



Published in final edited form as:

*J Appl Gerontol.* 2022 March ; 41(3): 680–689. doi:10.1177/07334648211012802.

## Factors Associated with Mental Health Service Use among Black, Latinx, and Asian Older Adults in Community Based Organizations

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### Abstract

**Objective:** Older adults of color face systemic obstacles in seeking mental health care. Unaddressed late-life mental health issues can challenge independent living and increase disability and mortality risk. This study examined factors associated with mental health service use among community-dwelling older adults.

**Method:** This cross-sectional analysis used data from the Positive Minds-Strong Bodies trial ( $N=1,013$ ).

**Results:** Higher anxiety, depressive, and PTSD symptoms increased odds of service use (OR=1.05–2.11). Asian and Latinx, but not Black, older adults had lower odds of service use than Whites (OR=0.15–0.35). Yet Asian and Latinx older adults with higher anxiety and depression symptoms and Asians with at least one PTSD symptom had higher odds of service use than Whites with the same symptomatology (OR=1.16–2.88).

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#### Conflict of Interest Statement

The authors declare that there is no conflict of interest.

#### Institutional Review Board Protocol Approval Numbers

The trial was approved by the institutional review boards of Massachusetts General Hospital/Partners HealthCare [2015P001505/PHS] and New York University [114–01903], with ceded reviews for partnering community-based organizations (CBOs).

#### Data Availability Statement

The datasets for this manuscript are not publicly available because it involves an ethnic/racial minority sample including participants with depression and anxiety. We are not able to release data as part of the publication, given the sensitivity of the data, and our agreement with the institutions' IRB. Requests to access the datasets should be directed to Sheri Markle, smarkle@mgh.harvard.edu

**Conclusion:** White older adults might be more likely to seek mental health care at lower levels of need, while Asian and Latinx older adults might seek services when they perceive greater need.

### Keywords

mental health; anxiety; depression; service use; older adults; racial/ethnic

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In the United States, approximately one in five adults aged 65+ report experiencing at least one mental illness or substance use disorder in the past year (Reynolds et al., 2015). Mood and anxiety disorders are the most common mental health conditions among older adults. Yet, fewer than one third with these conditions report receiving treatment (Byers et al., 2012).

Unaddressed mental health needs are associated with poor health outcomes, increased physical disability, increased mortality risk, greater use of medical services, reduced treatment compliance, and reduced ability to carry out necessary activities for independent living (Bor, 2015). It is well documented that older adults of color in the U.S. are less likely than non-Latinx white older adults to access necessary mental health services (Jimenez et al., 2013). With the number of adults aged 65+ nationwide expected to nearly double by 2060, and the fastest growth expected in Latinx, Asian, and multiracial populations (Vespa et al., 2020), it is essential to better understand unmet need for mental health services.

Numerous studies have found that the ways that people experience, explain, and respond to mental distress can vary across racial and ethnic groups, reflecting structural inequities (e.g., in access to quality care) as well as cultural differences (e.g., in worldview) (Torres, Bird, & Mata Greve, 2020; Jimenez et al., 2012). We use the Behavioral Model for Vulnerable Populations (BMV) (Gelberg et al., 2000) to characterize various factors that may impact mental health service use among Black, Latinx, and Asian older adults (Babitsch et al., 2012; Kim et al., 2010). The model includes predisposing factors (e.g., age, gender, ethnicity, race); enabling or impeding factors that explain differences in resource availability (e.g., insurance status, income, education, personal/family resources); and actual need for care (e.g., perceived and/or formally evaluated health need through symptom assessments) (Gelberg et al., 2000).

Community-based organizations (CBOs) and primary health clinics represent ideal settings to assess mental health and wellbeing needs of older adults. However, research studies have not frequently been conducted in sites with adequate representation of linguistic and ethnic/racial minorities (Han et al., 2011). Prior studies applying the BMV to examine mental health service use among older adults of color (Byers et al., 2012; Kim et al., 2010) have not specifically investigated the application of the model with participants 60+, whose primary language is Spanish, Mandarin, or Cantonese. Our study uses the BMV as a tool to better understand the factors impacting service use among a racially/ethnically diverse sample of community-dwelling older adults, many of whom are linguistic minorities.

