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Ethnic Groups Differ in How Poor Self-Rated Mental Health Reflects Psychiatric Disorders

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Abstract

Aim: This study aimed to explore cross-ethnic variation in the pattern of the associations between psychiatric disorders and self rated mental health (SRMH) in the United States.

Methods: This cross sectional study used data from the Collaborative Psychiatric Epidemiology Surveys (CPES), 2001 2003, a national household probability sample. The study enrolled 18,237 individuals who were either Non-Hispanic White (n=7,587), African American (n=4,746), Mexican (n=1,442), Cuban (n=577), Puerto Rican (n=495), Other Hispanic (n=1,106), Vietnamese (n=520), Filipino (n=508), Chinese (n=600) or Other Asian (n=656). SRMH was the outcome. Independent variables were psychiatric disorders including Major Depressive Disorder [MDD], General Anxiety Disorder [GAD], social phobia, alcohol abuse, binge eating disorders, panic disorder, and Post Traumatic Stress Disorder [PTSD], measured by the Composite International Diagnostic Interview (CIDI). Demographic (age and gender), socioeconomic (education and income) factors were covariates.

Results: The only psychiatric disorder which was universally associated with SRMH across all ethnic groups was MDD. More psychiatric disorders were associations with poor SRMH in Non-Hispanic Whites than any other ethnic groups. In African Americans, demographic and socioeconomic factors could fully explain the associations between psychiatric disorders and SRMH. Among Mexican and Other Hispanics, demographic and socioeconomic factors could only explain the association between some but not all psychiatric disorders and SRMH. In all other ethnic groups, demographic and socioeconomic factors did not explain the link between psychiatric disorders and SRMH.

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Ethics:

Shervin Assari declares that he has no conflicts of interest.

Shervin Assari designed the current work, analyzed the data, and drafted the manuscript. He also revised the manuscript and confirmed the final draft.

Informed consent was obtained from all individual participants included in the study. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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Conclusion: Although SRMH is a useful tool for estimation of mental health needs of populations, poor SRMH may not have universal meanings across ethnically diverse populations. Ethnic groups differ in how their poor SRMH reflect psychiatric conditions and the role of demographic and socioeconomic factors in explaining such links. These ethnic differences may be a source of measurement bias in cross-ethnic health comparisons.

Keywords

ethnic groups; psychiatric disorders; self-rated health

Introduction:

Research and practice in the fields of epidemiology and population health have historically shown an interest toward brief and cost effective methods that can be reliably used to estimate the health needs of a community.[1–5] In line with the same need, the Institute of Medicine (IOM) has recently recommended the application of single item self rated health (SRH) measures to monitor the population health in the United States.[68] SRH measures predict a wide range of health outcomes including help seeking behaviors, [10] adherence to prescriptions,[11] chronic medical and psychiatric conditions,[1,2,12–14] and mortality.[15] The single item self rated mental health (SRMH) measures which ask respondents to rate their overall mental health as “excellent, very good, good, fair, or poor” predict need for mental health care.[9,77]

Recent studies have shown that SRH measures differently correlate with a wide range of health outcomes such as psychiatric disorders,[31,78] body mass index,[17] and mortality [18–20] across ethnic groups. According to the Theory of Cultural Psychology, cross-ethnic and cross cultural differences in life histories and values result in major ethnic and culture specific variations in cognitive, emotional, and behavioral processes.[21,22] As a result, the meanings and correlates of psychological, cognitive, and emotional constructs such as SRH are not universal but conditional to ethnicity.[12,23–25]

Factors associated with SRH vary across diverse populations.[16,18,19,25–29,78,] Stronger associations between poor SRH and health problems are found in Non-Hispanic Whites compared to other ethnic groups.[12,16] Ethnic groups may differ in the health correlates of mental as well as physical SRH.[12–14,16,18,19,26–29] SRH better predicts mortality for Non-Hispanic Whites than in Non-Hispanic Blacks.[18] These association also vary between and within race and ethnic groups;[24] for instance, according to one study, East Asians, Filipinos, Vietnamese, and Chinese individuals differed in the association between psychiatric disorders and SRMH.[24] While ethnic differences should be expected in what poor SRH reflects,[24] very few studies have investigated the heterogeneity of the association between psychiatric conditions and SRMH across ethnic groups.

