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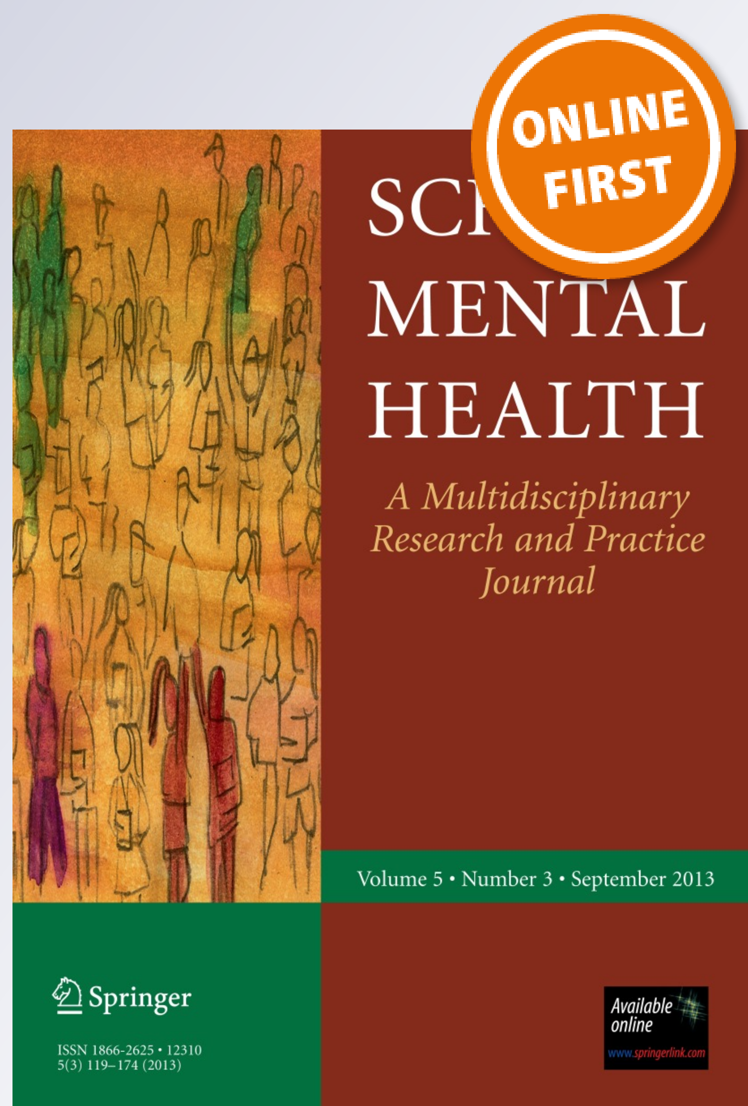

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ORIGINAL PAPER

Differences in School-Based Referrals for Mental Health Care: Understanding Racial/Ethnic Disparities Between Asian American and Latino Youth

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Abstract School-based mental health services (SBMHS) are thought to reduce access barriers and disparities in care. This study explores whether there is parity or disparity in SBMHS referral and receipt between two ethnic minority groups and identifies explanations for observed differences. Asian American and Latino students from one urban school district completed a mental health survey at the beginning of the 2010–2011 academic year assessing behavior problems and impairment. Information regarding SBMHS referral and receipt were obtained at end of the school year. Latino youth were more than 4 times more likely to be referred to SBMHS than Asian Americans. Differences in referral likelihood were partially mediated by externalizing problems, school bonding, impairment, and academic performance. However, a statistically significant direct effect of race/ethnicity remained to predict referral even after accounting for these factors. Following referral, no racial/ethnic differences were found in acceptance and receipt of treatment. These findings suggest that usual referral processes through SBMHS gatekeepers may still result in disparities in care despite equivalent access, with Asian Americans more likely to have needs unmet. However, once referred, Latino and Asian students appear to face few barriers in receiving care in schools.

Keywords Referral · Racial/ethnic disparity · Asian American · Latino · School mental health

Although one in five children evince mental health problems, most affected youth receive no treatment (Kataoka, Zhang, & Wells, 2002), setting the course for negative outcomes later in life (Hofstra, van der Ende, & Verhulst, 2002). Ethnic minority children are at greater risk of unmet mental health need than non-Hispanic white (NHW) youth, with ethnic minority youth having less overall access to care, longer delays to treatment, poorer quality of care, and more premature termination (Cauce et al., 2002; McMiller & Weisz, 1996; Snowden & Yamada, 2005). Researchers have identified a number of factors that may underlie these racial/ethnic disparities in mental health services (MHS). Practical barriers (e.g., insurance coverage and language access) and cultural barriers (e.g., problem conceptualization and beliefs about care) have been shown to disproportionately affect service use among ethnic minorities (Abe-Kim et al., 2007; Yeh et al., 2005; Gudiño, Lau, & Hough, 2008).

School-based mental health services (SBMHS) have emerged as a means to reduce such barriers to care. Services delivered in a school-setting increase access to care and reduce stigma associated with seeking services (Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007). Studies suggest that ethnic minority youth are significantly more likely to seek and receive school-based interventions than clinic-based treatment (e.g., Jaycox et al., 2010). Other studies have identified reductions in racial/ethnic disparities in critical areas of unmet need (e.g., suicidality) in

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schools compared to specialty sectors (e.g., Cummings, Ponce, & Mays, 2010).

