



# Predictors of Disparities in Access and Retention in School-Based Mental Health Services

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## Abstract

Despite promising evidence that school-based health centers (SBHCs) and school mental health (SMH) services can reduce disparities in access to mental health care for underserved populations, little is known about what predicts retention of youth in SMH services. This study aimed to identify individual- and school-level factors associated with access and retention in mental health services provided in SBHCs. Existing data were analyzed for 17,348 students (2205 who received SMH services) who attended 17 middle and high schools in an urban school district. Student-level predictors included sex, race/ethnicity, and mental health need at intake. School-level predictors included grade level (middle vs. high school), student/teacher ratio, percent of white students, and percent of students receiving free or reduced lunch. Hierarchical generalized linear modeling was used to examine the association between student- and school-level variables and retention in care. White, Latino, and Asian students were less likely to access SMH services; multiracial and Native American students were more likely to access services, and African-American students were no more or less likely. Hierarchical models found that retention in services was more likely for female students, those who presented with social/educational problems, internalizing problems, and trauma/abuse/neglect, and less likely for Asian students. Retention was also more likely for students in middle schools, schools with a lower student/teacher ratio, and schools with a smaller percentage of students eligible for free or reduced lunch. While SMH services show promise in increasing access for underserved groups, ensuring equitable retention of students in care will likely require concerted effort focused on consistently engaging students and ensuring quality of care.

**Keywords** Disparities · School mental health · Access to care · Retention

## Introduction

Children and adolescents' underutilization of mental health services is a significant public health problem. Although over 18 million children and adolescents experience mental health problems, only a third of those youth receive treatment (Costello, Foley, & Angold, 2006; Merikangas et al., 2011). Youth of color are significantly less likely to access mental health care than their white peers despite similar levels of need for services (Cauce et al., 2002; Cook, Barry, & Busch, 2013; Garland et al., 2005; Snowden & Yamada,

2005). Further, research indicates that even when youth of color initiate mental health services, they are more likely to terminate prematurely (Haan, Boon, Jong, Geluk, & Vermeiren, 2014; Wolf, Dulmus, Maguin, & Perkins, 2014). These disparities are troubling given research has consistently indicated that unmet mental health needs contribute to negative outcomes for youth, including substance abuse and suicide, and a range of outcomes that occur disproportionately for low-income youth and youth of color, such as school dropout, youth violence, and juvenile justice involvement (Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005; Jane Costello et al., 2006; Kessler et al., 2012).

Schools provide convenient access points for health, mental health, and other services, reducing barriers to treatment that plague traditional outpatient settings, such as transportation, health insurance, and parental involvement (Pullmann, Bruns, Daly, & Sander, 2013; Pullmann, VanHooser, Hoffman, & Heflinger, 2010). Schools may be particularly

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effective in promoting access to care for historically underserved groups, such as youth from lower socioeconomic backgrounds and minority racial and ethnic groups (Allison et al., 2007; Juszczak, Melinkovich, & Kaplan, 2003; Lyon, Ludwig, VanderStoep, Gudmundsen, & McCauley, 2013; Soleimanpour, Geierstanger, Kaller, McCarter, & Brindis, 2010). A study of 12 school-based health centers (SBHCs) in northern California found SBHCs provided increased access to health care for ethnic and racial minority and uninsured or underinsured students and that a majority of SBHC users reported that the SBHC was their primary source of care for counseling services (Soleimanpour et al., 2010). Another study focused on school mental health (SMH) services found that Latino adolescents were four times more likely to be referred to services than Asian students (Guo et al., 2013).

Ecological theories for understanding mental health care help-seeking and utilization, especially among ethnic minority youth, highlight organizational and social influences, such as referral systems and peer networks, as well as individual influences on adolescents' pathways into services (Cauce et al., 2002). Ecological frameworks are also applicable to access and retention in SMH services. Several factors at the organizational and individual levels influence disparities in mental health service use. Racial and ethnic disparities in mental health service use vary by the setting in which they are provided (e.g., schools) even when student need for services, socioeconomic status, and a range of other relevant variables are controlled (Anyon, Moore et al., 2013; Burns et al., 1995; Gudiño, Martinez, & Lau, 2012).

