

# Effects of Race and Ethnicity on Mental Health and Help-Seeking amongst Undergraduate University Students

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**Abstract** Mental health disorders present a significant health challenge to college students. Furthermore, prevalence rates and treatment rates differ across races and ethnicities, tending to burden minority groups with worse mental health and less treatment. This research was interested in two questions: (1) the effects of race and ethnicity on depression and anxiety and (2) the effects of race and ethnicity on mental health help-seeking behaviors amongst undergraduates at a medium-sized Midwestern university. It was hypothesized that non-White individuals will report higher rates of symptoms of depression and anxiety and will seek help for mental health problems less often than their White peers. Results found that rates of symptoms of depression and anxiety did not differ across race or ethnicity, but rates of help-seeking behaviors did differ across race and ethnicity. Finally, the concordance between the racial/ethnic compositions of student bodies and that of campus mental healthcare providers was measured for the top twenty universities in the United States. These topics are important because mental illness affects not only students' ability to succeed in school, but also their overall well-being. Furthermore, mental illness can be fatal: treatment, whether by counseling or by chemicals, is the best way to prevent mortality.

**Index Terms**— mental health, race, ethnicity

## INTRODUCTION

Mental health disorders present a significant health challenge to college students. According to data collected by American College Health Association (ACHA) in a survey of 74,438 undergraduate students at 108 colleges and universities in the spring of 2015, over the last 12 months, 13.2% were diagnosed with depression and 15.8% with anxiety. These statistics are enlightening because they demonstrate the broad effect of mental illnesses on students' lives. Over the last 12 months, 16.1% felt so depressed it was difficult to function, 6.2% seriously considered suicide, and 1.1% attempted suicide. Failure to recognize or treat depression and other mental illnesses can be fatal. At the same time, statistics alone cannot fully communicate the daily challenges faced by many more students: affected grades, difficulty paying attention in class, trouble maintaining social connections, insomnia and fatigue, decreased confidence and self-esteem, etc.

The sobering nature of these data emphasizes the

need for greater education about mental health and treatment accessibility on campuses. According to the same 2015 ACHA survey, when asked about what types of issues students have received information from their schools, results were somewhat positive but need improvement. For example, 65.3% have received information about stress reduction, 60.7% depression/anxiety, and 49.4% suicide prevention. While gains have been made (in spring 2010, the percentages receiving information about stress reduction, depression/anxiety, and suicide prevention were 53.5%, 46.9%, and 30.1%, respectively), schools could be communicating about mental health more effectively: for comparison, 80.3% have received information about alcohol/drug use, 78.8% sexual assault/relationship violence prevention, and 52.1% cold/flu/sore throat. Education alone, however, is not sufficient. While 18.5% of students report ever having utilized their institutions' mental health services, these rates are known to vary by race and ethnicity. Though 13.2% were diagnosed with depression, 10.5% were treated. For anxiety, 15.8% were diagnosed and 11.7% treated. While the numerical

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differences seem small, if the sample is taken to be representative of all four year students in the United States, this translates to approximately 278,451 untreated cases of depression and 421,029 untreated cases of anxiety (U.S. Department of Education, 2014). In comparison, the population of St. Louis city is 319,365 (U.S. Census Bureau, 2010). These statistics are significant not only in terms of decreased health and productivity, but also because, as stated above, mental illness—especially if unattended—can be fatal.

## Literature Review

### Race, Ethnicity, and Prevalence

According to statistics released by the Substance Abuse and Mental Health Services Administration (SAMHSA), rates of mental illness vary across race and ethnicity: 19.0% of whites, 16.8% of blacks/African Americans, 22.7%, Asians 13.4% of American Indians/Alaska Natives, 24.9% of people of two or more races, and 15.3% of Hispanics report experiencing any mental illness in the past year (Substance Abuse and Mental Health Services Administration, 2015). The variance is noteworthy, even before accounting for further discrepancies due to culturally-affected differences in reporting and diagnosis. Many influences inform the disparate prevalence rates, including but not limited to genetic and epigenetic variants, geographic area, diet, family background, socio-cultural factors. In the scope of this paper, the last is of greatest import as source of increased stressors, since stressful life events are a risk factor for mental illnesses, and being a racial or ethnic minority carries a unique set of stressors (American Psychological Association, 2013).

Migration is the first stressor many minorities face. For minorities who immigrate to the United States or their children, acculturation may cause stress as the individual tries to reconcile their original culture with American culture (Office of the Surgeon General, 2001). From a functionalist perspective, this may be understood as a disruption of the individual's equilibrium—their cultural surroundings—leading to personal and societal disequilibrium. A group of particular interest is adolescents and young adults (e.g., college students) who are second or "1.5" (immigrated during infancy) generation immigrants: these individuals may uniquely struggle to reconcile their parents' cultures with their own identities as Americans.

