0.859, 0.827, respectively. Convergent validity evaluated via intraclass correlations of the PHQ-9A with other similar measures has been found to be moderate to good.⁵⁰

Symptoms of **anxiety** were assessed using the Generalized Anxiety Disorder Scale (GAD-7),⁵¹ a 7-item self-report measure used to evaluate symptoms of anxiety. A large meta-analysis involving 5,223 adults suggested good sensitivity and specificity for detecting Generalized Anxiety Disorder [sensitivity: 0.83 (95% CI 0.71–0.91), specificity: 0.84 (95% CI 0.70–0.92)].⁵² The measure has also shown good reliability and validity among adolescents.⁵³

Felitti's 10-item Adverse Childhood Experiences (**ACEs**) questionnaire was included to collect detailed, self-reported data on students' lifetime exposure to potentially traumatic events.⁵⁴ To assess rates of **suicidal ideation**, students were asked a single item about serious contemplation of suicide during the past year, wording based on item 26 in the 2019 version of the Youth Risk Behavior Survey.⁵⁵

Student help-seeking and **access to mental health care** were measured with the *Student Services Questionnaire* (SSQ), an original measure developed by the study team that provides a

checklist of the most common sources of mental health care (e.g., school social worker, teen center, crisis hotline, outpatient therapy) and common barriers to care (e.g., concerns about privacy, shame/stigma, cost, lack of transportation). Items ask students to indicate both the resources they have accessed in the past year and the barriers they have encountered.

There were 91 items on the staff surveys. In this study we focus on items related to professional development and other supports needed to effectively assist students with mental health needs.

Professional development needs were assessed using items developed by the study team. Staff were asked to indicate which of eight different professional development topics related to their own mental health and their students' mental health would be of most interest to them. Respondents could select multiple topics of interest.

The surveys also asked staff about work related **burnout/exhaustion** using the 8-item Oldenburg Burnout Inventory (OLBI).⁵⁶ Individuals responded on a four-point scale from "1= strongly disagree" to "4= strongly agree" to items such as, "During my work, I often feel emotionally drained." An average burnout score from 1 (lowest burnout) to 4 (highest burnout) is calculated based the average answers to these eight items. When an item response is missing the average is calculated based on completed answers. Studies have demonstrated the convergent validity of the OLBI and the Maslach Burnout Inventory-General Survey among Greek and American employees.^{57,58} Reliabilities range from .73 to .85 across studies.^{59,60, 61,62,63,64}

Finally, staff surveys included items developed by the study team about **knowledge of and satisfaction with identification and referral protocols** in the school. See Table 1 for exact wording of these items.

Analytic Approach. Analyses were performed using Stata 15. For measures of student mental health and trauma exposure, we report the percentage of students with mental health symptoms, overall, and for demographic subgroups including self-reported race and ethnicity (categories listed and defined in Table 1), gender identity, sexual orientation, and homelessness (defined as any student who indicated they lived at someone else's home, a hotel/motel, shelter, outside, in a vehicle, or in a living situation that changed frequently, based on the McKinney-Vento definition of homelessness).⁶⁵

Symptoms of depression and anxiety were divided into three categories (none, mild/moderate, severe) based on established cut-scores (see Table 1 for details); ACEs were divided into three categories (none, 1-3, 4+). To test for differences in rates of trauma exposure and symptoms of depression, anxiety, and suicidal ideation by student characteristics, we conducted both Chi-square analyses across demographic categories (e.g. race/ethnicity) and independent sample t-tests of individual differences. The dependent variable in these analyses was mental health, and we explored whether mental health symptoms varied significantly by key characteristics. For example, we conducted an independent sample t-test of whether the proportion of students reporting severe depression differed for boys vs. girls. The University of Michigan Institutional Review Board deemed this study “not regulated” because all responses were anonymized and the data were being utilized for quality assurance and quality improvement purposes.