Participants were screened in CBOs and primary care clinics in four settings: Florida, Massachusetts, New York, and Puerto Rico. At the time of screening, these older adults were not visiting the CBO or clinic to deliberately seek mental health services, but rather

were there for other health services (e.g., paperwork assistance or primary care visit). The screener included questions about previous mental health service use in addition to screening for mental health symptoms. Based on the BMV and prior research (Byers et al., 2012; Kim et al., 2010), we also examined: (1) predisposing factors such as race/ethnicity, age, gender, and education level; (2) enabling factors that might affect prior independent help-seeking, such as cognitive functioning; and (3) need factors, as determined by total scores on validated mental health screening questionnaires. Lastly, we explored whether race/ethnicity moderated the association between need and mental health service utilization. We hypothesized that racial/ethnic minority older adults would be less likely than non-Latinx Whites to seek mental health care (*Hypothesis 1*), and that participants with greater levels of symptomatology would be more likely to seek mental health care (*Hypothesis 2*). We also hypothesized that the association between mental health symptoms and care seeking would be moderated by race/ethnicity, such that non-Latinx Whites with higher symptom levels would be more likely than minority older adults to use mental health services (*Hypothesis 3*).

## Methods

### Data

Data came from the screening assessment of the Positive Minds-Strong Bodies (PMSB) multisite randomized controlled trial, which sought to prevent mental health problems and disability for older adults of color (Alegría et al., 2019). The trial was offered at CBOs (e.g., senior day centers) and primary health settings that served predominantly low-income racial/ethnic minority and immigrant older adults in Massachusetts, New York, Florida, and Puerto Rico. Recruitment was conducted between May 2015 and May 2018. Participants were assessed for capacity to consent and provided written informed consent. Bilingual research Assistants (RAs) conducted screening interviews with adults aged 60+ in either English, Spanish, Mandarin or Cantonese based on the participants' primary language.

Most measures included in the PMSB study have been previously translated and psychometrically tested for use among Spanish, Mandarin and Cantonese speakers (see measures section). Note that the written translations of Mandarin and Cantonese are the same (it is the oral pronunciation that differs); thus, the written translations are referred to together as "Chinese". The measures for cognitive impairment and suicidality were not available in Chinese and thus were translated as part of the PMSB trial (Alegría et al., 2019). Professional translators and multilingual clinicians collaborated to produce the final version of the translations, as described in a prior report (Alegría et al., 2019). Internal consistency (Cronbach's alpha,  $\alpha$ ) of all measures included in the present study was adequate in all languages (see Measures section).

In total, 1,057 potential participants completed the screening assessments, receiving a \$10 gift card for compensation. Full eligibility criteria and detailed information about the intervention have been published elsewhere (Alegría et al., 2019). The randomized controlled clinical trial was approved by the relevant institutional review boards, with ceded reviews for partnering CBOs.

## Race/Ethnicity

Participants reported ethnicity and race separately through two questions based on U.S. Office of Management and Budget Standards. Their responses, which allowed multiple selections, were then classified into one of five mutually exclusive race/ethnicity categories (Latinx, Asian, American Indian, non-Latinx Black, or non-Latinx White) using a hierarchical system from prior research (Alvarez et al., 2019; Vilsaint et al., 2019). All respondents who self-identified as Hispanic/Latinx ( $N=283$ ; 26.77%) were coded as Latinx. The rest of participants included Asian/Pacific Islanders (Asian,  $N=481$ ; 45.51%), those who reported being American Indian ( $N=44$ ; 4.16%), and those who reported being Black/African/African American (Black,  $N=159$ ; 15.04%). Respondents who reported no other race or ethnicity other than White ( $N=90$ ; 8.51%) were coded as White. In the current study, we excluded participants classified as American Indian ( $N=44$ ) to avoid small cell sizes when analyzing the association between race/ethnicity, symptom severity, and service use. After this exclusion, our final sample included 1,013 respondents who consented to be screened.

## Measures

**Mental Health Service Use**—Our primary outcome measure comes from a prior study (Alegría et al., 2004) where it appeared in English, Spanish, and Chinese. Mental health service use was a binary variable equal to one if the participant affirmed any of the following three questions, and equal to zero otherwise: (1) “In the past 3 months, [have you visited at least once] a psychiatrist, psychologist or other professional such as a counselor or social worker to talk about a psychological or emotional problem (this includes psychiatric hospitalizations or residential care services for problems with nerves, drugs, alcohol or mental health)?”; (2) “In the next month, do you have an appointment scheduled with a psychiatrist, psychologist, counselor or other health provider such as a social worker to talk about mental health or substance use problems, including drug or alcohol problems?”; and (3) “Do you currently receive a prescription or medicine for your emotions, nerves or mental health from any type of professional?”.