Most research examining the success of SBMHS has focused on service use as a single outcome variable (Logan & King, 2001). Few studies have examined the individual steps that make up the larger process of help-seeking in SBMHS. (Zwaanswijk, van der Ende, Verhaak, Bensing, & Verhulst, 2009). Recent models of help-seeking point out that before an adolescent obtains MHS, adult gatekeepers around the child must first recognize his or her distress, consider possible courses of action, and develop the intention to seek or accept treatment (Shanley, Reid, & Evans, 2008). That is, problem recognition and decisions to seek or accept care by adult gatekeepers are both required prior to connecting youth to needed services. In order to better understand the pathways leading up to professional treatment, the current study examines racial/ethnic differences in referral, acceptance, and use of SBMHS and factors that may contribute to such disparities.

Research examining patterns of care have traditionally focused on contrasting rates of service use between racial majority (i.e., non-Hispanic whites) and minority groups (e.g., African Americans, Latinos) (e.g., Kataoka et al., 2002). These studies consistently point out that African American and Latino youths are less likely to be referred for and use MHS compared to non-Hispanic whites (e.g., Barksdale, Azur, & Leaf,2010). However, we know little about how different ethnic minority groups compare to one another. The current study focuses on patterns of referral and receipt between Asian American and Latino students, the largest and fastest growing ethnic minority groups in the United States, respectively. This comparison may be instructive insofar as specific barriers facing individual groups may be isolated from factors that affect care for ethnic minority and immigrant groups, in general. The particular contrast of Asian American and Latino youth provides a unique opportunity to ascertain the role of specific understudied factors relevant to unmet mental health. The two groups share some sociocultural risk factors for poor detection of mental health need; however, there are also salient differences that may render Asian Americans particularly at risk for unmet need in the school sector.

As recent immigrant groups, Latinos and Asian Americans share certain risk factors for underutilization of MHS (Abe-Kim et al., 2007; Snowden & Yamada, 2005) with levels of acculturation being linked to likelihood of mental health needs being met (Alegria et al., 2004). Families that are more acculturated appear more likely to recognize children's mental health needs, seek or accept professional help, and ultimately engage in treatment (Power, Eiraldi, Clarke, Mazzuca, & Krain,2005). Indeed, low mental health literacy, which encompasses limited knowledge about mental health problems, contributing factors, and available treatments, has been identified as a primary reason for underutilization in both Asian American and Latino communities (Coffman & Norton, 2010; Collier, Munger & Moua, 2012). Moreover, relative to NHW families, immigrant Asian American and Latino families may be less likely to share open parent–child communication as a result of the hierarchical family structures marked by expectations of deference, respect, and obligation (Fuligni, Tseng, & Lam, 1998) and dissonant acculturation resulting in greater intergenerational distance (e.g., Costigan & Dokis, 2006). Compared to NHW youth, Asian American and Latino adolescents report more difficulty and caution in discussing personal problems with their parents (Meneses, Orrell-Valente, Gundelman, Oman, & Irwin, 2006; Rhee, Chang, & Rhee, 2003). Thus, family climate in these groups may further suppress the likelihood that youth mental health problems are brought to the attention of SBMHS.

While Latinos and Asian Americans share certain risk factors for unmet need, there are also salient differences between the two groups that may contribute to different patterns of referral. Specific study of these differences and how they may explain disparities in rates of SBMHS referral between the two groups may shed light on broad factors that open or shut pathways into SBMHS. Recent findings show that Asian Americans are least likely to receive SBMHS relative to all other groups (Anyon, Whitaker, Shields, & Frank, 2013; Finer, Bear, Guo, & Lau, 2013). Given their relative academic success and lower rates of juvenile justice involvement, Asian American youth have been viewed as a model minority group with positive adjustment across school and community contexts (e.g., Sue, Sue, Sue, & Takeuchi, 1995; Suzuki, 2002). Indeed, one of the most cited differences between Asian Americans and Latinos concerns academic achievement. On average, Asian American students receive higher academic grades and standardized tests scores compared to other racial/ethnic groups, including Latinos (Tran & Birman, 2010). Asian Americans also report greater connection to schools relative to Latino youth (Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001; Jang, 2002). Relatedly, the groups differ in rates of school disciplinary encounters with Latino students being more likely to be disciplined for both minor and major offenses in school, resulting in high rates of detention, suspension, and expulsion (Skiba, Horner, Chung, Rausch, May, & Tobin, 2011). Together, these differences in school functioning suggest that Latino students may be more likely to be referred to SBMHS compared to Asian Americans.

Racial/ethnic differences have also been found for types of mental health symptoms. Asian Americans tend to score lower on externalizing problems (e.g., conduct problems,

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aggression) than NHW youth (Chang, Morrissey, & Koplewicz, 1995), while Latino adolescents have higher rates of delinquency and school deviance relative to NHWs in some samples (Smith & Krohn, 1995). Due to the disruptive nature of externalizing symptoms, such problems may be more readily identified by adult gatekeepers (Gudiño, Lau, Yeh, McCabe, & Hough, 2009). By contrast, internalizing problems (e.g., anxiety, depression), which are more distressing for the child, are more commonly found among East Asian cultures that emphasize interpersonal harmony and obedience (Weisz, Suwanlert, Chaiyasit, & Walter, 1988; Huang, Cheng, Calzada, & Brotman, 2012). Although Latino students also have high levels of internalizing problems (e.g., Martinez, Polo, & Carter, 2012), emerging comparative research suggests that Asian American children may have higher levels of internalizing problems than their Latino peers (Wight, Aneshensel, Botticello, & Sepulveda, 2005; Glover, Pumariega, Holzer, Wise, & Rodriguez, 1999; Huang et al., 2012). These differences in mental health symptoms suggest that Latino youth may be more likely to be referred to SBMHS relative to Asian Americans.