Results

Demographic characteristics of the student sample are shown in Table 2 alongside demographic characteristics based on district administrative data.⁶⁶ A majority of the survey sample identified as Black/African American (54.3%). Forty-six percent of the sample identified

as female; 37.9% as male and 1.0% as non-binary/other. Almost 15% of students identified as LGBTQA+ (options included gay, lesbian, bisexual, pansexual, asexual, queer, questioning or unsure) and 3.5% as transgender. 11.7% met the McKinney-Vento definition for homelessness. Students in DPSCD attend one of three types of schools—neighborhood, selective examination, and specialized schools requiring an application. Approximately 46% of the survey respondents attended their neighborhood school, 36% attended a selective examination school, and 16% attended a school requiring an application.

The sample of students responding to the survey is roughly comparable to the demographic characteristics of the district as reported in administrative data, but exact comparisons are difficult. The categorizations used by the district did not always match the survey response options. For example, the survey allowed students to check all races that applied to them. For those selecting more than one race, the study team created a Multiracial category. Many of these students may have been categorized differently by the district. Similarly, district administrative data did not include a non-binary option for gender. Further, students often self-identify differently than they are categorized in administrative records, or choose not to identify.

The student survey may underrepresent students who were absent when the survey was available. Students with low reading levels or who are not independent readers may have struggled with survey comprehension or completion, despite efforts to maintain a 6th- to 8th-grade reading level. It also appears that students who attended selective examination schools were more likely to be represented in our survey sample than in the district overall.

The demographic characteristics of teachers and health professionals are shown in the third and fourth columns of Table 2. Like the student population, many teachers (48%) and health professionals (50%) are Black. However, compared to the student population, a larger

proportion are White (25% of teachers and 22% of health professionals). A majority of teachers (71%) and health professionals (74%) identify as female. Most teachers (79%) and health professionals (62%) have 11 or more years of experience in their professional field, and most (80% of teachers and 90% of health professionals) have at least a master's degree (not shown in the table). Administrative data on the demographic characteristics of the staff in DPSCD was not available, so we are not able to fully assess whether our sample of respondents is comparable to the district overall.

Table 3 shows the prevalence of mental health symptoms and trauma exposure among the student sample and how these vary by students' background characteristics. Many DPSCD students have experienced traumatic events; 41% have experienced 1-3 ACEs and 18% have experienced 4+ ACEs. Many students reported experiencing symptoms of both depression and anxiety. Forty-five percent of the sample indicated mild (27%) to moderate (18%) rates of depression and 16% indicated severe depressive symptoms. Similar patterns can be seen in rates of anxiety, with 45% reporting mild (28%) to moderate (17%) anxiety and 10% severe anxiety. Approximately 22% of students reported having thought seriously about suicide in the past year.

Several groups of students reported particularly high rates of ACEs, depression and anxiety symptoms, and suicidality. Students who identified as non-binary, transgender, or LGBQA+ had higher rates of depression and anxiety symptoms and suicidal thoughts (e.g., 47% of LGBQA+ indicated suicidal thoughts compared to 18% of non-LGBQA+ students ($t=26.04$, $p<0.0001$)). Girls reported more symptoms of depression and anxiety than boys (e.g., 20% of girls compared to 11% of boys indicated severe depression symptoms ($t=9.84$, $p<0.0001$)). Students who experienced homelessness were also more likely to report symptoms of depression ($t=15.17$, $p<0.0001$) and anxiety ($t=12.77$, $p<0.0001$), and to report more ACEs ($t=23.00$,

$p < 0.0001$). Students who identified as multiracial also report more ACEs ($t = 11.2$, $p < 0.0001$).

Hispanic/Latinx students reported fewer ACEs ($t = 4.37$, $p < 0.0001$) and were less likely to report thoughts of attempting suicide ($t = 2.87$, $p = 0.004$) than students of other races or ethnicities.