Minorities who are not recent immigrants still face cultural stress: by being racially or ethnically different, they are at risk of prejudice, discrimination, or simply not fitting in with the majority culture. Racism and discrimination are obvious stressors that could contribute to worse mental health. Failure to fit in to cultural norms or lacking life experiences common to the majority culture is perhaps less overtly negative than experiencing outright bigotry, but can still be harmful because it can hinder social interaction and connectedness. Halpern notes that "group density at the *local* level rather than regional or national level...is

critical" in better mental health amongst minority groups (Halpern, 1993). Social support is beneficial to maintaining good mental health, and minority individuals—particularly those in areas of lower cultural similarity—are thus at increased risk.

### Race, Ethnicity, and Help-Seeking

There are three main components in the process of help-seeking: recognizing need to seek help, deciding to seek help, and continuing to seek help, if appropriate. The first two steps are largely mediated by cultural perceptions (i.e., stigma or lack thereof), while the final step is affected by communication with and the cultural competency of the professional (Hwang et al., 2008).

Stigma is defined as "negative attitudes, beliefs, thoughts, and behaviors that influences the individual, or the general public, to fear, reject, avoid, be prejudiced, and discriminate against people with mental health disorders" (Gary, 2005). This concept is underpinned by symbolic interactionism: behavior does not occur in a vacuum, but in the context of interaction with others, both at societal and interpersonal levels. In particular, though stigma exists in all races, ethnicities, and cultures, "double stigma" particularly affects minority groups due to institutional discriminatory practices and mindsets affecting all levels of society from politicians to clinicians (Gary, 2005). Additionally, some minority groups may hold differing, if not stronger, stigmatizing attitudes towards mental illness than Whites. A variety of explanations are given for these differences, including viewing mental illness as a weakness, perceiving mental illness as within the normal spectrum of behavior (i.e., differing social constructions of the definitions of normalcy and mental illness), holding non-Western views on the causes or origins of mental illness, and parents seeking perfection in their children (Bignall et al., 2014; Kearney et al., 2005). Regardless the cause, stigma is deleterious because it hinders those who need mental healthcare from seeking services due to fear of shame, rejection, or discrimination.

How individuals understand the concept of mental illness is critical to both deciding and continuing to seek help. Obviously, one will not seek help for something that is not recognized as problematic. To an extent, mental illness is culturally bound and socially constructed. Though depression and anxiety are universal conditions, they may be understood and defined differently across different cultures, individuals, and care providers. Foremost amongst these dissimilarities are people's beliefs about the causes of mental illness. For example, individuals who perceive mental illness as a product of weakness or as a personal problem not relevant to share with outsiders are not likely to seek care, individuals who perceive it as a spiritual problem may seek help from a clergy person, and individuals who understand it only as a set of physiological symptoms may complain to a primary care physician (PCP) of somatic symptoms.

These varying presentations are relevant to clinicians and other help-providers. If an individual decides to see a practitioner, the provider's ability to communicate effectively is critical to correct diagnosis and treatment adherence. Central to effective communication about mental illness is "the development of congruence between the patient's and doctor's explanatory models [conceptual constructions that explain clinical phenomena] for the patient's sickness" (Ashton et al., 2003; Bignall et al., 2014). A provider who is able to listen to, understand, and act in light of a patient's explanatory model is not only more likely to make a correct diagnosis, but may also be perceived as more trustworthy and relatable. Consequently, the patient may be more likely to adhere to treatment. For example, it has been shown that minority college students are less likely to schedule return mental healthcare appointments than their White peers. However, return visit rates improve if they share language and ethnicity with the provider (Kearney et al., 2005). Likewise, it was found that university counseling service utilization was positively correlated with the ethnic makeup of the care providers (Hayes et al., 2011).

In a profession dominated by non-minority care providers, the burden of responsibility lies largely with the clinician. One way to improve patient/provider communication is by improving the provider's cultural competency, which the Office of the Surgeon General defines as "recognition of patients' cultures and [development of] a set of skills, knowledge, and policies to deliver effective treatments" (2001). This is important because even if patient and provider speak the same language, they may use and interpret terms, idioms, and metaphors differently. In addition, ethnic groups have preferred styles of communicating. For example, people from individualistic cultures tend to be more direct, assertive, and expressive, whereas people from collectivist cultures tend to be indirect, deferential to authority, and accommodating (Ashton et al., 2003).

Cultural competency is important in all stages of the clinical interaction. Healthcare professionals are not perfectly objective, dispassionate scientists (nor should they be): they too are part of a culture, even if it is the majority culture. Their diagnostic and treatment choices are guided by their own backgrounds. A provider's bias, even if unconscious, may affect diagnosis. Likewise, his or her ignorance of symptoms that present differently across races and ethnicities may affect diagnosis. A clinician with greater cultural competency will be better able to understand the patient's complaints and to help the patient in a relevant, meaningful way.