The aim of the current study is to examine whether there is parity or disparity in SBMHS referral and receipt between Latino and Asian American youths and then to isolate specific explanations for observed differences. We hypothesize that Latino students would be more likely to be referred for SBMHS than their Asian American counterparts. We propose that an observed relationship between race/ethnicity and SBMHS referral would be mediated by higher academic performance, stronger school connectedness, less school deviance, and fewer externalizing problems among Asian American students compared to Latinos. We also examine contributions of acculturation, perceived barriers to MHS, and parent–child communication to SBMHS referral and receipt, though we did not predict the groups to be differentially affected by these factors.

Method

Data Collection Site

Data were obtained from a large urban school district serving a high proportion of immigrant and low-income families. In this school district, almost one-third of students are English Language Learners and 70–81 % receives free or reduced cost lunch. The Gateway to Success Program (GSP) is the district's SBMHS program which was established to improve access to care. In this program, SBMHS referrals are made by school staff, parents, and students themselves, and a school site team (SST) triages and assigns each referral to an appropriate provider. Families who are Medicaid eligible are served by local community mental health agencies, while those youth who are under- or uninsured receive SBMHS through contracts with nearby universities with mental health graduate training programs delivered by trainees supervised by licensed professionals. As such, the contracted providers include professional providers employed in publicly funded mental health agencies (64 %) and supervised trainees in mental health fields (34 %). Thus, the SBMHS are delivered at school sites through contracted community partnerships, which is an increasingly common strategy used in school districts to provide school-based care (Foster et al., 2005). Upon linkage to a provider, the SST contacts and prepares the family for subsequent contact with the service provider. Finally, the provider contacts the student's caregiver to offer and coordinate care (Finer et al., 2013).

Participants

The GSP selected a random sample of classrooms stratified by grade and school campus to complete a mental health survey in 2010–2011. All students in selected classrooms present on the date of data collection participated, yielding a sample of 1,917 students. Students' demographic background is presented in Table 1.

Measures

Mental Health Symptoms

The Strength and Difficulties Questionnaire (SDQ) is a 25-item scale that assesses internalizing and externalizing symptoms (Goodman, 2001). Symptom severity in domains

Table 1 Characteristics of survey and referral sample

Characteristics	Survey sample			Referral sample		
	M	SD	%	M	SD	%
Age	12.6	1.96		12.62	2.05	
Grade	7.24	1.90		7.19	1.98	
Gender						
Male	986		48.6	77		50.0
Female	931		51.4	77		50.0
Ethnicity						
Asian American	936		48.8	30		19.5
Latino	865		45.1	112		72.7
Other	116		6.0	12		7.7
Language at home						
English only	–		–	90		58.4
Non-English only	–		–	35		22.7
English and other	–		–	29		18.8

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such as emotional problems, hyperactivity, and conduct problems were rated using a 3-point Likert scale from *not at all* to *certainly true*. Internalizing symptoms was considered elevated with raw scores exceeding 7 on emotional symptoms. Externalizing symptoms were considered present if youth scored above the cutoff scores of 5 and 7 on conduct problems and hyperactivity, respectively (Bourdon, Goodman, Rae, Simpson & Koretz, 2005). The SDQ demonstrated test–retest reliability and concurrent validity with Achenbach ($r = 0.59$–0.87; Goodman & Scott, 1999) and Rutter questionnaires ($r = 0.78$–0.88; Goodman, 1997). Internal consistency in the current sample was adequate for each of the subscales ($\alpha = 0.55$ to 0.66).

Functional Impairment

The Columbia Impairment Scale (CIS) is a 13-item measure that reliably assesses the extent to which a child experiences disruption in various areas of life (Bird, Shaffer, Fisher, & Gould, 1993). Using a 5-point Likert scale from *no problem* to *very bad problem*, youth rated level of impairment in interpersonal relations, broad psychopathology, functioning in school, and use of leisure time. Clinically significant functional impairment is apparent with raw scores of 15 or more (Garland, Lau, Yeh, McCabe, Hough & Landsverk, 2005). Internal consistency was satisfactory for the current sample ($\alpha = 0.82$).

Parent–Child Communication

The Lum Emotional Availability of Parents (LEAP) questionnaire consists of 30 items that assess children's perception of their communication with their mothers and fathers (Lum & Phares, 2005). Items such as "My mother asks questions in a caring manner" and "My father is willing to talk about my troubles" were rated using 6-point Likert scale from *never* to *always*. Higher scores reflect poorer communication between parents and children. The scale demonstrates strong test–retest reliability and convergent validity with established measures of parent–child relations (Lum & Phares, 2005). Given the high correlation between scores for mother and father communication in the current sample ($r = 0.55$, $p < 0.001$), a composite scale ($\alpha = 0.98$) was used to measure family communication.

Acculturation

Acculturation was measured using the 8-item Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHIMSA) (Unger et al., 2002). The AHIMSA measures ethnic interactions, cultural identification, and ethnic behaviors (e.g., "I am most comfortable being with people from …"). For each question, youth selected one of four response options: "The United States," "The country my family is from," "Both," and "Neither." The counts of each of the four response types generate four cultural orientation scores: Assimilation (the total number of "United States" responses), Separation (the total number of "The country my family is from" responses), Integration (the total number of "Both" responses), and Marginalization (the total number of "Neither" responses). We utilized the Assimilation subscale indicating greater acculturation and Separation subscale suggesting greater enculturation to the ethnic culture. The current sample had satisfactory internal consistency for the two scales ($\alpha = 0.70$ and 0.82, respectively).