**Socio-demographics**—In addition to race/ethnicity, demographic information included: age (60–64, 65–74, 75+ years old), gender (male, female), and education level (less than high school, high school/GED/or more). These measures come from a prior study (Alegría et al., 2004) where they appeared in English, Spanish, and Chinese.

**Montreal Cognitive Assessment (MoCA)**—MoCA (Nasreddine et al., 2005) is a widely used screening assessment for detecting mild cognitive impairment among older adults (translations from Zhou et al. 2015; Alegría et al., 2019). The score ranges from 0 to 30, with lower scores representing stronger indication of cognitive impairment. MoCA scores above 25 have been considered indicative of normal cognitive functioning (Nasreddine et al., 2005). However, research indicates this cut-off might not be optimal across all racial/ethnic groups, in part due to differences in educational attainment (Milani et al., 2018). Thus, we chose to include the MoCA score as a continuous scale in our analyses.

**Patient Health Questionnaire 9-item (PHQ-9)**—The PHQ-9 (Kroenke, Spitzer, & Williams, 2001) was used to measure depressive symptoms (translations from Diez-Quevedo et al., 2001; Chen et al., 2006; Yeung et al., 2008). The measure includes nine questions with responses provided on a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). Items are summed to create a total score (range 0–27). The measure had adequate internal consistency in the four languages ( $\alpha = 0.84$  in the current total sample; English = 0.80; Spanish = 0.80; Mandarin = 0.83; Cantonese = 0.88). Higher scores indicate more depressive symptoms.

**Generalized Anxiety Disorder 7-item (GAD-7)**—The GAD-7 (Spitzer et al., 2006) was used to screen for generalized anxiety symptoms (translations from Garcia-Campayo et al., 2010; Zeng et al., 2013). The responses for this 7-item measure are provided on a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). Items are summed to create a total score (range 0–21). The GAD-7 had adequate internal consistency in the four languages ( $\alpha = 0.89$  in the current total sample; English = 0.86; Spanish = 0.86; Mandarin = 0.92; Cantonese = 0.93). Higher scores indicate higher levels of anxiety.

**Geriatric Depression Scale 15-item (GDS-15)**—The GDS-15 (Marc, Raue, & Bruce, 2008) is an abridged version of the widely used Geriatric Depression Scale (Sheikh & Yesavage, 1986; translations from Martinez de la Iglesia et al., 1998; Stokes et al., 1998). Patients are asked yes/no questions regarding how they felt over the past week. Items are added to create a total score (range 0–15; with adequate internal consistency;  $\alpha = 0.84$  in the current total sample; English = 0.79; Spanish = 0.84; Mandarin = 0.86; Cantonese = 0.87). Higher scores indicate more depressive symptoms.

**Primary Care PTSD 4-item Screen (PC-PTSD)**—The PC-PTSD (Cameron & Gusman, 2003) is designed to identify individuals with probable PTSD (translations from Miles et al., 2008; Alegría et al., 2019). It includes four questions pertaining to DSM-IV PTSD criteria (Prins et al., 2003), and response options are 0 (no) or 1 (yes). Because the number of endorsed symptoms were skewed (e.g., 73.4% of Asian participants did not endorse any of the PC-PTSD items), we created a binary variable equal to one if participants endorsed at least one item, and equal to zero otherwise.

**Paykel Suicide Items**—Respondents who endorsed the suicidal ideation question on the PHQ-9 received the Paykel Suicide Scale (Paykel et al., 1974), consisting of five items assessing suicidal behaviors in the last 30-days (translations from Alegría et al., 2014; Alegría et al., 2019). Response options are 0 (no) or 1 (yes). Participants who responded yes to item 4 or 5 (i.e., suicide plan or attempt) were referred to emergency services (Gaynes et al., 2004). These participants were screened and included in this sample, but were not eligible for the randomized controlled trial, unless negative to suicidality after re-assessment at 30 days. Because only 44 respondents (4.34%) endorsed suicidal ideation on the PHQ-9 and were consequently asked the Paykel suicide items, we created a binary variable (1 = the Paykel questionnaire was triggered; 0 = not triggered).