## **Research Question**

This research was designed to address the following issues: the effects of race and ethnicity on (1) depression and anxiety and (2) mental health help-seeking behaviors in undergraduates at a selective, private, medium-

sized Midwestern university. Though the primary goal was to better understand racial and ethnic correlates of help-seeking, it was necessary first to study the context of effects on mental health status itself in order to understand implications for help-seeking. That is, all things being equal, it would be expected that levels of help-seeking within a group would reflect the level of symptoms of depression and anxiety experienced in that group. It was hypothesized that non-White individuals will report higher rates of symptoms of depression and anxiety while seeking help for mental health problems less often than their White peers.

## **Research Design and Methods**

Undergraduate students at the university were surveyed online using a 40-item questionnaire hosted on Qualtrics. The survey was publicized by posting in university-restricted Facebook groups, with a goal of receiving at least 100 responses. The survey remained open from 17 October 2015, until 4 November 2015.

The first section of the survey asked required demographics questions. Non-undergraduates were discarded. The rest of the survey was response-optional. The second section consisted of the Patient Health Questionnaire: Modified (PHQ-M), a nine-item assessment for major depressive disorder (Spitzer, 1999). The third section consisted of the Generalized Anxiety Disorder 7-Item Scale (GAD-7), a seven-item assessment for general anxiety disorder (Spitzer, 2006). Both the PHQ-M and GAD-7 are well-validated assessments that score respondents' symptoms using a four-choice scale ("not at all," "several days," "more than half the days," "nearly every day") which is scored from 0 to 3. Scores for the PHQ-M range from 0 to 27, 11 or greater indicating a positive score; scores for the GAD-7 range from 0 to 21, 8 or greater indicating a positive score. The fourth section asked questions related to awareness of mental health resources on campus, past help-seeking behaviors, and future help-seeking behaviors. The final two questions were free response, allowing respondents to comment on (1) why they would or would not be willing to seek help from a variety of sources and (2) anything they wished to discuss relevant to the survey. As discussed below, these free response sections provided insight into attitudes, opinions, and beliefs about mental healthcare. Surveys completed through the seventh question of the GAD-7 (Q23) were included in results.

Data were analyzed using GraphPad Prism.  $p < 0.05$  established significance in all tests. Levels of depression and anxiety were analyzed based on raw score and positive/negative status based on established cutoffs for the PHQ-M and GAD-7. Group scores were compared using Mann-Whitney test or non-parametric ANOVA; group statuses were compared using Fisher's exact test.

Tests were used in the same manner to compare awareness and help-seeking behaviors across groups.

U.S. News and World Report was consulted to identify the highest ranked U.S. colleges and universities in 2015. The top twenty private institutions were noted: Princeton University, Harvard University, Yale University, Columbia University, Stanford University, University of Chicago, Massachusetts Institute of Technology (MIT), Duke University, University of Pennsylvania (U Penn), California Institute of Technology, Johns Hopkins University, Dartmouth College, Northwestern University, Brown University, Cornell University, Vanderbilt University, Washington University in St. Louis (Wash U), Rice University, University of Notre Dame, and Emory University. Although CalTech is tied for tenth place, CalTech does not provide a publicly available list of its campus healthcare providers, so CalTech was excluded, and Georgetown University, the ranked twenty-first, was included instead. Although University of California—Berkeley falls in the top twenty schools overall, it was excluded because of the substantial difference in size of its student body compared to those of other campuses. This size difference also held true for the other highly-ranked public universities, such as University of California—Los Angeles, University of Virginia, University of Michigan—Ann Arbor, and University of North Carolina—Chapel Hill, which is why data collection was ceased at 20 universities, rather than continuing to the top 25 or more.

The Common Data Sets, providing enrollment demographics, were obtained from the universities' websites. Data from the most recent year available as of 25 January 2016 were used. Specifically, numbers of full-time undergraduate students and of White, African American/Black, and Asian students were collected. Then, campus mental healthcare provider data were collected from campus health clinic websites. In particular, numbers of mental healthcare providers, defined as individuals with graduate, professional, or medical degrees in counseling, therapy, social work, psychology, or psychiatry, were collected. Many university websites provide biographies and/or pictures of their clinicians from which the races/ethnicities were inferred. In cases in which racial/ethnic identity was ambiguous or for universities that provided no information about clinicians other than their names, further internet searches were conducted to find personal or work websites, curriculum vitae, or social networking sites containing photographs and other relevant information about those individuals.