School Connectedness

The GSP created a 45-item survey to evaluate students' perceptions of their school environment, covering student attitudes toward school safety, disciplinary policies, and student diversity. Given our interest in school connectedness as a predictor of service utilization, we extracted 17 items from the original measure that assessed student's sense of belonging, involvement, and satisfaction with school, concepts that have been linked to school bonding in previous literature (Libbey, 2004). Three factors were identified through an iterated principal component analysis with inspection of scree tests and evaluation of eigenvalues. Using a 4-point Likert scale from *absolutely disagree* to *absolutely agree*, youth rated their level of school bonding (8 items, e.g., "I like this school"), disenfranchisement (5 items, e.g., "I cannot get the support and help that I need at school"), and sense of agency in the school (4 items, e.g., "People are encouraged to express their views"). All item-factor loadings exceeded 0.40 with no cross-loadings. Internal consistency of the full scale ($\alpha = 0.60$) and subscales ($\alpha = 0.60$–0.83) for the current sample was adequate.

Barriers to Help-Seeking

A 9-item self-report measure was developed to evaluate practical, attitudinal, and informational barriers to seeking mental health services. Students were asked to indicate the extent to which each item would stop them from seeking mental health services at the school. Four items assessed for affective/attitudinal barriers to help-seeking (e.g., "Feeling like I have something to hide"), two assessed informational barriers (e.g., "Not knowing where to get help"), and three addressed practical barriers (e.g., "Lack of transportation"). An iterated maximum likelihood analysis confirmed extraction of the three factors. All item-factor loadings exceeded 0.40 with no cross-loadings. Internal consistency of all subscales was adequate ($\alpha = 0.63$–0.77).

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School Performance and Discipline

School performance was also assessed by the students' grade point average (GPA) for the first semester of 2010–2011. Grades ranged from 0 to 4.29 on a 4.5-scale ($M = 2.65$, SD $= 1.00$). Disciplinary encounters were calculated based on the number of tardy, unexcused, and suspended days from students' cumulative records during the 2010–2011 academic year. Previous studies have categorized absenteeism, truancy, and suspensions as measures of school infractions as these indices have been found to be associated with school functioning and impairment (Skiba et al., 2011; Mattison, 2004).

Service Utilization

Upon referral, service utilization was measured by acceptance of and engagement in treatment. When parents provided consent for their children to receive treatment, the service was considered accepted. Engagement was measured by attendance at first session and total number of sessions attended by youth and/or family members in the episode of care.

Procedures

In September 2010, all students in the stratified random sample participated in an anonymous mental health survey during designated non-instructional class time. The survey data were merged with data from student cumulative records. Data were obtained on student's grade point average at the end of first semester, and counts of student late attendance occurrences, suspensions, and expulsions by the end of school year. Data were also merged from the GSP referral tracking system to determine whether students in the survey sample were referred to care during 2010–2011 year. Given that the school district collected these data for the purposes of program evaluation, the Institutional Review Board overseeing this study approved a waiver of informed consent for this secondary analysis of the data.

Analyses

Analyses investigated the association between race/ethnicity and four dependent variables of service utilization: referral, service acceptance, attendance at first session, and number of sessions. Separate logistic regressions were conducted for binary outcome variables of referral, service acceptance, and first session attendance. Number of sessions was assessed as a continuous outcome variable using simple linear regression. For any SBMHS outcome that was significantly associated with race/ethnicity, mediational analyses were carried out. Potential mediators included those risk factors thought to be associated with likelihood of SBMHS referral, including symptoms, functional impairment, school connectedness, disciplinary encounters, academic performance, perceived barriers, and parent–child communication. Those risk factors that were significantly associated with race/ethnicity were first included in single mediation models. Next, multiple mediation was tested with simultaneous inclusion of all variables demonstrated to mediate the relationship between race/ethnicity and SBMHS outcome in the single mediation analyses. Mediation models were estimated using Mplus 6.1 using all available data with the weighted least square (WLSMV) estimator (Muthén & Muthén, 1998–2006). Mplus uses structural equation modeling to conduct bootstrap resampling for mediated effects. This provides an estimate of the standard errors and confidence intervals of indirect effects.

Results

Racial/Ethnic Differences in Mental Health Need and Entry to SBMHS

Based on SDQ norms, 23 % of the sample met criteria for at least one type of emotional or behavior problems, including emotional problems (7 %), conduct problems (7 %), and hyperactivity (8 %). As shown in Table 2, Latino students were more likely than Asian American students to report elevated conduct problems, χ^2 (1) $=$ 12.85, $p < 0.001$ and hyperactivity, χ^2 (1) $= 8.69$, $p =$ 0.003, but not emotional problems, χ^2 (1) $= 1.74$, $p =$ 0.19. Both groups were equally likely to report elevated levels of functional impairment, χ^2 (1) $= 2.44$, $p = 0.12$. Based on Substance Abuse and Mental Health Services Administration criteria (1993), students were considered to meet mental health need if they had both clinically significant symptom severity (i.e., scoring above clinical cut score on any SDQ subscale) and functional impairment (i.e., scoring above clinical cut score on CIS total scale). Results revealed that there were no racial/ethnic differences between Latino and Asian American youths (8 vs. 8 %, respectively; χ^2 (1) $= 0.061$, $p = 0.80$).