## Statistical Analysis

We began by comparing participants who were identified as mental health service users versus non-users, using two-sided tests at  $\alpha = .05$  for statistical significance. We then compared mental health service use status by race/ethnicity for participants identified as in need of services (scored 5+ on either the PHQ-9, the GAD-7, or the GDS-15) and for participants identified with no service need. We use a previously suggested cut-off point of 5 as an indication of need (Spitzer et al., 2006; Valenstein et al., 2009).

Next, following the BMV approach (Gelberg et al., 2000), we estimated logistic regression models to examine the association between mental health service use (dependent variable) and predisposing factors, enabling factors and mental health need. Predisposing factors included demographic characteristics (gender, age, race/ethnicity, and education). Enabling factors included the total MoCA score. Mental health need factors included the GAD-7 score, the GDS-15 score, the PHQ-9 score, and two binary variables: a binary variable equal to one if at least one PC-PTSD item was endorsed and equal to zero otherwise; and a similar binary variable for the Paykel suicidality screener. Because language was highly correlated with race/ethnicity (e.g., 79.86% of participants who self-identified as Latinx chose Spanish as their primary language), we did not include language as a predisposing factor. Additionally, the PHQ-9 and GDS-15 scores were highly correlated ( $r = .70$ ), so we included only the GDS-15 as it was developed for use with older adults (Marc et al., 2008). Finally, we included the GAD-7 and the GDS-15 as continuous measures (i.e., total scores) to avoid small sample sizes in some cells.

Our logistic regression models accounted for the potential correlation among participants nested within the same clinical site and used robust empirical standard errors (White, 1980). We report the estimated odd ratios (OR) and their linearized standard errors, with two-sided design-based tests at  $\alpha = .05$  level for statistical significance. Significance of individual coefficients in categorical variables (e.g., race/ethnicity) was interpreted only if the omnibus tests were also significant at the  $\alpha = .05$  level. To account for missing data, we applied multiple imputation using Stata chained equations (Rubin, 2004). Analyses were performed using Stata software version 15.1 (StataCorp, 2017) with all significance tests adjusted for multiple imputation and small sample size (Reiter, 2007).

Four different models were estimated. Model 1 included the predisposing, mental health need, and enabling factors. We then assessed how race/ethnicity interacted with mental health need factors (anxiety, depression, and PTSD symptoms) in their association with service use. To avoid over specification of the model, we included interaction terms between race/ethnicity and anxiety, depression, and PTSD separately, such that Model 2 added to Model 1 interaction terms between race/ethnicity and the GAD-7 score only, Model 3 added to Model 1 interaction terms between race/ethnicity and the GDS-15 score only, and Model 4 added to Model 1 interaction terms between race/ethnicity and the PC-PTSD indicator.

## Results

### Descriptive Analysis of Sample and Study Variables

Table 1 presents descriptive statistics of the sample used in this study ( $N=1,013$ ), comparing respondents identified as mental health service users (156; 15.4%) with non-users (857; 84.6%). These two groups were significantly different in most observable demographic and clinical characteristics ( $p < .05$ ), except for gender ( $p = .15$ ) and education level ( $p = .07$ ). As displayed in Table 1, mental health service users were younger (55.8% were under 75 years old), more likely to endorse at least one PTSD symptom (69.2% versus 33.1%,  $p < .01$ ), scored lower on the MoCA (19.82 versus 21.06,  $p < .01$ ), were more likely to have endorsed suicide symptoms on the Paykel (13.2% versus 4.7%), and had higher mental health symptoms as measured by the PHQ-9, the GAD-7, and the GDS-15. Most mental health service users self-identified as Latinx (42.3%), followed by Asian (20.5%), White (19.9%) and Black older adults (17.3%).

Table 2 displays mental health service use status by race/ethnicity for participants identified as in need of mental health services (scored 5+ on either the PHQ-9, GAD-7, or GDS-15) and for participants with no service need. Almost half of the participants (495; 48.9%) were classified as in need of services. Among those, Asian older adults had the lowest prevalence of service use (16.2%), followed by Black (24.7%), Latinx (31.0%), and White older adults (36.7%). Among those classified as not needing services, White older adults reported the highest rate of service use (31.7%), followed by Black (9.8%), Latinx (9.1%), and Asian older adults (0.7%).