From these data the variance between the racial/ethnic composition of the student body and the clinical staff of each institution was calculate using the following expression, where CPS represents clinicians per student:

$$\frac{\frac{students_{white}}{students_{overall}} (CPS_{white} - CPS_{overall})^2 + \frac{students_{black}}{students_{overall}} (CPS_{black} - CPS_{overall})^2 + \frac{students_{asian}}{students_{overall}} (CPS_{asian} - CPS_{overall})^2}{CPS_{overall}}$$

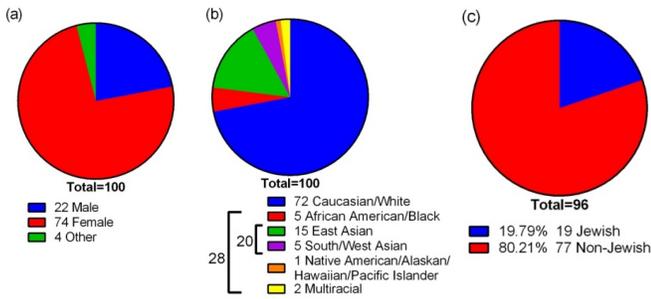
Thus, a larger variance score corresponds to worse concordance between the racial/ethnic compositions of the student body and campus mental healthcare providers. It should be noted that although students per clinician is a more palatable measure because it is not a fraction, it was not possible to use this because multiple schools have zero providers in some categories. The institutions were then ranked from lowest value to highest score. Low variance was interpreted as the racial/ethnic composition of the clinical staff being a relatively good fit to the composition of the student body, whereas high variance was interpreted as representing a relatively poor fit.

## Results

### University Demographics

According to the Office of the University Registrar, the undergraduate student body is 49.25% male and 50.75% female. 51.3% are White, 28.6% Asian, 7.0% African American, and 1.0% Native American/Alaskan/Hawaiian. 5.5% identify themselves as Hispanic/Latino. 19.0% have international student status (2015). According to the university website, the on-campus Student Health Services (SHS) has 13 mental healthcare providers, including psychiatrists, psychologists, social workers, and licensed professional counselors. 4 are male (30.8%) and 9 female (69.2%). 10 are white (76.9%), 2 African American (15.4%), and 1 Asian (7.7%).

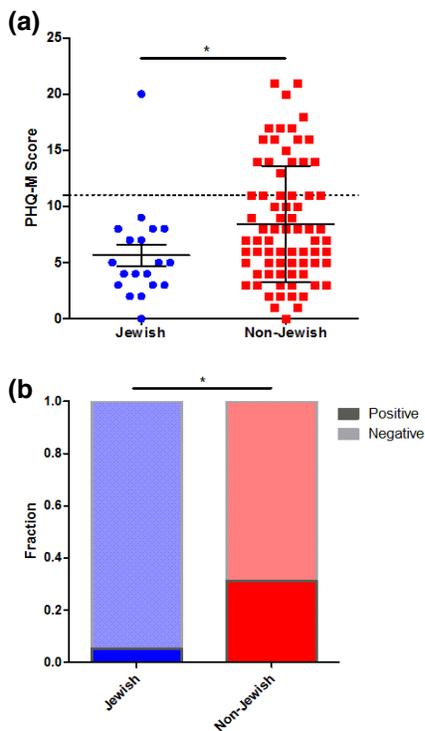
100 responses were recorded (the maximum amount allowed per survey using a Qualtrics account obtained through university undergraduate account licensing). 22 identified as male, 74 as female, and 4 as other (Fig. 1a). 72 identified as Caucasian/White, 5 African American/Black, 15 East Asian, 5 South/West Asian, 1 Native American/Native Alaskan/Native Hawaiian or Pacific Islander/First Nations, and 2 multiracial (Fig. 1b). For analysis, groups were combined: East and South/West Asian were combined into Asian (20), and all non-White groups were combined into non-White (28). Statistical comparisons were made across all groups, across all groups in which the Asian groups are combined, and between White and non-White. Because the university has a large Jewish population for whom being Jewish is an important part of ethnic and cultural identity, this was also requested under demographics: 19 identified as Jewish, 77 as non-Jewish. This survey hoped to explore differences between international and domestic students; unfortunately, only 4 respondents identified as international. Likewise, only 4 respondents identified as Hispanic/Latino/a, so no comparisons were made in either category.



**Fig. 1. Survey Respondent Demographics. (a) Gender. (b) Race/ethnicity. (c) Jewish.**

### Race, Ethnicity, and Prevalence

No statistically significant differences in scores or statuses were observed between genders or across any races or ethnicities. The only statistically significant difference found was in PHQ-M scores and statuses between Jewish and non-Jewish individuals (Fig. 2a-b). Jewish individuals had lower PHQ-M scores ( $n=96$ ,  $p=0.0214$ ) and fewer positive statuses ( $p=0.0207$ ) than non-Jewish individuals.



**Fig. 2. PHQ-M Scores and Statuses Across Jewish and Non-Jewish Individuals. (a)** Dotted line represents cutoff line (11) for positive score. Jewish individuals had significantly lower PHQ-M scores ( $n = 96$ ,  $p = 0.0214$ , Mann-Whitney test) and **(b)** fewer positive statuses ( $p = 0.0207$ , Fisher’s exact test) than non-Jewish individuals. Presented as mean with SEM.

### Race, Ethnicity, and Help-Seeking

No differences were reported across gender or race and ethnicity with respect to awareness of mental health treatment options available on campus. 89% were aware of SHS’s free counseling appointments; 89% were also aware of the University’s Peer Counseling Service.