Among the sample of 1,801 Latino and Asian American students, 142 (8 %) were referred to SBMHS within the academic year. Of those referred, 114 (80 %) of caregivers consented to services for their children. Among those who declined services and provided reasons for refusal, none were receiving services outside of school. Ultimately, 85 students (75 % of those whose caregivers consented to treatment, 60 % of those referred) attended a first session (See Fig. 1). As shown in Table 2, there was a statistically significant racial/ethnic difference in probability of referral.

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Table 2 Racial/ethnic differences in clinical and school-related factors

Variable	Latinos ($N = 865$)		Asian Americans ($N = 936$)		Total ($N = 1,801$)		Analysis		
	Mean (SD)	*N* (%)	Mean (SD)	*N* (%)	Mean (SD)	*N* (%)	χ^2	*F*	*df*
GPA	2.22 (0.98)		3.06 (0.83)		2.65 (1.00)			304.85***	1, 1,400
School connectedness									
Bonding	2.80 (0.55)		2.91 (0.52)		2.86 (0.53)			16.96***	1, 1,787
Disenfranchisement	1.83 (0.50)		1.77 (0.48)		1.80 (0.49)			6.76**	1, 1,785
Agency	3.01 (0.51)		3.08 (0.48)		3.05 (0.50)			9.55**	1, 1,784
School infraction	4.25 (6.98)		1.39 (0.11)		2.77 (5.63)			124***	1, 1,799
Acculturation									
Acculturation	0.38 (0.31)		0.35 (0.29)		0.36 (0.30)			5.15*	1, 1,799
Enculturation	0.053 (0.13)		0.060 (0.13)		0.057 (0.13)			1.32	1, 1,799
Barriers									
Stigma	1.21 (1.26)		1.23 (1.26)		1.22 (1.26)			0.12	1, 1,680
Informational	0.60 (0.78)		0.55 (0.77)		0.57 (0.77)			1.77	1, 1,683
Practical	0.41 (0.76)		0.44 (0.82)		0.43 (0.79)			0.69	1, 1,662
PC Communication	2.18 (1.17)		2.46 (1.16)		2.32 (1.17)			27.41***	1, 1,479
Functional impairment	7.58 (7.48)		6.74 (6.60)		7.15 (7.06)			4.70*	1, 1,318
Symptoms									
Emotional problems	2.76 (2.31)	67 (7.8)	2.94 (2.06)	58 (6.2)	2.85 (2.19)	125 (6.9)	1.74		1
Conduct problems	1.96 (1.75)	83 (9.6)	1.55 (1.45)	49 (5.2)	1.75 (1.61)	132 (7.3)	12.85***		1
Hyperactivity	3.57 (2.18)	87 (10.0)	3.03 (2.02)	59 (6.3)	3.29 (2.12)	146 (8.1)	8.69**		1
Any elevation		175 (20.3)		130 (13.9)		305 (17)	13.19***		1
Mental health Nneed[a]		43 (8.4)		46 (8.0)		89 (8.2)	0.06		1
Mental health need met[b]		40 (93.0)		8 (17.4)		48 (6.9)	31.6***		1
Referrals		112 (12.9)		30 (3.2)		142 (7.9)	58.8***		1
Acceptance of SBMHS		88 (78.6)		26 (86.7)		114 (80.3)	0.98		1
Attendance at first session		70 (62.5)		15 (50.0)		85 (40.1)	1.54		1
Number of sessions	15.27 (9.29)		16.07 (14.54)		15.40 (10.24)			0.07	1,82

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

[a] Above clinical cutoff on a symptom scale and the impairment scale

[b] Students referred to services among those with mental health need

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Latino youth were 4.49 times more likely to be referred to care compared to Asian Americans. Moreover, among those students with mental health need (elevated symptoms plus impairment), Latinos were 63.1 times more likely to be referred than Asian Americans (93 vs. 17 %; χ^2 (1) = 31.6, $p < 0.001$). Once referred to care, Latino students were not significantly different from Asian American students in the likelihood of caregiver acceptance of services (OR = 0.56, $p = 0.33$) or initial treatment attendance (OR = 1.67, $p = 0.22$). Further, there were no racial/ethnic differences in the number of treatment sessions received.

Since statistically significant racial/ethnic disparities were limited to referrals, mediation analyses were only carried out for this variable. Table 2 reports analyses of racial/ethnic differences in demographic and clinical variables that were potentially associated with SBMHS referral. Correlations between the variables are presented in Table 3. GPA, school bonding, and sense of agency were negatively correlated with referral, while Latino ethnicity, functional impairment, infraction, conduct problems, and hyperactivity were positively associated with referral.

Compared to Asian American students, Latino youths reported more conduct problems ($F(1, 1792) = 30.81$, $p < 0.001$), more hyperactivity ($F(1, 1791) = 29.85$, $p < 0.001$), greater functional impairment ($F(1, 1318) = 4.70$, $p = 0.03$), poorer bonding ($F(1, 1787) = 16.96$, $p < 0.001$) greater school disengagement ($F(1, 1785) = 6.76$, $p = 0.01$), and lower sense of agency in school ($F(1, 1784) = 9.55$, $p = 0.002$). Latinos also reported higher levels of acculturation ($F(1, 1799) = 5.15$, $p = 0.02$) and more open communication with parents than Asian Americans ($F(1, 1479) = 27.41$, $p < 0.001$). Student cumulative records also revealed more school infractions ($F(1, 1799) = 124$, $p < 0.001$) and lower grades ($F(1, 1400) = 304.85$, $p < 0.001$) among Latino students compared to Asian American students. These variables were then subject to mediation analyses to examine their potential to account for the association between race/ethnicity and SBMHS referral. Results indicated no racial/ethnic differences in youth self-reported internalizing problems or barriers to treatment.