### Access to SMH Services

School contextual factors such as school size, organization (e.g., student/teacher ratio), and student composition influence access to and utilization of SBMH services (Gottfredson & Gottfredson, 2001; Waters, Cross, & Runions, 2009; Wilson, Gottfredson, & Najaka, 2001). For example, several researchers have found an association between various aspects of school organizational and structural characteristics and the level of implementation of school-based prevention programs and associated outcomes (Bradshaw, Koth, Thornton, & Leaf, 2009; Payne, Gottfredson, & Gottfredson, 2006). Some important school characteristics include size and number of students in the school, instructional and management characteristics, and school level (e.g., elementary, secondary), which can lead to differential outcomes (Gottfredson & Gottfredson, 2001; Waters et al., 2009; Wilson et al., 2001). For example, elementary, middle, or high school levels may play an important role in expected outcomes (Eccles & Roeser, 2011; Stone et al., 2009). A recent study comparing differences in school-level characteristics found participants in elementary schools to rate characteristics of the learning environment higher than those in

high schools, regardless of whether the school had a SBHC (Strolin-Goltzman et al., 2012).

At the individual level, students' racial/ethnic background influences the how school staff and clinicians refer students to SMH services as well as the diagnoses received. School staff members' perceptions of students' mental health concerns are often racially and culturally biased. School staff members tend to initiate referrals in response to disruptive behavior, learning difficulties, and truancy, not the full range of problems that constitute need for health services (Chang & Sue, 2003; Costello & Janiszewski, 1990; Zwaanswijk, Ende, Verhaak, Bensing, & Verhulst, 2007). This tendency may shape disparities in service use and retention. For example, only externalized behaviors predict the use of mental health services by youth of color in educational settings, and racial group differences in service use appear to be more pronounced among youth with internalized symptoms (Gudiño et al., 2012).

### Retention in SMH Services

Despite promising evidence that both SBHCs and SMH can enhance *access* to care for underserved populations, the effectiveness of SMH services may be undermined by difficulties with *retention* in care (de Haan, Boon, de Jong, Hoeve, & Vermeiren, 2013; Kazdin & Mazurick, 1994; Miller, Southam-Gerow, & Allin, 2008). Across all mental health service settings, at least 20% of clients drop out of therapy prematurely (Swift & Greenberg, 2012), with some studies finding rates up to 75% (Aubuchon-Endsley & Callahan, 2009; Callahan et al., 2014; de Haan et al., 2013). In the current study, retention refers to individuals who attend at least one appointment after the initial visit (Lau & Weisz, 2003; Miller et al., 2008). Clients who terminate after only one session are particularly likely to have poor outcomes, with approximately one-third of these clients exhibiting worse symptoms at follow-up (Pekarik, 1983, 1992). This is particularly problematic for SMH, given previous research has found the modal number of sessions in one district's SMH initiative was one (Walker, Kerns, Lyon, Bruns, & Cosgrove, 2010). Although little is known about retention in SMH, research has identified student factors that predict service retention in community and specialty mental health. Generally speaking, underserved populations (low socioeconomic status and ethnic minority groups) are most vulnerable to premature termination (de Haan et al., 2013; Fenger, Mortensen, Poulsen, & Lau, 2011). Among ethnic minority clients, African-American clients may be particularly likely to terminate prematurely (Miller et al., 2008). Children who have more severe diagnoses, a history of psychiatric hospitalization, and private health insurance tend to receive more services (Harpaz-Rotem, Leslie, & Rosenheck, 2004). Only one previous study has examined post-referral

differences in utilization of SMH services. This study found that differences may occur between students who decide to enroll in services and continue treatment versus those who are referred to services but do not continue with treatment (Guo et al., 2013).