### Association between Mental Health Service Use and Predisposing, Enabling, and Mental Health Need Factors

Table 3 presents the results of our logistic regression models for the association between mental health service use and predisposing, enabling, and mental health need factors. Results from Model 1 indicated that among the predisposing factors, only race/ethnicity was significantly associated with mental health service use (omnibus test  $p < .05$ ). Consistent with our first hypothesis, Asians (OR = .15,  $p < .01$ ) and Latinxs (OR = .35,  $p < .01$ ) both had lower odds of mental health service use as compared to Whites. However, contrary to our first hypothesis, no significant differences in the odds of mental health service use were found among the Black participants compared to White participants. Consistent with our second hypothesis, higher GAD-7 (OR = 1.12,  $p < .01$ ) and GDS-15 (OR = 1.05,  $p < .05$ ) scores were associated with higher odds of service use, as well as endorsing at least one PTSD symptom per the PC-PTSD (OR = 2.11,  $p < .01$ ) as compared to those with no symptoms.

We then examined whether race/ethnicity moderated the effect of anxiety, depression, and PTSD symptoms on service use. Contrary to our third hypothesis, Whites with worse symptoms were not more likely to seek care compared to racial/ethnic minorities. In Model 2, which included interaction terms between race/ethnicity and the GAD-7 score, increased anxiety symptoms were associated with higher odds of service use among both Asians (OR = 1.23,  $p < .01$ ) and Latinxs (OR = 1.16,  $p < .01$ ) relative to Whites with the same

level of anxiety. The same result was observed when including interaction terms between race/ethnicity and the GDS-15 scores (Model 3), i.e., increased depressive symptoms were associated with higher odds of service use among both Asians (OR = 1.24,  $p < .01$ ) and Latinxs (OR = 1.23,  $p < .01$ ) compared to Whites with the same level of depression. Finally, the presence of at least one PTSD symptom was also associated with increased odds of service use among Asians (OR = 2.88,  $p < .01$ ) compared to Whites with at least one PTSD symptom (Model 4). This last result was not observed among Latinxs.

## Discussion

Despite advances in health equity, disparities persist, with low rates of mental health service use for both Latinx and Asian older adults (Reynolds et al., 2015). Drawing on the Behavioral Model for Vulnerable Populations (Gelberg et al., 2000), we analyzed three groups of factors associated with mental health service use by older adults of color: predisposing (age, gender, race/ethnicity, and education), enabling (cognitive functioning) and need (depression, anxiety, and PTSD symptoms). We also assessed whether race/ethnicity moderated the association between need and service use. Our findings partially support our first hypothesis: some but not all racial/ethnic minority groups were less likely than non-Latinx Whites to seek mental health care.

### Predisposing Factors

As predicted, racial/ethnic minority groups overall reported lower odds of receiving services compared to Whites. Yet only Latinx and Asian, and not Black participants, were less likely to report receiving mental health services compared to White participants. This contradicts the predominant finding in the literature of access disparities for Black older adults (Pickett et al., 2013). One possible explanation of this finding is language barriers (Ohtani et al., 2015) - most of the Black older adults, except for Afro-Latinx participants, reported their primary language as English, while most Latinx and Asian participants completed the assessments in Spanish and Mandarin or Cantonese. Language should be considered as an important predisposing factor that affects receipt of services. Developing multi-lingual services might improve access to mental health care.

Neither age, gender, nor education were significant predisposing factors for service use. This is not surprising considering the mixed findings in the literature (Byers et al., 2012; Karlin et al., 2008).

### Enabling Factors

Level of cognitive functioning as an enabling factor was not significantly associated with service use. Older adults may consider all cognitive impairment and memory loss as a normal part of their aging process (Moody & Sasser, 2020); and may ignore or underestimate the severity of abnormal symptoms identified through the measure of cognitive functioning (e.g., MoCA). It is also worth noting that suicidal ideation, which is commonly associated with treatment need (Dube et al., 2010), was not associated with mental health service utilization. This may be due to the fact that we used a binary variable to analyze suicidal ideation which might not capture the type of ideation reported (either



passive or active). The majority of respondents only endorsed the items describing passive suicidal ideation, and research indicates that active suicidal ideation is a stronger marker of service use (Van Orden et al., 2015).

### **Mental Health Need**

Consistent with our second hypothesis, participants with higher levels of mental health symptoms reported greater likelihood of service use. However, the association between indicators of mental health need and help seeking varied by race/ethnicity, with White older adults consistently reporting significantly higher service use rates, regardless of need. These findings are consistent with prior literature (Chiu et al., 2018). The clinical significance of PTSD symptoms for Asians, whereby endorsing at least one PTSD symptom is related to help seeking, is suggestive of potentially being a severity marker for psychopathology.