Despite the high rates of mental health symptoms, a substantial number of students reported not accessing any support services (Supplementary Table A). Of those who indicated severe depression, 37% said they had accessed no community or school resources. Similarly, one-third of those who seriously considered suicide had not accessed any services. Those who did seek help were most likely to turn to a teacher (25% of students) or a school psychologist, social worker, or counselor (21% of students). Students were more likely to seek help from teachers or school health professionals than any community resource. Doctors were the next most cited resource, with 16% of students indicating they received help from their doctor.⁶⁷

Data collected from staff surveys pointed to specific areas in which they desired more training and support (Table 4). Teachers and health professionals both indicated substantial interest (over 75% of respondents in both groups) in learning about best practices for supporting students affected by depression, anxiety, trauma, or PTSD. The majority (over 60%) of teachers and health professionals were also interested in strategies for self-care and coping with burnout or vicarious trauma. Overall, 95% of all respondents showed interest in at least one mental health professional development option suggested.

Consistent with the desire for professional development related to self-care and coping with burnout, findings indicated that teachers in particular experienced a high degree of burnout/exhaustion. As shown in Table 5, the mean burnout score for teachers was 2.51 and for health professionals was 1.89 on a scale of 1-4. One study of Swedish professionals found that scores over 2.25 were negatively correlated with health and other outcomes.⁶⁸ Approximately

71% of teachers and 59% of SPs reported feeling tired before arriving at work, 65% of teachers and 48% of SPs reported feeling worn out and weary after work, and 60% of teachers and 40% of SPs reported needing more time after work to relax and feel better.

Finally, despite the significant role schools play in the identification of student suicide risk and the unique potential school staff have to intervene and connect students to care, survey results showed that only 38% of all DPSCD staff (including 36% of teachers and 44% of health professionals) said they were aware of a protocol or system in place at their school to screen or identify students in need of mental health services. Among staff who knew of these procedures, only 17% reported that existing protocols work well or very well.

School mental health recommendations. Following data analysis, a summary report based on the findings was developed, which included recommendations for staff professional development and student programming. The report was presented to several audiences, including the superintendent's cabinet, building principals, and the social work and counseling departments. A collaborative process, led by DPSCD's Deputy Superintendent, resulted in identification of a set of priorities.⁶⁹

Because student surveys identified very high rates of anxiety, depression, suicidal ideation and trauma exposure, **universal education and awareness regarding the mental health needs of DPSCD students was identified as a first priority.** In response, the school mental health training and implementation program team collaborated with DPSCD and community leaders to co-deliver a training to all staff on the signs and symptoms of common mental illnesses and ways in which mental health concerns can impact classroom engagement, behavior, and performance.

Given survey findings that indicated an overwhelming interest in identifying effective

strategies for helping students cope with depression, anxiety, trauma, and PTSD, the second priority was **building school mental health professional expertise in evidence-based mental health care approaches**. In response to the COVID-19 pandemic, the team provided training to approximately 250 DPSCD counselors, social workers, and others in the *Coping with COVID-19* (CC-19) program,⁷⁰ a skills-based CBT and mindfulness group intervention designed to address COVID-related mental health concerns. DPSCD staff subsequently delivered ~250 student individual or group sessions during the 2020-21 school year.

Since the next most widely endorsed item regarding professional development was a desire for training on self-care, burnout and vicarious trauma, additional programming reaching approximately 4,000 administrators, staff, and families focused on effective self-care strategies.

Finally, the district and the study team identified **promoting timely and accurate identification of mental health concerns in students, and improving student suicide risk identification and referral** as a third priority. On surveys, a significant portion of students with mental health problems indicated they were not receiving any services; staff indicated that effective tools were not in place to identify and refer students to services. During the 2020-21 school year, the study team and DPSCD collaboratively developed a universal student mental health screening tool, which was distributed by the District to more than 21,000 students in grades 3-12 and used to refer students to a variety of support services. A partnership was also formed between DPSCD, the study team, and the Children's Hospital of Michigan Zero Suicide Work Group to adapt and implement a student suicide risk identification, referral, and communication tool.