Much of the literature on treatment retention has focused on individual-level variables, but there is reason to suspect that organizational factors are also important. School contextual factors (e.g., grade level, size, racial/ethnic composition, and school climate) influence access to and use of SMH services (Billy et al., 2000; Glisson et al., 2007; Gottfredson & Gottfredson, 2001; Gottfredson, Jones, & Gore, 2002; Waters, Cross, & Runions, 2009; Wilson, Gottfredson, & Najaka, 2001). Research also shows that schools with high student mobility, discipline problems, high rates of suspensions, and low student attendance are more likely to have problems implementing evidence-based behavioral health programs (Gottfredson & Gottfredson, 2001; 2002).

**The Current Study**

Although research has determined that SMH improves access to mental health services, especially for underserved populations of youth (Allison et al., 2007; Brindis et al., 2003; Lyon et al., 2013; Soleimanpour et al., 2010), few studies have investigated retention in SMH. Moreover, research that has been conducted rarely controls for factors that may actually influence the need for services, such as diagnosis, relying instead on self-report surveys. Finally, there has been little research conducted in the last decade investigating school-level predictors of SMH access.

To improve mental health outcomes for vulnerable populations of youth, it is imperative to better operationalize and understand the reasons for disparities in access to and retention in SMH services. However, little is known about the relative contribution of organizational (e.g., school) and individual (i.e., student) factors and how they influence disparities in SMH access and retention. The current study sought to inform our understanding by analyzing school and

service use data from a long-standing SBHC initiative that includes a well-developed SMH component. The objective of this study was to determine which factors contribute to disparities in access (i.e., entering treatment) and retention (attending at least one session of treatment beyond intake) of SMH services (Miller et al., 2008). Specifically, we sought to (1) identify racial disparities in access to SMH services, (2) identify racial disparities in retention of SMH services, and (3) determine which student and school characteristics are associated with disparities in retention in SMH services provided in these SBHCs. We hypothesize that access to and retention in SMH services will vary by race, diagnosis category, and school-level variables.

**Method**

**Study Context**

The context for the study was a SBHC initiative in a public school district in a large, western US city. SBHCs in this district provide integrated primary care and mental health services. Students are identified for mental health and medical services through routine risk assessment performed by healthcare providers, referrals from school intervention teams, targeted screening by school nurses, and self-referral. Staffing for the SBHCs typically consists of a full-time nurse practitioner, a full-time, masters-level mental health clinician, and a half-time administrative assistant. The current study focused on SMH services provided in SBHCs operating in the district’s 17 secondary schools.

**Sample**

The overall population includes 17,348 students who attended the 17 middle and high schools with SBHCs during the 2015–2016 school year (Table 1). Approximately 36% of these students received SBHC services. Of these, our primary sample of interest includes 2205 middle and

**Table 1** Rate of SMH service access by race

Race/ethnicity	Population		Accessed SMH		Did not access SMH		Odds ratio (OR) <sup>a</sup>	95% CI
	N	%	N	%	N	%		
African-American (Black)	3511	20	455	21	3056	20	1.03	(0.93, 1.13)
Native American	66	0.4	26	1	40	0.3	4.51***	(2.31, 4.23)
Asian/Pacific Islander	3808	22	415	19	3393	22	0.80***	(0.74, 0.91)
Hispanic (Latino)	2358	14	252	11	2106	14	0.80**	(0.72, 0.93)
White	6540	38	736	33	5804	38	0.81***	(0.76, 0.90)
Multiracial	1065	6	321	15	744	5	3.30***	(2.36, 2.88)

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001

<sup>a</sup>Odds ratios compare each group against all other groups

high school students (13% of the total school population) who used SMH services in the SBHCs during this year. Nineteen of these students (0.8%) were excluded because race or diagnosis data were missing. As shown in Table 1, SMH service users were 21% African-American, 19% Asian/Pacific Islander, 33% Caucasian, 11% Hispanic/Latino, 15% multiracial, 1% American Indian. Females make up about 68% of the sample, and males include 31% of the sample.