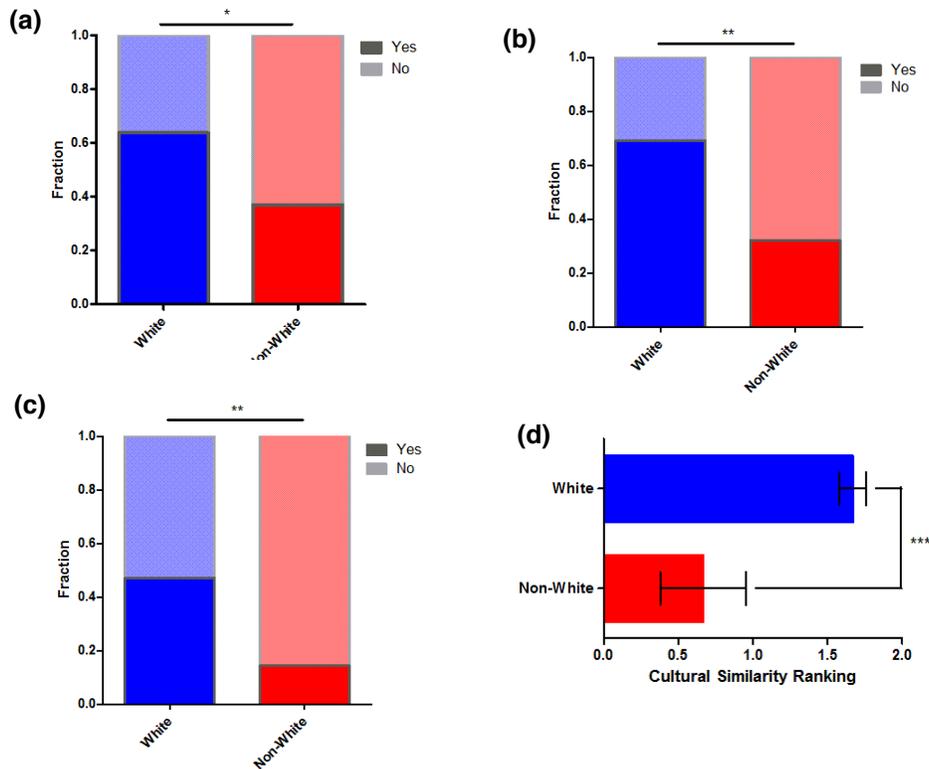
As expected, more females than males have thought that they needed help for emotional, psychological, or psychiatric matters in the last 12 months ( $n=92$ ,  $p=0.0021$ ). Likewise, more females have also ever received a formal diagnosis of mental illness ( $n=93$ ,  $p=0.0351$ ). However, no differences were reported between males and females with respect to whether or not providers were ethnically and/or culturally similar.

Significantly more White individuals reported thinking they needed help in the last 12 months ( $n=96$ ,  $p=0.0227$ ), having ever seen a mental healthcare provider ( $n=99$ ,  $p=0.0013$ ), and having ever received a formal diagnosis ( $n=96$ ,  $p=0.0026$ ) compared to non-White individuals (Fig. 3a-c). White individuals also reported that provider(s) they saw were more ethnically and/or culturally similar to themselves than did non-White individuals ( $n=57$ ,  $p=0.0008$ ) (Fig. 3d). No difference was observed in the number of appointments attended.

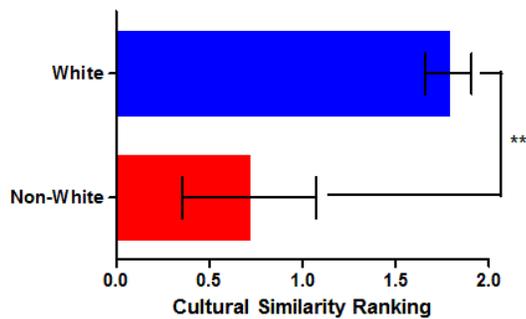
No differences were reported across any groups with respect to having visited SHS for mental healthcare or number of visits made. However, among those reporting they had visited SHS, White individuals reported that the SHS provider(s) they saw were more ethnically and/or culturally similar to themselves than non-White individuals ( $n=30$ ,  $p=0.0044$ ) (Fig. 4).

Respondents were asked if they have ever sought help related to mental health from other sources, including clergypersons, PCPs, peer counseling resources, academic resources, student leaders/mentors, family and friends, emergency help lines, or other. While no statistically significant differences were observed across groups, the most commonly reported source was family and friends (45 out of 47). The next two most common groups were PCPs (12) and clergypersons and academic resources (both 11).