Discussion

Results from this study shed light on school mental health needs, particularly for youth of color. Findings demonstrate that DPSCD students experience high rates of trauma exposure, depression, anxiety, and suicidal ideation. With the exception of anxiety, rates are all well above national averages. For example, the National Survey of Children's Health (2017-18) examined exposure to several ACE items among students aged 12-17.⁷¹ Compared to this national sample, DPSCD students were more than five times as likely to have reported witnessing neighborhood violence (33% vs. 6%), three times as likely to indicate that they had witnessed domestic violence (24% vs. 7%), and twice as likely to say that a parent or guardian had served time in jail (18% vs. 9%). Similarly, the National Comorbidity Survey-Adolescent Supplement estimated that 14% of adolescents (age 13-18) have moderate to severe depression,⁷² yet in DPSCD, this rate was 34%. The most recent YRBS data indicates that 18.8% of students had seriously considered suicide in the past year,⁷³ compared to 22% of DPSCD students.

Available research on suicidal ideation and attempts among Black youth suggests that suicide attempts by Black boys are increasing and are more likely to be lethal or result in serious self-harm.⁷⁴ While Black male students in our survey reported lower rates of suicidal ideation than other race or ethnicity categories, the rate of suicidal ideation among Black male DPSCD students (13.2%) was higher than the national average for Black male students in the 2019 YRBS (10.7%).⁷⁵ Students who identify as LGBQA+ were also significantly more likely to report symptoms of depression and to report having suicidal thoughts compared to their peers. This is consistent with the 2019 YRBS finding that 47% of students who identify as lesbian, gay, or bisexual had considered suicide in the last 12 months.⁷⁶

The findings also indicate a high level of need for staff support and professional development. Teachers and school health professionals all expressed a desire for more training in

self-care, coping with burnout, and preventing vicarious trauma. Burnout was particularly high among teachers. Both teachers and school health professionals indicated a need for professional development regarding best practices for supporting students affected by depression, anxiety, or trauma exposure, at rates that were substantially higher than what has been found in prior research. For example, 45% of educators in the Moon et al. (2017) study expressed an interest in “understanding trauma” compared to 58% of the DPSCD sample who indicated an interest in “general information on trauma or PTSD” and 38% expressed interest in “suicide prevention and education” compared to 53% of teachers in DPSCD.^{77,78}

Implications These findings underscore that mental health needs vary substantially based on community context, and that communities contending with poverty and environmental stress are facing disproportionate levels of need. In districts like DPSCD, addressing the self-care needs of staff is clearly a high priority—without responding to high rates of vicarious trauma and burnout, providing effective support to students would remain compromised. Further, given the high rates of mental illness and trauma exposure, substantial resources and comprehensive, system-wide approaches are likely needed.

Limitations

Survey responses may under-represent chronically absent students, students with low reading levels, and students at neighborhood schools (versus examination or application schools). Aside from a relatively high response rate, we do not have good information about the representativeness of staff surveys. A technical error required interruption of student survey data collection after gathering 935 survey responses. After resolving the issue, the survey was relaunched. This interruption likely created some duplicates that could not be identified.

Dropping these 935 responses does not meaningfully impact findings; they were retained for completeness, since we believe that there were few actual duplicates.

Finally, all surveys were conducted prior to the COVID-19 pandemic and may underestimate current levels of need.

Conclusions

Substantial numbers of DPSCD students are experiencing symptoms of depression and anxiety, and many who need care are not accessing it. Addressing the mental health needs of students is a high priority, but staff need more training and support.

Academia has a tarnished history of conducting research in marginalized or under-resourced communities, while overlooking the responsibility to leverage new information to promote public health and social equity.^{79,80} A key goal of this research was to utilize data collection to inform an established collaborative partnership between our study team and DPSCD with an explicit, shared goal of improving student, staff, and community well-being. DPSCD leadership and staff were integral in shaping a vision for future school mental health programming based on findings. This study demonstrates one way that place-based data and community research engagement can be leveraged to set priorities and implement district-wide, comprehensive policies and practices that are directly tailored to the local community.