Mediation Analyses

Mediation analyses were conducted to determine which variables accounted for Asian American's lower rate of referral into SBMHS. Based on racial/ethnic differences in conduct problems, functional impairment, academic performance, school bonding, disenfranchisement, agency, disciplinary infractions, parent–child communication, and levels of acculturation, these variables were further explored as potential mediators.

Results of simple mediation analyses are shown in Table 4. Academic performance, conduct problems, hyperactivity, and school bonding individually mediated the association between race/ethnicity and referral. Functional impairment and sense of agency in school were marginally significant as mediators, while levels of acculturation, disenfranchisement, and disciplinary infractions in school were not significant mediators.

In the multiple mediation model shown in Fig. 2, conduct problems ($B = 0.029$, CI = 0.016–0.042), hyperactivity ($B = 0.021$, CI = 0.008–0.033), school bonding ($B = 0.013$, CI = 0.003–0.023), and GPA ($B = 0.116$, CI = 0.075 -0.157) remained significant mediators of the association between ethnicity and referral decision, while agency ($B = 0.007$, CI = −0.001–0.015) and functional impairment ($B = 0.013$, CI = 0–0.025) were marginally significant. Compared to Latinos, Asian Americans had fewer conduct problems, higher grade point average, less functional impairment, and greater school bonding. These variables in turn predicted lower likelihood of Asian American youth's referrals to SBMHS. Path *c* revealed statistically significant total effect of ethnicity on referral outcome

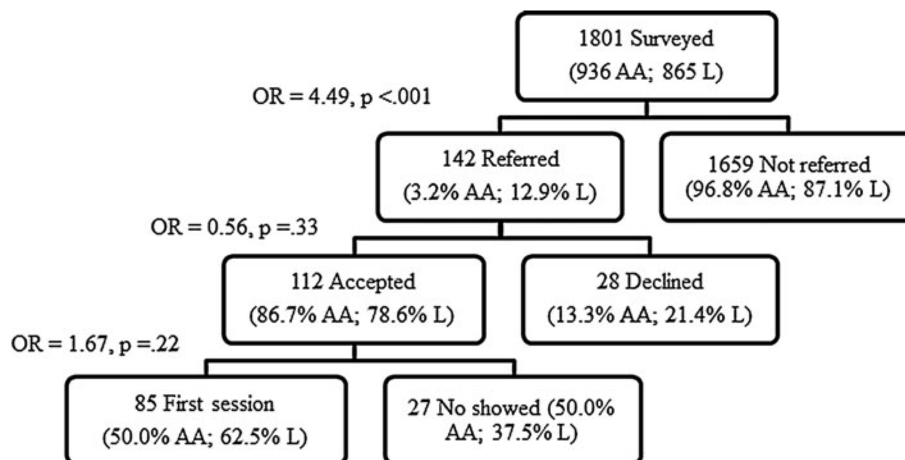

Fig. 1 CONSORT flowchart. *AA* Asian Americans, *L* Latinos

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Table 3 Bivariate correlations

Measures	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. GPA	–	−0.27**	−0.01	−0.26**	−0.28**	0.12**	−0.09**	0.09**	0.02	−0.01	−0.06*	−0.05	−0.02	−0.17**	0.01	−0.42**	−0.21**
2. School infraction		–	0.02	0.11**	0.16**	−0.15**	0.16**	−0.09**	−0.01	0.05	0.02	0.09**	−0.06*	0.06**	0.05	0.25**	0.08**
3. Emotional problems			–	0.30**	0.36**	−0.20**	0.19**	−0.08**	0.38**	0.20**	0.29**	0.04	0.08**	0.46**	0.23**	−0.04	0.05*
4. Conduct problems				–	0.49**	−0.35**	0.30**	−0.23**	0.23**	0.12**	0.16**	0.03	0.06*	0.41**	0.25**	0.13**	0.17**
5. Hyperactivity					–	−0.29**	0.24**	−0.18**	0.26**	0.13**	0.22**	0.08**	0.02	0.41**	0.28**	0.13**	0.12**
6. School bonding						–	0.52**	0.59**	−0.27**	−0.18**	−0.21**	−0.02	−0.11**	−0.35**	−0.29**	−0.10**	−0.10**
7. Disenfranchisement							–	−0.43**	0.24**	0.19**	0.20**	0.03	0.11**	0.32**	0.30**	0.06**	0.05*
8. Agency								–	−0.12**	−0.17**	−0.17**	0	−0.11**	−0.23**	−0.25**	−0.07**	−0.07**
9. Stigma barriers									–	0.31**	0.46**	0.01	0.07**	0.39**	0.25**	−0.01	0.05*
10. Practical barriers										–	0.39**	−0.01	0.06**	0.23**	0.18**	−0.02	0.03
11. Info Barriers											–	0.02	0.07**	0.30**	0.19**	0.03	0.02
12. Acculturation												–	−0.16**	0.03	−0.03	0.05*	−0.03
13. Enculturation													–	0.12	0.04	−0.03	−0.01
14. Impairment														–	0.45**	0.06	0.16**
15. PC Communication															–	−0.12**	0.05
16. Ethnicity																–	0.18**
17. Referral																	–

* $p < 0.05$; ** $p < 0.01$

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Table 4 Simple mediation of the effect of ethnicity on referral decision to school-based mental health services