It is worth pointing out that a small portion (6.2%) of adults who were not classified as currently being “in need of services” at the time of the screening did report recent service use (shown in Table 2). This could be a sign that their mental health services are working, especially if it includes long-term psychotherapy or medication. Service use could also be prompted by other late life mental health issues (e.g., substance use; Reynolds et al., 2015) which were not captured by our measures. Nevertheless, we cannot exclude the possibility of some individuals using treatment excessively, as reported by other studies (Druss et al., 2007). A misallocation of treatment resources could have implications for health-system burden and cost. Future studies can investigate the prevalence of this problem.

Contrary to our third hypothesis, our interaction analyses revealed that at higher levels of depression and anxiety, Asian and Latinx older adults were more likely than Whites to use services. Race/ethnicity moderated the effect of need factors (i.e., depression and anxiety symptoms) on the likelihood of service use. Among respondents with lower levels of symptom severity, service use was higher among White adults compared to Latinx and Asian adults; yet among those with higher levels of symptom severity, Latinx and Asian adults were more likely than White adults to use services. We speculate that the Latinx and Asian participants might delay seeking treatment until symptoms impact their functioning. Sites that specialize in serving Latinx and Asian older adults are critical in facilitating support when symptoms cause significant distress. However, when symptoms are mild, Latinx and Asian older adults may remain silent, leaving symptoms undetected. Unlike Asian and Latinx adults, at higher levels of symptom severity Black older adults did not report greater likelihood of service use than Whites. Compared to Asian and Latinx participants, Black adults in our sample were less likely to face linguistic barriers but might face other social and cultural barriers, such as mental illness stigma and microaggressions in therapy (Taylor & Kuo, 2019). Due to linguistic barriers, Asian and Latinx older adults in our sample were more likely than Black and White older adults to depend on the community sites to help them with daily tasks (e.g., completing paperwork, meal services). Asian and Latinx adults' more frequent social contact at these organizations (e.g., with staff and other older adults) could provide more opportunities for them to build rapport, notice changes in their mood or behavior, and get referrals for care. While longitudinal and qualitative research

are necessary to explain this result, it suggests the unique opportunity of CBOs to facilitate access to mental health services for older adults.

Our findings should be considered within the context of limitations. Due to the cross-sectional study design, we were unable to make causal inferences or analyze the direction of reported effects. Since our recruitment was catered to racial/ethnic minorities, we were also limited by a relatively small sample in the non-Latinx White group (90 older adults). A binary variable for at least one PTSD symptom did not capture variation in symptom severity. Thus, our finding that Asians with at least one PTSD symptom had increased odds of service use compared to Whites should be interpreted with caution. One potential confounding factor is that all the participants were recruited at CBOs and clinics. These specific recruitment sites might have facilitated behavioral health service seeking, in which case service use rates reported by Black, Asian, and Latinx groups in this study may be higher than the rates among older adults from other settings.

### Implications for Clinical Practice

Given the limitations of primary care as an entry point to mental health care (e.g., insufficient time within visits to address mental health or build a relationship with the patient; Tai-Seale et al., 2007), and the racial disparities in service use identified in the current study and prior research (Jimenez et al., 2013), there is a need for additional sources of identification and referral, particularly for racial/ethnic minority populations. Our study suggests CBOs could play an active role in connecting older adults with mental health services and reducing service use disparities. When racial/ethnic minority older adults visit CBOs for help with daily living needs (e.g., language translations, meal services) their mental health needs may get recognized as well. In this respect, CBOs can be a significant factor in facilitating mental health help seeking, particularly for linguistic minority or immigrant communities. In practice, if primary care facilities and mental health clinics can partner with and invest in CBOs (e.g., providing training for CBO staff to better identify mental health needs in the community), they may mitigate racial disparities in service use.

### Acknowledgements

We acknowledge the contribution of the partnering community organizations, research staff, and study participants, without whom this paper would not have been possible. We also thank Lulu Wang, Larimar Fuentes and Yuying Guo for their assistance with study data, and Sheri Markle and Lauren Cohen for their contributions to the revisions and preparation of the manuscript.

### Funding

This work was supported by the National Institute on Aging and the National Institute of Mental Health [R01AG046149].