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Table 1. Description of Student and Staff Survey Items, Response Options, and Coding Approach

Student Survey Items	Response Options	Variable Coding
Adverse Childhood Experiences (10 items)	Please read the statement...and select any that have happened to you. (1=yes, this happened to me, 0=no, this did not happen to me)	None=proportion who endorsed no items 1-3=proportion who endorsed 1 to 3 items 4+=proportion who endorsed four or more items
PHQ-9A† (9 items)	Over the past 2 weeks, have how often have you been bothered by any of the following? (0=not at all, 1=several days, 2=more than half of days, 3=nearly every day)	0-4=none/minimal depression 5-9=mild depression 10-14=moderate depression 15-27=severe depression
GAD-7‡ (7 items)	Over the past 2 weeks, have how often have you been bothered by any of the following? (0=not at all, 1=several days, 2=more than half of days, 3=nearly every day)	0-4= none/minimal anxiety 5-9=mild anxiety 10-14=moderate anxiety 15-21=severe anxiety
Suicidal Thoughts (1 item)	In the past year, did you ever seriously think about attempting suicide? (1=yes, 0=no)	Proportion who indicated yes.
Student Services Questionnaire (22 items)	Which school (community) resources have you used in the past year to help with stress or related concerns? Select all that apply. (1=used resource, 0=did not use resource)	Proportion who indicated they had not used any of the listed school or community resources. Proportion who indicated they had used the following: teacher; school psychologist, social worker, counselor; coach or activity/club leader; doctor.
Staff Survey Items	Response Options	Variable Coding
Interest in Professional Development Topics (9 items)	What topics would be of most interest to you for future professional development offered at your school? (1=interest, 0=no interest)	Proportion who indicated this professional development topic was of interest.
Oldenburg Burnout Inventory (8 items)	Please indicate your opinion regarding the following statements (e.g. "When I work, I usually feel energized"). (4=strongly agree, 3=agree, 2=disagree, 1=strongly disagree)	Proportion who agree or strongly agree with each item. Overall score is the average of the eight items. When an item response is missing, the average is calculated based on the completed answers.
Risk Identification Protocol (2 items)	Is there a formal system in place in your school to screen or identify students in need of mental health services? (1=yes, 0=no)	Proportion who indicated yes.
	If yes, how well is that system working? (1=does not work at all, 2=works a little bit, 3=works, 4=works moderately well, 5=works very well)	Proportion who indicated the system worked moderately or very well.