When asked what sources respondents would be willing to consult for help, amongst the sources listed above as well as SHS mental healthcare providers and non-SHS mental healthcare providers, family and friends were the most commonly reported (80 out of 97), followed by SHS providers and non-SHS providers (56 and 54, respectively). These were followed by peer counseling services (35) and PCPs (25). These choices were reflected in the free response comments, where the most common theme indicated that individuals preferred professionals with expertise in the area and who were bound to confidentiality. Other common themes indicated preference for someone who is familiar or trustworthy and concern for



**Fig. 3. Differences in Help-Seeking from Any Source.** Compared to non-White individuals, White individuals are more likely to have (a) thought they needed help for emotional, psychological, or psychiatric matters in the past 12 months ( $n = 96$ ,  $p = 0.0227$ , Fisher's exact test), (b) ever seen a mental healthcare provider ( $n = 99$ ,  $p = 0.0013$ , Fisher's exact test), and (c) ever received a formal diagnosis ( $n = 96$ ,  $p = 0.0026$ , Fisher's exact test). (d) Furthermore, White individuals report that provider(s) they saw were more ethnically and/or culturally similar to themselves than did non-White individuals ( $n = 57$ ,  $p = 0.0008$ , Mann-Whitney test). Respondents were asked to rank whether the provider(s) were not similar (0), somewhat similar/depends on provider seen (if multiple) (1), or similar (2). Presented as mean with SEM.



**Fig. 4. Differences in Help-Seeking from SHS.** White individuals report that SHS provider(s) they saw were more ethnically and/or culturally similar to themselves than did non-White individuals ( $n = 30$ ,  $p = 0.0044$ , Mann-Whitney test). Respondents were asked to rank whether the provider(s) were not similar (0), somewhat similar/depends on provider seen (if multiple) (1), or similar (2). Presented as mean with SEM.

burdening or bothering one's peers with personal problems.

### Mental Healthcare at Top 20 Universities

The institutions were ranked, from lowest to highest variance (i.e., most to least similarity between the

racial/ethnic composition of the student body and of the mental healthcare clinical staff), as follows: (1) Dartmouth, (2) U Penn, (3) Georgetown, (4) Cornell, (5) Duke, (6) Brown, (7) Notre Dame, (8) Harvard, (9) Rice, (10) Wash U, (11) Northwestern, (12) Emory, (13) Stanford, (14) Princeton, (15) Johns Hopkins, (16) U Chicago, (17) Vanderbilt, (18) MIT, (19) Columbia, and (20) Yale (Tab. 1).

### Discussion

#### Race, Ethnicity, and Prevalence

Most individuals were aware of sources on campus from which they could seek help for mental health issues. This indicates that education campaigns during freshman orientation, at SHS, through student groups, etc. have been largely successful.

The lack of differences in measured levels of depression and anxiety—particularly where differences may be expected to exist, such as across gender—may be due to small sample size. This explanation could extend to the lack of differences across race and ethnicity.

Additionally, shared environmental influences, such as high academic pressure, economic stressors related to attending a private university, etc., may also abrogate some expected between-group differences. Finally, it may be explained by the arbitrary nature of the survey questions (see Limitations).

It is interesting that Jewish individuals have lower PHQ-M scores and fewer positive scores. This could be due to social factors, such as social connectedness, specific cultural values, and high local minority population density, amongst the Jewish population at the university. It could also be affected by unmeasured factors, such as genetic predisposition or socioeconomic status, common to a large portion of the group.

### **Race, Ethnicity, and Help-Seeking**

The lack of difference in having seen ethnically and/or culturally similar providers (both in general and at SHS) between males and females is important because it supports the hypothesis that the effect observed across racial and ethnic groups is not due to random chance, since different races and ethnicities should be approximately equally represented across genders. That is, the lack of difference observed between genders helps validate the survey methodology.

It is in accord with existing literature that White individuals more often report thinking they need help, having ever seen a mental healthcare practitioner, and having ever received a formal diagnosis than non-White individuals, in addition to describing these providers as more ethnically and/or culturally similar to themselves than do non-White individuals (Office of the Surgeon General, 2001). This makes sense in light of possible differences in cultural perceptions and expectations regarding mental illness and treatment as described above (Bignall et al., 2014). Since White and non-White individuals were not found here to have significantly different levels of symptoms of depression and anxiety, these data are concerning because they indicate that non-White groups perceive less need for help and receive less help than their White counterparts. In reality, since many studies show that non-White individuals have increased risk for mental health disorders, the disparity may be even more serious (Halpern, 1993; SAMHSA, 2015). However, no difference was seen in the number of visits made, which is in contrast to evidence presented previously (Kearney et al., 2005). This may be due to small sample size, since fewer non-White individuals report ever having seen a mental healthcare professional. That is, adherence is a limited metric because it depends on the completion of an initial visit, which non-White individuals are less likely to do. Additionally, since the sample size did not allow for analysis to account for differences between individuals who thought they did or did not need help, possible effect may

have been flattened.