## Data Sources

This study analyzed data from two sources. First, we accessed publicly available aggregate school-level data (e.g., school student/teacher ratio, percent of white students at the school, and percent of students eligible for free and reduced lunch). The second data source is the SBHC service utilization database. This database houses the service records for all students that access the SBHC and includes information on student demographics, dates of services, intake data (e.g., initial diagnosis codes), and service use data (e.g., dates of service, procedure codes).

## Measures

### Dependent Variables

*SMH service access* Student-level SMH service use was based on provider-reported documentation in the SBHC service utilization database. Service access was measured at the student population level. Access was a dichotomous variable defined as using SMH services in the SBHC at least one time, as compared to no use.

*SMH service retention* Retention was computed only for students who accessed SMH services in the SBHC. Retention was a dichotomous variable defined as using SBHC mental health services two or more times (retained) versus a single visit (Lau & Weisz, 2003; Miller et al., 2008).

### Independent Variables: Student-Level Measures

*Demographics* Sex was dichotomously coded (males = 1, females = 0). Race/ethnicity was coded into dichotomous variables (1 = yes, 0 = no) for each of seven categories: African-American, Latino, White, Asian/Pacific Islander, multiracial, and Native American.

*Mental Health Need at Intake* Each student was given a brief intake assessment at first service. Service records provided either a preliminary ICD-9 or 10 diagnosis code or a reason for seeking services. These codes were used to develop a proxy for problem type and severity of mental health need. Codes were categorized using *DSM-5* diagnostic hierarchies (e.g., related codes were collapsed into “depressive disorders”), then using empirically established

diagnostic clusters (e.g., depression and anxiety are both forms of internalizing distress) (Brown & Barlow, 2004; Brown, Chorpita, & Barlow, 1998). The first, fourth, sixth, and last authors reviewed the list of codes and developed a categorization scheme via a consensus process. This process resulted in the following five need categories: (1) social/educational problems (e.g., educational circumstances, family issues, social problems); (2) internalizing problems (e.g., depression, anxiety); (3) externalizing problems (e.g., ADHD, impulse disorders, behavioral acting out); (4) trauma/abuse/neglect (e.g., rape, abuse, post-traumatic stress); and (5) non-specific problems (e.g., general counseling, stress). The frequency of each of the diagnosis categories is shown in Table 2 with 36% presenting with social/educational needs, 26% presenting with internalizing needs, 2% presenting with externalizing needs, 3% presenting with trauma/abuse/neglect, and 34% presenting with non-specific needs.

### Independent Variables: School-Level Measures

School characteristics included student/teacher ratio, % of students receiving free/reduced lunch, % white students, and school grade level (middle = 1, high school = 0). These variables were collected from school profile data which is publicly available on the district website.

## Analytic Strategy

Statistical analyses were conducted using SPSS (SPSS, 2009), Stata (“Data Analysis and Statistical Software | Stata,” n.d.), and HLM software packages (Bryk & Raudenbush, 2011). To analyze disparities in *access* to SMH services, odds ratios were calculated comparing students who accessed SMH services to the total school population by race/ethnicity. This provided information about each group’s representation in SMH services compared to the group’s representation of the total student population.

To analyze disparities in *retention* in SBHC services, prior to any inferential statistics, univariate and bivariate descriptive statistics were computed to assess distributions and associations among student- and school-level variables. Variables which were not significant in the bivariate analysis were not included in the multilevel models. Subsequently, a series of two-level hierarchical generalized linear models (HLMs) to account for students nested within schools were computed with student factors at level 1 and school factors at level 2. Simple contrast coding was used for race and mental health need, with White and non-specific problems as the reference categories. Therefore, odds ratios in these models represent each racial/ethnic group’s representation in SBHC services as compared to White students and each mental health need category as compared to non-specific