Notes

† PHQ-9A = Patient Health Questionnaire - 9 Item, Modified for Adolescents

‡ GAD-7 = Generalized Anxiety Disorder Scale 7-Item

Table 2. Demographic Characteristics

	Student Survey Respondents		8th-12th Grade Demographics, Administrative Data [†]		Teacher Survey Respondents [‡]		Health Professional Survey Respondents [‡]	
	n	%	n	%	n	%	n	%
Full Sample	10,747	100.0	17,896	100.0	2,153	100.0	199	100.0
Race/Ethnicity[§]								
American Indian/Alaska Native	177	1.6	32	0.2	7	0.3	0	0.0
Asian	268	2.5	354	2.0	31	1.4	1	0.5
Black/African American	5,831	54.3	14,774	82.6	1,043	48.4	100	50.3
White	77	0.7	398	2.2	540	25.1	44	22.1
Hispanic/Latinx	1,077	10.0	2,396	13.4	42	2.0	3	1.5
Multiracial	1,444	13.4	7	0.0	90	4.2	13	6.5
Middle Eastern/North African	57	0.5	N/A	—	6	0.3	0	0.0
Native Hawaiian/Pacific Islander	14	0.1	25	0.1	2	0.1	0	0.0
Other	53	0.5	N/A	—	256	11.9	2	1.0
Prefer not to answer	303	2.8	N/A	—	23	1.1	23	11.6
Missing	1446	13.5	N/A	—	113	5.2	13	6.5
Gender Identity								
Female	4,961	46.2	9,127	51.0	1,519	70.6	148	74.4
Male	4,071	37.9	8,859	49.5	363	16.9	21	10.6
Non-binary/other	104	1.0	N/A	—	5	0.2	0	0.0
Prefer not to answer	151	1.4	N/A	—	158	7.3	19	9.5
Missing	1460	13.6	N/A	—	108	5.0	11	5.5
LGBQA+[¶]								
Yes	1,596	14.9	N/A	—	N/A	—	N/A	—
No	7,370	68.6	N/A	—	N/A	—	N/A	—
Missing	1,781	16.6	N/A	—	N/A	—	N/A	—
Transgender								
Yes	371	3.5	N/A	—	N/A	—	N/A	—
No	8,641	80.4	N/A	—	N/A	—	N/A	—
Missing	1,735	16.1	N/A	—	N/A	—	N/A	—
Homeless								
Yes	1,253	11.7	N/A	—	N/A	—	N/A	—
No	7,888	73.4	N/A	—	N/A	—	N/A	—
Missing	1,606	14.9	N/A	—	N/A	—	N/A	—
Grade								
8th	2,083	19.4	3403	19.0	N/A	—	N/A	—
9th	2,005	18.7	4223	23.6	N/A	—	N/A	—
10th	1,782	16.6	3591	20.1	N/A	—	N/A	—
11th	1,925	17.9	3499	19.6	N/A	—	N/A	—
12th	1,384	12.9	3270	18.3	N/A	—	N/A	—
Missing	1,568	14.6	N/A	—	N/A	—	N/A	—
School type								
Neighborhood school	4,950	46.1	10,175	56.9	1,670	77.6	156	78.4
Examination school	3,848	35.8	4,941	27.6	181	8.4	9	4.5
Application school	1,758	16.4	2,870	16.0	292	13.6	26	13.1
Missing	191	1.8	N/A	—	10	0.5	8	4.0

Notes

Percentages may not add to 100% due to rounding. Demographic questions were asked at the end of the survey and around 13% of students discontinued the survey before reaching these questions. Rates of missingness are much smaller (less than 3%) for items earlier in the survey.

[†] For students, N/A indicates that this data was not collected at the district level.

[‡] For teachers and health professionals, N/A indicates this question was not asked in the survey.

[§] The survey allowed students to self-report any race that applied to them, and the study team created a Multiracial category based on students who identified as more than one race. Students could also self-identify as “other”; 53 chose to do so.

[¶] LGBQA+ = gay, lesbian, bisexual, pansexual, asexual, queer, questioning or unsure

Table 3. Rates of ACEs, Depression, Anxiety, and Suicidal Thoughts by Student Characteristics

	<u>Survey respondents</u>	<u>ACEs[†]</u>			<u>Depression Symptoms</u>			<u>Anxiety Symptoms</u>			<u>Suicidal Thoughts</u>	
	n	0	1 to 3	4+	None	Mild/Mod.	Severe	None	Mild/Mod.	Severe	No	Yes
	%	%	%	%	%	%	%	%	%	%	%	%
Full Sample[‡]	10,747	36.1	41.2	18.0	36.6	45.1	15.7	42.8	45.1	10.2	76.5	22.4
Race/Ethnicity												
American Indian/Alaska Native	177	40.7	39.0	13.6	44.1	39.0	10.7	50.3	39.5	6.8	71.8	27.1
Asian	268	50.7	36.6	9.7	27.6	47.0	23.5	35.1	50.7	12.7	82.1	16.8
Black/African American	5,831	34.4	44.4	18.9	36.8	45.9	15.4	43.7	45.7	9.6	77.5	22.0
White	77	39.0	32.5	23.4	40.3	37.7	18.2	45.5	40.3	13.0	71.4	26.0
Hispanic/Latinx	1,077	49.1	37.7	10.9	41.8	43.9	13.1	48.5	41.8	9.1	84.5	14.8
Multiracial	1,444	28.9	41.2	28.0	30.3	47.6	20.8	34.5	49.8	14.6	68.0	31.3
Other/Prefer not to answer [§]	427	49.6	34.7	9.6	38.6	40.5	15.0	45.0	43.6	7.5	76.1	22.7
Missing	1,446											
Gender Identity												
Female	4,961	32.1	44.8	23.2	29.9	50.3	19.8	35.1	51.5	13.4	72.0	28.0
Male	4,071	44.7	41.8	13.4	47.0	42.1	10.9	54.1	40.0	5.9	85.1	14.9
Non-binary/Other/Prefer not to answer	255	31.0	41.7	27.4	23.8	40.3	35.9	30.2	49.6	20.2	58.8	41.2
Missing	1,460											
LGBQA+[¶]												
Yes	1,596	18.8	44.7	36.5	17.3	49.4	33.4	24.0	55.2	20.8	52.8	47.2
No	7,370	41.2	43.1	15.7	40.8	45.9	13.3	46.9	44.7	8.4	81.9	18.1
Missing	1,781											
Transgender												
Yes	371	30.3	49.2	20.5	31.6	45.0	23.4	37.9	53.2	8.9	65.3	34.7
No	8,641	37.6	43.2	19.3	36.9	46.7	16.4	43.1	46.3	10.6	77.6	22.4
Missing	1,735											
Homeless												
Yes	1,253	18.3	43.8	37.9	23.3	48.6	28.1	27.6	56.8	15.5	58.9	41.1
No	7,888	39.5	43.9	16.6	38.8	46.5	14.7	45.3	45.0	9.8	79.9	20.1
Missing	1,606											