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**Table 1**Patient Demographics by Mental Health Services Use ( $N=1,013$ )

	Mental Health Service Non-Users ( $N=857$ )		Mean Health Service Users ( $N=156$ )		<i>p</i>
	Unimputed N	Imputed %	Unimputed N	Imputed %	
Age					
60–64	36	4.2%	20	12.8%	<.01
65–74	331	38.6%	67	42.9%	
75+	490	57.2%	69	44.2%	
Gender					
Male	211	24.6%	30	19.2%	.15
Female	646	75.4%	126	80.8%	
Race/Ethnicity					
White	59	6.9%	31	19.9%	<.01
Black	132	15.4%	27	17.3%	
Asian	449	52.4%	32	20.5%	
Latinx	217	25.3%	66	42.3%	
Language					
English	170	19.8%	48	30.8%	<.01
Spanish	198	23.1%	61	39.1%	
Mandarin	173	20.2%	13	8.3%	
Cantonese	220	25.7%	12	7.7%	
None of the above	2	.2%	0	.0%	
More than one language	94	11.0%	22	14.1%	
Education Level					
Less than High School	363	42.5%	54	34.6%	.07
High School, GED or More	492	57.5%	102	65.4%	
PC-PTSD					
Not Endorsed	21	66.9%	1	30.8%	<.01
Endorsed	836	33.1%	155	69.2%	
Paykel					
Not triggered	765	95.3%	133	86.8%	<.01
Triggered	26	4.7%	18	13.2%	
PHQ-9					
0–4: Minimal Depression	560	65.3%	45	28.8%	<.01
5–9: Mild Depression	201	23.5%	44	28.2%	
10+: Moderate/Severe Depression	96	11.2%	67	42.9%	
GAD-7					
0–4: Minimal Anxiety	673	78.5%	58	37.2%	<.01
5–9: Mild Anxiety	126	14.7%	49	31.4%	
10+: Moderate/Severe Anxiety	58	6.8%	49	31.4%	
GDS-15					
0–4: None/Minimal Depression	571	73.6%	68	45.3%	<.01

5–9: Mild Depression	160	21.3%	51	35.7%	
10+: Moderate/Severe Depression	40	5.0%	28	18.9%	
	<b>Imputed Mean</b>	<b>Imputed SE</b>	<b>Imputed Mean</b>	<b>Imputed SE</b>	
MoCA					
Score range: 0–30	21.06	0.16	19.82	0.38	<.01

*Note.* The final sample ( $N = 1,013$ ) does not include participants classified as American Indian ( $N=44$ ) to avoid small cell sizes; Unimputed  $N$  = Number of observations based on original unimputed data set, i.e., using listwise deletion; Imputed % = Percentage calculated using 20 imputed complete data sets;  $SE$  = Standard Error; PC-PTSD = Primary Care PTSD 4-item Screen (Cameron & Gusman, 2003); PHQ-9 = Patient Health Questionnaire 9-item (Kroenke, Spitzer, & Williams, 2001); GAD-7 = Generalized Anxiety Disorder 7-item (Spitzer et al., 2006); GDS-15 = Geriatric Depression Scale 15-item (Sheikh & Yesavage, 1986); MoCA = Montreal Cognitive Assessment (Nasreddine et al., 2005); GED = General Education Development test.

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**Table 2**

**Mental Health Service Use by Race/Ethnicity and Identified Need (N=1,013)**

	Total		White		Black		Asian		Latinx		p
	N	%	N	%	N	%	N	%	N	%	
<b>In Need of Services<sup>a</sup></b>											
Mental Health Service Use											
No	371	74.9%	31	63.3%	58	75.3%	155	83.8%	127	69.0%	<.01
Yes	124	25.1%	18	36.7%	19	24.7%	30	16.2%	57	31.0%	
<b>No Service Need<sup>b</sup></b>											
Mental Health Service Use											
No	486	93.8%	28	68.3%	74	90.2%	294	99.3%	90	90.9%	<.01
Yes	32	6.2%	13	31.7%	8	9.8%	2	0.7%	9	9.1%	

Note. The final sample (N = 1,013) does not include participants classified as American Indian (N=44) to avoid small cell sizes.

<sup>a</sup>Participants were classified as "In Need of Services" if they scored 5+ on either the PHQ-9, the GAD-7, or the GDS-15.

<sup>b</sup>Participants not classified as "In Need of Services".