That no difference is seen in the number of individuals who have seen SHS or the number of visits they made is also in contrast to other studies (Kearney et al., 2005). This also may be due to small sample size, since those who have seen a provider at SHS fall in a subcategory of those who have ever seen a provider. That a difference is, however, observed across race and ethnicity in whether individuals consider their SHS provider ethnically and/or culturally similar is significant: as described above, cultural background and competency are critical components of patient retention and treatment adherence (Davidson et al, 2004; Kearney et al., 2005). Based on data provided by SHS and the Office of the Registrar, an area of improvement could include hiring staff more representative of the racial and ethnic composition of the student body.

The fact that outside of friends and family, people most often seek PCPs and members of the clergy for help with mental health concerns indicates need for these professions to receive training in this area. Though insufficient data was collected to determine whether non-White individuals disproportionately seek help from non-mental healthcare professionals, based on previous research, it is reasonable to hypothesize that someone who experiences a somatic presentation of depression (for example, more commonly reported by Asians than Caucasians) might see their PCP, while someone who attributes mental illness to spiritual problems might consult a religious leader (Halpern, 1993; Kearney et al., 2005). Likewise, those who cannot access healthcare specialists due to economic, language, or other barriers might have no other choice outside a PCP. These providers function as bridges between patients and the clinical care they need: they are critical in recognizing symptoms and providing the initial referrals and advice patients (or parishioners, as the case may be) may need.

### **Mental Healthcare at Top 20 Private Universities**

The variance measure could also be calculated without factoring in the proportion of students of each race/ethnicity, as follows:

$$\frac{(CPS_{white} - CPS_{overall})^2 + (CPS_{black} - CPS_{overall})^2 + (CPS_{asian} - CPS_{overall})^2}{CPS_{overall}}$$

Although this calculation does not account for the proportional composition of each race/ethnicity, it is still worthwhile to consider because does give greater weight to institutions that have a very high number of clinicians per student for any one race/ethnicity. For example, Wash U does well with

**Tab. 1. Variance in Racial/Ethnic Composition of Student Bodies Compared to Campus Mental Healthcare Providers at Top 20 Private Universities.**

|              | clinicians per student |          |          |          | proportion of student body |          |          | variance factor |
|--------------|------------------------|----------|----------|----------|----------------------------|----------|----------|-----------------|
|              | overall                | white    | black    | asian    | white                      | black    | asian    |                 |
| Dartmouth    | 0.003804               | 0.003895 | 0.003521 | 0.004680 | 0.487423                   | 0.067394 | 0.152112 | 0.000033199     |
| U Penn       | 0.005487               | 0.006889 | 0.005772 | 0.004705 | 0.446850                   | 0.071106 | 0.196286 | 0.000182839     |
| Georgetown   | 0.004560               | 0.003340 | 0.004484 | 0.005780 | 0.581334                   | 0.061850 | 0.095964 | 0.000221200     |
| Cornell      | 0.003734               | 0.004122 | 0.002320 | 0.001554 | 0.409321                   | 0.060593 | 0.180936 | 0.000279188     |
| Duke         | 0.003541               | 0.005380 | 0.004608 | 0.002172 | 0.486079                   | 0.100138 | 0.212429 | 0.000608599     |
| Brown        | 0.005341               | 0.002566 | 0.004773 | 0.003727 | 0.435504                   | 0.066890 | 0.128512 | 0.000694557     |
| Notre Dame   | 0.004847               | 0.002687 | 0.006452 | 0.004158 | 0.706657                   | 0.036787 | 0.057078 | 0.000705655     |
| Harvard      | 0.006605               | 0.009702 | 0.009029 | 0.002394 | 0.448059                   | 0.066407 | 0.187828 | 0.001214034     |
| Rice         | 0.005403               | 0.002712 | 0.003817 | 0.001138 | 0.379372                   | 0.067387 | 0.226080 | 0.001301143     |
| Wash U       | 0.004878               | 0.002350 | 0.005405 | 0.000801 | 0.553884                   | 0.053522 | 0.180674 | 0.001344221     |
| Northwestern | 0.005556               | 0.002759 | 0.001934 | 0.001336 | 0.527305                   | 0.057856 | 0.167525 | 0.001416312     |
| Emory        | 0.002497               | 0.002145 | 0.009434 | 0.000750 | 0.408947                   | 0.092982 | 0.234035 | 0.002098374     |
| Stanford     | 0.003085               | 0.006457 | 0.002410 | 0.007199 | 0.375178                   | 0.059134 | 0.197920 | 0.002477289     |
| Princeton    | 0.002181               | 0.004965 | 0.009852 | 0.003646 | 0.459680                   | 0.077216 | 0.208634 | 0.003921101     |
| JHU          | 0.003000               | 0.007661 | 0.014760 | 0.001982 | 0.481740                   | 0.052642 | 0.195998 | 0.005985133     |
| U Chicago    | 0.001810               | 0.007466 | 0.007491 | 0        | 0.451642                   | 0.047382 | 0.172671 | 0.009141118     |
| Vanderbilt   | 0.002249               | 0.009296 | 0.008681 | 0.002519 | 0.549074                   | 0.084002 | 0.115794 | 0.013669346     |
| MIT          | 0.001930               | 0.010936 | 0        | 0.003633 | 0.367739                   | 0.056077 | 0.245979 | 0.015932818     |
| Columbia     | 0.001923               | 0.009186 | 0.011076 | 0.004079 | 0.449491                   | 0.086980 | 0.202450 | 0.016610494     |
| Yale         | 0.001561               | 0.009320 | 0.010782 | 0.002208 | 0.470492                   | 0.067787 | 0.165540 | 0.021877858     |