Point estimate	Bootstrapped estimates			
	Product of coefficients		Percentile 95 % CI	
	SE	Z	Lower	Upper
	Indirect effects			
GPA				
0.116	0.021	5.55	0.075	0.157
Infraction				
0.012	0.009	1.313	−0.006	0.03
Conduct problems				
0.029	0.007	4.403	0.016	0.042
Hyperactivity				
0.021	0.006	3.205	0.008	0.033
School bonding				
0.013	0.005	2.476	0.003	0.023
Disenfranchisement				
0.003	0.003	1.116	−0.003	0.01
Agency				
0.007	0.004	1.835	−0.001	0.015
Acculturation				
−0.004	0.003	−1.225	−0.01	0.002
Impairment				
0.013	0.006	2.021	0	0.025

Estimates are standardized

($B = 0.340$, $p < 0.001$), while the products of paths *a* and *b* depicted the specific indirect effects of predictor on outcome via mediators. Finally, path *c'* showed that the direct effect of race/ethnicity on SBMHS referral was partially mediated by the six variables ($B = 0.14$, $p = 0.01$; WRMR = 7.96).

Discussion

Previous research has identified racial/ethnic disparities in service use between NHW and ethnic minority youths, but few studies have tested differences between two ethnic minority groups in referral to care. Overall, Latinos were 4.49 times more likely than Asian American students to be referred to SBMHS. While 14 % of Asian American students self-reported elevated symptoms, only 3 % were referred to care. In contrast, 20 % of Latinos reported elevated symptoms, and 13 % of Latino students were referred to care. Furthermore, despite having comparable levels of need as indexed by elevated symptoms and functional impairment, Latinos were more than 60 times more likely than Asian American students to have their needs met. While previous research suggests that adult gatekeepers may not recognize the problems reported by youth and result in unmet mental health need (Power et al., 2005; Teagle, 2002), the striking group differences in the current study suggest that adult gatekeepers may have particular difficulty identifying need among Asian American youth. Further, while previous research has found that SBMHS may reduce racial/ethnic disparities in receipt of care (Stephan et al., 2007), the present study suggests inequities persist despite the reduction in access barriers afforded by school-based delivery.

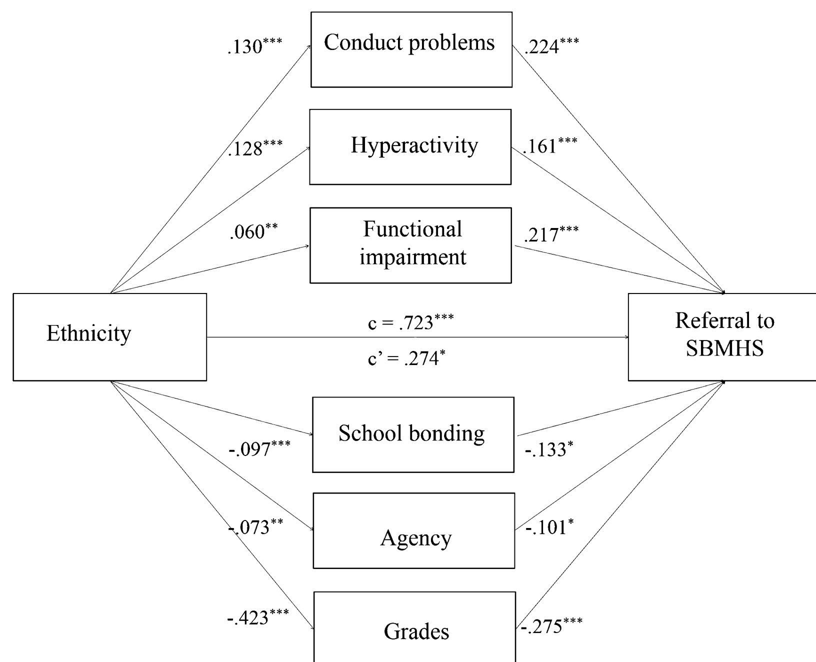

Fig. 2 Multiple mediation model of effect of race/ethnicity on referral to SBMHS. Note: Estimates are standardized. Ethinicity was dummy coded such that 0 = Asian Americans and 1 = Latinos. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

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In contrast to the ethnic disparity in referral rates, Asian American and Latino students did not differ significantly in their likelihood of accepting and attending treatment once it was offered. This is congruent with previous findings that SBMHS may mitigate racial/ethnic differences in service utilization (e.g., Cummings et al., 2010). One study suggested that racial/ethnic disparities in referral rates do not translate to differences in service utilization because Asian Americans who are referred to services experience more distressing symptoms and thus more likely to follow-up in treatment than other racial/ethnic groups (Durvasula & Sue, 1996). However, our analyses in the current study did not reveal greater symptomatology among Asian American students. Although we may have had limited power to detect group differences in treatment engagement, the absolute percentages of Asian American and Latino students whose families accepted services were encouraging (87 and 79 %, respectively) with no trend for Asian Americans being less likely to consent to care. Thus, this lends some credence to the notion that if youth mental health needs can be identified in SBMHS, immigrant families from across racial/ethnic backgrounds may be receptive to care.