**Table 2** Descriptive and bivariate analysis of SMH retention by sex, race/ethnicity, and presenting problem

	Total sample <sup>‡</sup> (N = 2205)		One SMH session only <sup>§</sup> (%)	Two or more sessions <sup>§</sup> (%)	Odds ratio (OR) <sup>†</sup>
	%	n			
Gender					
Male	32	698	38	29	0.66***
Female	68	1507	62	71	REF
Race					
Black	21	455	24	19	0.69**
Native American	1	26	0.6	1.5	2.30
Asian/Pacific Islander	19	415	23	17	0.65**
Hispanic	11	252	10	12	1.03
White	33	736	30	35	REF
Multiracial	15	321	13	16	1.07
Presenting problem					
Social/educational	36	788	29	39	1.09***
Internalizing	26	568	14	32	1.62***
Externalizing	2	41	2.4	1.6	0.41
Trauma/abuse/neglect	3	57	1.0	3.4	2.03***
Non-specific	34	751	54	25	REF

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

<sup>‡</sup>Represents the total sample in the study

<sup>§</sup>The column percentages compare one session only to two or more sessions

<sup>†</sup>OR represents the bivariate analysis as compared to the reference group for each variable

problems. To improve interpretability of the coefficients, all level 2 covariates were grand mean centered with the exception of *school grade level*. Because the dependent variable of *retention* was dichotomous, models applied a Bernoulli distribution at level 1 with a logit-link function. Results depict unit-specific models. Estimation was computed using full maximum likelihood via EM-Laplace 2 using HLM software (Bryk & Raudenbush, 2011).

Model building followed a standard approach (Bryk & Raudenbush, 1992). First, a null model was calculated. Level 1 predictors were added based on our research questions of interest and known associations. Level 2 variables were then added to this level 1 model. Goodness-of-fit statistics were calculated using  $\chi^2$  deviance statistics between each model iteration.

## Results

### Patterns of Racial Disparity in Access to SMH Services

Of the 17,348 students in the 17 schools with SBHCs, 13% ( $n = 2205$ ) accessed SMH services in the SBHC during the period examined (see Table 1). Of the students who accessed SMH services, 33% were White; this group

comprised 38% of the total secondary school population. White students had 19% (OR = 0.81;  $p < .001$ ) smaller odds of accessing SMH services than all other students. Similarly, Latino students and Asian students had 20% (OR = 0.80;  $p < .001$ ) smaller odds of accessing SMH services than all other students. The odds of accessing services were 230% greater for multiracial students (OR = 3.3;  $p < .001$ ) and 350% greater for Native American students (OR = 4.5;  $p < .001$ ) than all other students.

### Bivariate Associations of Retention in SMH Services

As shown in Table 2, of the 2205 students who accessed SMH services, bivariate analyses revealed that males (OR = 0.66;  $p < .001$ ), Black students (OR = 0.76;  $p < .01$ ), and Asian students (OR = 0.69;  $p < .01$ ) had significantly lower odds of retention in SMH services (i.e., attending 2 or more sessions). Students presenting with social/educational (OR = 1.6;  $p < .001$ ) and internalizing problems (OR = 2.9;  $p < .001$ ) as well as trauma/abuse/neglect (OR = 3.5;  $p < .01$ ) were significantly more likely to be retained in SMH services, while students with non-specific problems (OR = 0.28;  $p < .001$ ) were significantly less likely to be retained.

## Multilevel Predictors of Disparities in Retention of SMH Services

Table 3 presents results from multilevel models examining predictors of retention in SMH services. The final model revealed that the odds of retention in services were significantly lower for male students, compared to female students (OR = 0.67;  $p < .01$ ) and Asian students, as compared to White students (OR = 0.72;  $p < .01$ ). In addition, the odds of retention in services were significantly greater for those students who presented with social/educational problems (OR = 3.27;  $p < .01$ ), internalizing problems (OR = 4.97;  $p < .01$ ), and trauma/abuse/neglect (OR = 8.87;  $p < .01$ ).