**Table 3**

Association between Mental Health Service Use and Predisposing, Enabling and Mental Health Need Factors

	Model 1		Model 2		Model 3		Model 4					
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p			
<b>Predisposing factors</b>												
<b>Gender</b>												
Male (Reference)												
Female	1.06	[.61, 1.84]	.84	1.03	[.62, 1.73]	.90	.99	[.58, 1.68]	.96	1.09	[.65, 1.81]	.75
<b>Age</b>												
60-64 (Reference)												
65-74	.58	[.34, .97]	.04	.60	[.36, .99]	.05	.60	[.35, 1.02]	.06	.56	[.34, .93]	.03
75+	.52	[.29, .94]	.03	.55	[.30, 1.00]	.05	.53	[.28, .97]	.04	.50	[.28, .90]	.02
<i>Omnibus test (p-value)</i>	.09			.12			.12			.14		
<b>Race/Ethnicity</b>												
White (Reference)												
Black	.36	[.11, 1.15]	.08	.28	[.10, .78]	.02	.27	[.09, .84]	.02	.32	[.07, 1.47]	.14
Asian	.15	[.10, .22]	<.01	.06	[.03, .11]	<.01	.06	[.04, .10]	<.01	.08	[.05, .14]	<.01
Latinx	.35	[.23, .54]	<.01	.20	[.13, .30]	<.01	.17	[.11, .26]	<.01	.34	[.22, .53]	<.01
<i>Omnibus test (p-value)</i>	<.01			<.01			<.01			<.01		
<b>Education</b>												
<HS (Reference)												
HS, GED or more	1.27	[.88, 1.85]	.20	1.33	[.88, 1.99]	.17	1.33	[.87, 2.05]	.19	1.27	[.87, 1.85]	.21
<b>Mental Health Need</b>												
<b>Paykel</b>												
Not triggered (Reference)												
Triggered	1.24	[.54, 2.87]	.62	1.17	[.51, 2.73]	.71	1.24	[.54, 2.82]	.62	1.25	[.54, 2.90]	.60
GAD-7 Score	1.12	[1.04, 1.22]	<.01	.98	[.92, 1.04]	.43	1.12	[1.04, 1.21]	<.01	1.12	[1.04, 1.22]	<.01
GDS score	1.05	[1.00, 1.10]	.04	1.05	[.99, 1.11]	.08	.89	[.82, .97]	<.01	1.04	[.99, 1.10]	.11
<b>PC-PTSD</b>												
0 symptoms (Reference)												
1+ symptoms	2.11	[1.42, 3.14]	<.01	2.09	[1.42, 3.08]	<.01	2.09	[1.39, 3.14]	<.01	1.46	[.71, 3.01]	.30

	Model 1		Model 2		Model 3		Model 4		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	
<b>Enabling Factors</b>									
MoCA score	.96	[.91, 1.00]	.06	.96	[.91, 1.00]	.05	.95	[.91, 1.00]	.06
<b>Interactions</b>									
Interaction with Anxiety									
GAD-7 Score x Black				1.09	[.98, 1.21]	.12			
GAD-7 Score x Asian				1.23	[1.14, 1.34]	<.01			
GAD-7 Score x Latinx				1.16	[1.09, 1.24]	<.01			
<i>Omnibus test (p-value)</i>				<.01					
Interaction with depression									
GDS-15 Score x Black				1.09	[.96, 1.24]	.17			
GDS-15 Score x Asian				1.24	[1.14, 1.35]	<.01			
GDS-15 Score x Latinx				1.23	[1.07, 1.41]	<.01			
<i>Omnibus test (p-value)</i>				<.01					
Interaction with PC-PTSD									
1+ symptoms x Black							1.30	[.39, 4.28]	.67
1+ symptoms x Asian							2.88	[1.29, 6.41]	<.01
1+ symptoms x Latinx							1.19	[.45, 3.17]	.73
<i>Omnibus test (p-value)</i>									.01

Note. OR = Odds ratio; CI = Confidence interval; PC-PTSD = Primary Care PTSD 4-item Screen (Cameron & Gusman, 2003); GAD-7 = Generalized Anxiety Disorder 7-item (Spitzer et al., 2006); GDS-15 = Geriatric Depression Scale 15-item (Sheikh & Yesavage, 1986); MoCA = Montreal Cognitive Assessment (Nasreddine et al., 2005); HS = High school; GED = General Education Development test.