Notes

Table reads: Among American Indian/Alaska Native students 40.7% reported zero ACEs, 39.0% reported 1-3 ACEs, and 13.6% reported experiencing 4+ ACEs.

All characteristics (e.g., race/ethnicity, gender identity, etc.) were significantly different across ACEs, symptoms of depression and anxiety, and suicidal thoughts at $p < 0.05$.

[†] ACEs = Adverse Childhood Experiences

[‡] 506 students did not respond to the ACEs questions, 272 did not respond to the PHQ-9 question, 201 did not respond to the GAD-7 question, and 114 did not answer the question on suicidal ideation.

[§] Other/Prefer not to answer category includes the following: Middle Eastern/North African, Native Hawaiian or Pacific Islander, Other, Prefer not to answer

[¶] LGBQA+ = gay, lesbian, bisexual, pansexual, asexual, queer, questioning or unsure

Table 4. Teacher and Health Professional Interest in Professional Development Topics

	Teachers (n=2,088)	Health Professionals (n=194)
	%	%
Which professional development topics would be of most interest to you?[†]		
Best practices for supporting students affected by trauma or PTSD ^{‡§}	76.2	75.3
School staff self-care, coping with burnout, or vicarious trauma	63.3	69.1
General information about mental illness	62.5	43.8
General information about trauma or PTSD	58.3	47.9
Strategies for working with parents of students impacted by behavioral health concerns	55.0	61.3
Best practices for supporting students affected by depression or anxiety	77.6	78.4
Suicide risk identification or prevention or intervention	53.5	57.7
None-training in these topics is not of interest to me	1.5	3.1

Notes

[†] Staff could endorse as many items as they wished.

[‡] Wording differed slightly for teacher respondents ("mental illness" instead of "PTSD").

[§] PTSD = post-traumatic stress disorder

Table 5. Teacher and Health Professional Burnout

	Teachers (n=2,066)	Health Professionals (n=196)
	% Agree/Strongly Agree	% Agree/Strongly Agree
There are days when I feel tired before I arrive at work	70.8	59.3
After work, I tend to need more time than in the past in order to relax and feel better	64.8	48.2
After my work, I usually feel worn out and weary	59.7	40.2
During my work, I often feel emotionally drained	56.1	38.2
After working I do not have enough energy for my leisure activities	53.3	32.7
When I work, I usually do not feel energized	33.2	31.2
I cannot tolerate the pressure of my work very well	20.7	13.1
Usually I cannot manage the amount of my work very well	14.3	14.1
Mean burnout score[†]	2.51	1.89

Notes

† Mean burnout score ranges from 1 (lowest burnout) to 4 (highest burnout), calculated based the average answers to these eight items. When an item response is missing the average is calculated based on completed answers.