School-level variables that predicted retention in SMH services included being in middle school, as compared to high school (OR = 2.81;  $p < .05$ ), being in school with a lower student/teacher ratio (OR = 0.76;  $p < .05$ ), and being in a school with a smaller percentage of students eligible for free and reduced lunch (OR = 0.93;  $p < .05$ ). The percentage of white students in the school was not significantly related to odds of retention.

## Discussion

SBHCs and SMH services have both shown promise for increasing access to mental health care for underserved populations. However, relatively little is known about whether students from underserved groups are retained in services once they access care, and few studies have examined student- and school-level characteristics that predict access and retention. The current study found that, compared to the overall school population, there were significantly higher proportions of Native American and multiracial students who accessed SMH services, and significantly lower proportions of Hispanic, Asian, and White students accessed SMH services.

Once students accessed services, males and African-Americans were less likely to be retained. Students presenting with social/educational problems, internalizing problems, and trauma/abuse/neglect were more likely to be retained compared to students with non-specific problems. We also identified school-level characteristics that predicted retention. High school students were less likely to be retained in SMH services, as were students in schools

**Table 3** Hierarchical generalized nonlinear models predicting retention in SMH services

	Model 1 (null)		Model 2 (level 1 only)		Model 3 (final model)			
	Coefficient	SE	Coefficient	SE	Coefficient	SE	OR	95% CI
Intercept	1.15***	0.24	0.44	0.24	0.16	0.24	1.17	(0.70, 1.97)
Male			− 0.40***	0.11	− 0.40***	0.11	0.67	(0.54, 0.83)
Black			− 0.25	0.16	− 0.25	0.16	0.78	(0.58, 1.06)
Native			0.63	0.60	0.62	0.60	1.87	(0.57, 6.10)
Asian			− 0.34*	0.16	− 0.33*	0.16	0.72	(0.52, 0.99)
Hispanic			− 0.18	0.19	− 0.17	0.19	0.84	(0.58, 1.22)
Multiracial			0.05	0.17	0.04	0.17	1.04	(0.75, 1.45)
White			REF		REF		REF	
Social/educational functioning			1.18***	0.13	1.18***	0.13	3.27	(2.53, 4.22)
Internalizing			1.61***	0.16	1.60***	0.16	4.97	(3.65, 6.78)
Externalizing			0.00	0.35	0.02	0.35	1.02	(0.52, 2.03)
Past trauma			2.17***	0.42	2.18***	0.42	8.87	(3.86, 20.39)
Non-specific			REF		REF		REF	
Middle school (vs. high)					1.03*	0.44	2.81	(1.08, 7.32)
Student/teacher ratio					− 0.28*	0.12	0.76	(0.58, 0.99)
% White in school <sup>a</sup>					− 0.05	0.03	0.95	(0.90, 1.01)
% Free/reduced lunch <sup>a</sup>					− 0.07*	0.03	0.93	(0.87, 0.99)
Variance component								
Intercept, $u_0$			0.67***		0.44			
$df$	2		12		16			
Log likelihood	6626.45		6458.42		6450.41			
$p$	–		< 0.001		0.090			

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

<sup>a</sup>Grand  $M$  centered

with higher student/teacher ratios and a greater proportion of students eligible for free and reduced lunch.

### Access in School Mental Health Services

Hispanic students in our sample were less likely to access SMH services, while African-American students were proportionally represented given their representation in the student body. These results are somewhat different from previous studies which have found Hispanic and African-American students overrepresented in SBHC services (Amaral, Geierstanger, Soleimanpour, & Brindis, 2011; Anyon, Moore et al., 2013; Anyon, Whitaker, Shields, & Franks, 2013; Walker et al., 2010). This finding may suggest that African-American students are adequately accessing SMH services in the study district. Perhaps the underutilization of services by Asian and Latino students is reflective of other factors which have been associated with lower mental health care utilization among these populations such as lower levels of acculturation, lower levels of health literacy or knowledge of available services, or family factors such as less communication between parents and children (Alegria et al., 2004; Guo et al., 2013). Differences may also reflect that, unlike many of the studies cited above, the current study sought to control for students' behavioral health needs at baseline. As presented above, over half of students presented for SMH services in these SBHCs without a specific mental health diagnosis, seeking more general counseling for stress or academic issues. Further examination of the presenting problems of different types of students is warranted to both explain this finding and tailor SMH services in SBHCs to different types of students.