Mediation analyses were conducted to determine which variables accounted for Asian American's lower rate of referral to SBMHS. To the extent that racial/ethnic differences can be explained by factors that lead to rational allocation of care across groups, perhaps the disparity in overall referral rates can be justified. As predicted, youth self-reported externalizing problems accounted in part for racial/ethnic differences in referral rates. Latino students were more likely than Asian Americans to self-report conduct problems and hyperactivity, which correspond to externalizing symptoms that may be more recognized by adults. These results are consistent with previous cross-cultural findings that Latinos tend to score higher on externalizing behavior problems than Asian Americans (Crijnen, Achenbach, & Verhulst, 1997), and disruptive behavior is often a primary reason youth are referred to SBMHS as these behaviors negatively impact classroom behavior management (Neary & Eyberg, 2002). In contrast, there was no evidence that greater tendency to manifest internalizing problems accounted for Asian American students' underrepresentation in SBMHS referrals, as there were no differences in self-reported emotional problems found between Asian Americans and Latinos.

Aside from subtypes of mental health symptoms, a number of school-related outcomes also mediated the relationship between ethnicity and referral practice. Consistent with national patterns of achievement gaps, Asian American students in the current sample demonstrated better academic functioning than their Latino peers. Since academic problems are a strong predictor of referral into SBMHS, this racial/ethnic achievement gap appeared to partially account for disparities in identification of mental health need. A number of studies have begun to explore the potential negative impacts of the model minority stereotype ascribed to Asian Americans (Suzuki, 2002; Cheryan & Bodenhausen, 2000; Wong & Halgin, 2006). However, this study is one of the first to demonstrate school performance may present barriers to entry into SBMHS for high achieving Asian Americans with mental health symptoms.

On the other hand, disciplinary infractions did not mediate the association between race/ethnicity and referral practice. While counts of suspensions, tardy, and unexcused absences were associated with race/ethnicity, they were not related to likelihood of referral. One explanation may be the low base rate of infraction occurrence in the current sample. It is also possible that the heterogeneity of these infractions rendered them less relevant to SBMHS referral; whereas suspension days may be strongly related to mental health need, records of tardy attendance may be less relevant. More research is needed to determine whether the frequency and intensity of disciplinary action have an influence on disparities in referral to SBMHS.

Despite the identification of significant mediators of racial/ethnic differences in referral, it is important to note that there still remained a statistically significant direct effect of race/ethnicity on referral even after accounting for symptoms, GPA, functional impairment, and school connectedness. This suggests that racial/ethnic disparities in identification of student need are robust and problematic in SBMHS. More research is needed to explore additional reasons behind Asian American's lower rate of entry into care (e.g., adult problem conceptualization and stereotypes) (Chang & Sue, 2003).

The current study extends previous research on the equity of SBMHS by examining racial/ethnic differences in referral practices that precede service utilization and identifying specific clinical and school-related factors that account for Asian American's low referral to services. However, several limitations of this study are worth noting. First, while the current sample was drawn from a large urban school district serving predominantly youth from immigrant backgrounds, we have limited information on the socioeconomic status and immigration history of our student participants. As a result, we cannot ascertain the extent to which the observed differences between the Asian American and Latino students may be attributable to other demographic differences. Furthermore, it is unclear whether the results we obtained are generalizable to schools where ethnic minority students are a smaller percentage of the total population. The generalizability of the findings may also be limited to the school district in the current study as it may have implemented unique training approaches, policies, and practices. For instance, in order to increase access to quality mental health care, the district

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developed research-informed approaches to link the school system with the local mental health resources through the Gateway to Success Program. Second, although the sample was diverse, it excluded non-English-speaking youth. Since non-English-speaking students are likely to be less acculturated and less likely to utilize mental health services (Sentell, Shumway, & Snowden, 2007), their exclusion may have led to overestimation of the true rates of service use by Asian American and Latino students. Lastly, the study relied on students' self-report of symptom severity, impairment, and school connectedness. Although self-report provides an accurate measure of youth's degree of awareness of their own problems (Goodman, Meltzer & Bailey, 1998), the addition of parent and teacher reports may better capture adult gatekeepers' cultural beliefs and attitudes that shape decisions about referral to and acceptance of SBMHS.

Notwithstanding these limitations, this study is among the first to examine and identify differences in two ethnic minority groups' entry into SBMHS in a prospective design. Results reveal that Asian Americans were less likely than Latinos to be referred to SBMHS. This not only confirmed that level of unmet need vary by racial/ethnic groups, but also highlighted a specific ethnic minority population that deserves further attention during the stage of problem recognition. More research and interventions are needed to address the racial/ethnic differences in problem recognition and referral practices that precede receipt of SBMHS.

To our knowledge, this is also the first study to elucidate some reasons for why disparities remain in SBMHS. Conduct problems, functional impairment, school connectedness, and academic performance partially accounted for Asian American's lower rate of referral relative to Latino students. These findings suggest that it would behoove mental health providers to take problem types, impairment, and school functioning into consideration when addressing racial/ethnic disparities in referral practices.

Results from the current study underscore the importance of mental health screenings and psychoeducation in reducing unmet need among vulnerable groups. Although still in its nascency, research on promotion of mental health literacy suggests that parent and educator psychoeducation is a powerful tool in increasing adult gatekeepers' knowledge of mental health issues and intention toward helping youth (Kelly, Form & Wright, 2007; Whitley, Smith & Vaillancourt, 2012). Similarly, when implemented with appropriate family and school involvement, mental health screenings in schools can be effective in increasing detection of youth in need, linking them to appropriate services, and contributing to positive mental health outcomes (Weist, Rubin, Moore, Adelsheim, & Wrobel, 2007). These two areas may prove to be first responders toward early intervention of mental disorders for youth in SBMHS, particularly for those that are less likely to be recognized by usual referral practices.

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