**Note.** Variance factor was calculated as

$$\frac{students_{white}(CPS_{white}-CPS_{overall})^2 + students_{black}(CPS_{black}-CPS_{overall})^2 + students_{asian}(CPS_{asian}-CPS_{overall})^2}{students_{overall} CPS_{overall}}$$

Low variance represents greater racial/ethnic concordance between a campus' student body and its mental healthcare providers.

respect to African American/Black clinicians per student (185) but poorly with respect to Asian clinicians per student (1249). Because the Asian population is a minority of the student body, this gets scaled down in the first model. However, this could have a disproportionate negative effect on students. Likewise, MIT has no African American/Black mental healthcare providers. Because MIT only reports 251 African American/Black students (5.6%), this stark absence of matched providers is scaled out. However, if even a single one of those students wishes to seek mental healthcare from a campus provider, there are no matched providers available. As discussed above, this is not just a matter of preference: congruence between patient and provider ethnicity has been shown to be associated with higher utilization and retention rates (Hayes et al., 2011; Kearney et al., 2005).

**Limitations**

The small sample size (n=100), and thus low power, is the greatest limitation in obtaining significant results. Consequently, in some instances, cohorts had to be combined (e.g., merging all non-White groups) to analyze data. In other instances, entire groups were excluded from analysis because did not include enough members (e.g., in gender comparisons, only male and female respondents were included).

The demographics of the survey respondents do not exactly reflect those of the university's student body. Some of this effect is due to non-response bias, which was not controlled. It is also likely a consequence of which groups of people are likely to have and actively use a Facebook account, prefer other social media platforms, or use social media infrequently or never. Furthermore, the nature of survey distribution may augment non-response bias since the Facebook groups to which the survey was

posted are not necessarily representative of the university's population as a whole, and Facebook itself can influence what posts an individual sees.

An inherent limitation is the format of the PHQ-M and GAD-7. Several respondents noted in the comment section that they felt the four options given in the PHQ-M and GAD-7 did not sufficiently describe their experience: in particular, they indicated desire for a greater range of intermediate response options. Other tools, including the Outcome Questionnaire 45, Counseling Center Assessment for Psychological Symptoms, and Brief Symptom Inventory were considered because of their greater utilization in literature, more specific questions and responses, and specificity to college students (Hwang & Goto, 2008; Kearney et al., 2005; Soet & Sevig, 2006). However, the PHQ-M and GAD-7 were chosen for several reasons. First, their format and scoring is consistent, simplifying both response and data analysis. Second, and most important, they are relatively brief: the other assessments contained 45, 70, and 53 items, respectively, and it was feared that respondents would not finish a survey that long.

A particular barrier to understanding help-seeking behaviors is cost. SHS offers nine free counseling sessions per year for undergraduates. Following appointments and all appointments with psychiatrists are billed through insurance. These costs may pose a serious challenge to students' ability to seek help, even if they are willing to do so.

The Common Data Set is inherently limited in that it includes international students as a separate race/ethnicity. This poses a particular challenge for analyzing data from schools that have high international student populations. For example, the university's Common Data Set states that the university is approximately 18% Asian. On the other hand, the documentation from the registrar's office states that the university is approximately 28% Asian. This difference is accounted for by Asian international students. Since not all schools provide enrollment information outside that given in the Common Data Set, for the sake of consistency, the Common Data Set was used for all variance calculations, despite its flaws. Another limitation in data collection is that the racial/ethnic identity of some mental healthcare providers was difficult to identify even after exhaustive internet searches as described under Research Design and Methods. In all cases, an educated guess was made, but errors may have occurred. In theory, errors should be evenly distributed across all races/ethnicities, but because some of the samples were small, errors may be magnified. Finally, minority groups having lower representations, such as Hispanic/Latino, Native American, or multi-racial were excluded from analysis because the sample sizes were too small. In reality, these groups may be among the most severely underrepresented at university health centers.

The computational method itself, as described in the discussion section, may be interpreted in different ways. There is no test for significance, so rankings should be understood in broad strokes of where improvement may need to occur, rather than as a strict benchmarks of performance. Initially, Friedman's test/Kendall's W was used to measure concordance between the racial/ethnic composition of the student body and that of the mental healthcare staff. Unfortunately, this was unsuccessful because the small samples produced highly ambiguous results. Thus, concordance was instead calculated by calculating a measure of variance.

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