Consistent with previous studies, we found that Asian students are underrepresented in SMH services (Anyon, Moore et al., 2013; Anyon, Whitaker et al., 2013; Whitaker, 2015). Some research suggests that this underutilization is at least partly accounted for by under-referral of Asian students by school staff. For instance, Guo et al. (2013) found that Asian Americans in their school-based sample tended to perform better academically and endorse fewer externalizing symptoms and that this mediated racial/ethnic differences in referral to SMH. Particularly in school settings, adults may be particularly attuned to acting out behaviors and academic concerns and less able to recognize internalizing symptoms. The underutilization of SMH by Asian American students may also be accounted for by student misperceptions of SBHC services. Interviews and focus groups with Asian American high school students found that some youth perceive SBHCs as primarily providing services to students engaging in risky behaviors requiring reproductive health services (e.g., early sexual activity) and services for youth with externalizing behaviors (i.e., student who got in trouble, substance use) (Anyon, Whitaker et al., 2013). More

research is needed to understand the barriers to access to mental health care for Asian American youth and determine effective ways to engage and retain this underserved group in SMH services.

### Retention in School Mental Health Services

One of the unique contributions of this study is moving beyond a focus on access, to understanding the factors that influence retention in SMH services. The current study contributes to the nascent literature on individual-level factors associated with retention in SMH. We found that males and African-American students were significantly less likely to be retained in services. Both of these findings are consistent with previous research in school-based and community settings (Adelman, Barker, & Nelson, 1993; Amaral et al., 2011; Miller et al., 2008; Pastore, Juszczak, Fisher, & Friedman, 1998; Soleimanpour et al., 2010). At least among adult recipients of health services, ethnic minority groups (African-American, Hispanic, and Asian) report lower service satisfaction, perceive poorer quality of care, and have less confidence in their providers (Institute of Medicine, 2003; Zane, Enomoto, & Chun, 1994). Although the evidence on the effects of ethnic matching on treatment retention and effectiveness is mixed, pointing to null or small but significant effects (Maramba & Nagayama Hall, 2002; Shin et al., 2005), it should be noted that the vast majority of mental health providers in our sample were White and female. More recently, researchers have conceptualized ethnic match as a proxy for client–therapist “cognitive match” on factors such as problem conceptualization and coping orientation, which are likely to lead to enhanced therapeutic alliance and improved treatment outcomes (Zane et al., 2005). A fuller understanding of the reasons for treatment dropout among male and African-American students in school-based settings is needed.

This study found that internalizing problems, social/educational functioning problems, and problems extending from trauma/abuse/neglect were all predictive of retention in services, even after controlling for individual and school-level characteristics. These findings are in line with community-based studies showing youth who have more serious problems tended to experience greater intensity of care. Given that mental health clinicians working in SBHCs tend to be able to serve youth with a broad range of problems (evidenced here with the large percentage of students presenting for general counseling and/or with no assigned mental health diagnosis), it makes sense that students with these more serious and/or specific types of presenting problems would be relatively more likely to be engaged past one session (Harpaz-Rotem et al., 2004).

Although mental health needs related to social/educational problems, internalizing problems, and trauma/abuse

and neglect were associated with greater retention, we did not find externalizing behaviors predictive of retention in SMH services. In fact, students presenting with externalizing problems were less likely to receive more than one session. This may suggest students with these types of presenting problems are less likely to be retained in services due to perceptions of an involuntary nature of these types of referrals. Previous school-based research has found that school staff members tend to initiate referrals in response to disruptive behavior, learning difficulties, and truancy, not the full range of problems that constitute need for services (Chang & Sue, 2003; Costello & Janiszewski, 1990; Guo et al., 2013; Zwaanswijk et al., 2007). This tendency may shape disparities in service use. For example, one study found that only externalizing behaviors predict the use of mental health services by youth of color in educational settings, and racial group differences in service use appear to be more pronounced among youth with internalizing symptoms (Gudiño, Martinez, & Lau, 2012). Guo and colleagues (2013) found conduct problems mediated the relationship between ethnicity and referral to SMH services. Additional research using methods such as mediation and moderation is needed to better understand barriers to retention in SMH services and reduced disparities in mental health for underserved populations.

### Contribution of School-Level Variables

Across a number of indicators, we found that lower-resource schools tended to have lower retention in services. Specifically, student/teacher ratio and percent of students eligible for free and reduced lunch were both negatively associated with retention in SMH services. Racial and ethnic disparities in mental health service use may vary by the setting in which they are provided (e.g., schools) even when student need for services, socioeconomic status, and a range of other relevant variables are controlled (Anyon, Moore et al., 2013; Burns et al., 1995; Gudiño et al., 2012; Lyon et al., 2013). In addition, similar types of school characteristics (e.g., characteristics of students in the school, instructional characteristics, school climate, and school level) have been found to contribute to differential outcomes related to school-based services (Gottfredson & Gottfredson, 2001; Waters et al., 2009; Wilson et al., 2001). These school-level characteristics point to organizational factors that may cause a more chaotic school environment where students may be less likely to receive individualized attention and follow-up from school staff. However, research has found that SBHCs are more likely to exist in schools with larger student populations that include high percentages of nonwhite students and students eligible for free or reduced price lunches (Bersamin, Fisher, Gaidus, & Gruenewald, 2016). Future research could address ways that SBHC staff successfully navigate potentially chaotic

school environments and provide sufficient attention and follow-up to students. In addition, future research could include more malleable school-level factors, such as indicators of school climate, which could be addressed through school-level interventions.

### Limitations and Future Directions

The current study extends the existing literature on SMH by identifying student and school predictors of access and retention in school-based mental health. Nonetheless, several limitations of the study should be noted. First, our sample was drawn from SBHCs serving one school district in an urban area. Generalizability of the findings to other districts may be impacted by initiatives, policies, and other contextual factors unique to this district. For instance, while many SMH practitioners can only see students who qualify for Medicaid and/or meet diagnostic eligibility criteria, SBHC services in this district are funded by sources that allow access by all students. Second, our indicator of mental health need relied on clinician diagnosis codes at first visit. Future research may benefit from including more sensitive indicators of mental health need such as standardized measure of symptoms and functioning. In addition, given the primary focus of schools on academic outcomes, it will be important to include indicators of academic performance (e.g., attendance, grades) to examine additional predictors and outcomes of services.

### Conclusions

These limitations notwithstanding, the current study is among the first to identify student and school predictors of retention in SMH. Consistent with findings from other mental health service sectors, we found that African-American and male students and those in low-resource settings are less likely to return for a second mental health visit. These findings suggest that while SMH services show promise in increasing access to care for some underserved groups, there is significant work to be done to retain students in treatment in order to eliminate long-standing disparities in mental health status. System-level quality improvement initiatives that strive to consistently identify all students in need, engage all students, provide research-based treatment elements for all students, and use data to stay on track in these areas may support this cause.

In a finding that is somewhat inconsistent with previous research, results did not demonstrate disproportionately greater SMH service access for African-American and Hispanic students. This finding underscores the importance of ensuring that SBHCs and SMH initiatives not assume that their presence alone will address the vast disparities



in mental health care access that exist in our society. Taken together, findings from this study reinforce that, to achieve broad effects, SBHCs and SMH services must be ever striving to achieve a “triple aim” of access, efficiency, and quality of care.

## Compliance with Ethical Standards

**Conflict of interest** All the authors declare that they have no competing interests.

**Ethical Approval** The data used in this article were de-identified existing data not eligible for Human Subjects review; therefore, this article does not contain any studies with human participants performed by any of the authors.

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