Perception of one’s own mental health as poor prompts complex cognitive and behavioral processes that are needed for help seeking and the utilization of mental health care services.[30,77] Although a wide range of other determinants such as trust, knowledge, access, distance, stigma, financial ability, and insurance also play important roles,[31] the process of mental health care utilization would not initiate unless the individuals perceive their own mental

health as poor.[10,15,30–35] Given the central role of SRMH in the process of seeking mental health care,[36] there is a need for understanding if differential associations exist between actual need and perceived need, and whether such variations contributes to underutilization of mental health care services among ethnic minorities.[12,23,24,36,37,77]

Borrowing data from the Collaborative Psychiatric Epidemiology Surveys (CPES), this study compared ten ethnic groups on the associations between psychiatric conditions and SRMH in the United States.

Methods

Design and Setting

This was a secondary analysis of the Collaborative Psychiatric Epidemiology Surveys (CPES), 2001 to 2003. The CPES is composed of the National Latino and Asian American Study (NLAAS), the National Survey of American Life (NSAL), and the National Comorbidity Survey – Replication (NCS R). These three surveys are representative of the United States adults and have employed very similar methodologies, including utilizing trained lay interviewers to conduct interviews primarily in person. Data were collected by the Institute for Social Research, University of Michigan, Ann Arbor. Study design and sampling have been described in detail elsewhere.[38]

Participants

This current study included a national household probability sample of 18,237 individuals including 520 Vietnamese, 508 Filipino, 600 Chinese, 656 Other Asian, 577 Cuban, 495 Puerto Rican, 1,442 Mexican, 1,106 Other Hispanic, 4,746 African American, and 7,587 Non-Hispanic Whites. All participants were adults (aged 18 or older). These numbers came from NLAAS (n=4,649), NSAL (n=6,082), and NCS-R (n=9,282).

Ethics

The study protocol was approved by the University of Michigan Institutional Review Board. Participants received financial compensation for participating in this study.

Interview

Most interviews were face-to-face and conducted within participants' homes. A minority of the interviews were conducted via phone. The average response rate of the CPES is 72.7%.

Measures

Race and Ethnicity.—Race and ethnicity in the CPES was measured by the individual's self-identification. Participants self-identified as Asian, Hispanic, Black/African American, or White/Caucasian. Asians then self-identified as Vietnamese, Filipino, Chinese, or Other Asian. Hispanics identified as Cuban, Puerto Rican, Mexican, or Other Hispanic. Blacks identified as African American or Caribbean Blacks.[39]

Mental Self-Rated Health.—Participants were asked "How would you rate your overall mental health?" Responses included five categories: excellent, very good, good, fair, and

poor. Single-item SRMH measures correlate with psychiatric disorders and psychological distress. Ranging from 0.7 to 0.8 for brief time intervals, test retest reliability for single-items is high.[20] These measures also show strong correlations with standard scales on distress and well-being.[20]

Demographic Factors.—Demographic factors including age (continuous measure) and gender (dichotomous measure, males being the reference category) were measured.

Socioeconomic Characteristics.—Socioeconomic factors, including education level (less than high school [reference category], high school graduate, some college, college graduate) and income (continuous measure), were measured.

Lifetime Psychiatric Disorders.—A modified version of the World Mental Health Composite International Diagnostic Interview (WMH-CIDI) was used to evaluate lifetime Major Depressive Disorder (MDD), General Anxiety Disorder (GAD), social phobia, alcohol abuse, binge eating disorders, panic disorder, and Post Traumatic Stress Disorder (PTSD). All disorders were diagnosed based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV. The WMH-CIDI was originally developed for the World Mental Health project initiated in 2000.[40] The CIDI requires trained lay interviewers to generate diagnoses of lifetime and recent DSM IV /ICD 10 disorders.[41] Clinical reappraisal studies have documented good concordance for CIDI diagnoses with diagnoses made by psychiatrists.[40,42,43] The CIDI has shown to be valid among several ethnic groups.[44–46]

Statistical Analysis

To account for the complex sampling design of the CPES, we used Stata 13.0 (Stata Corp., College Station, TX, USA) for data analysis. Standard errors were estimated using the Taylor series approximation technique. We conducted our analyses within each ethnic group. First we used zero order Pearson correlations to calculate bivariate associations between each psychiatric disorder and SRMH. Then we reported the results of two series of multivariable associations, adjusted for age and gender, as well as adjusted for age, gender, education, and income.

In all analyses, SRMH was treated as continuous measure with a higher score indicating worse mental health. Psychiatric conditions were all treated as dichotomous variables. Due to multiple comparisons, we used a more conservative threshold for our p values. A p value of less than 0.01 was considered statistically significant.

Results

Descriptive statistics

Table 1 provides a summary of characteristics across ethnic groups. SRMH was higher in Other Asians compared to Non-Hispanic Whites and African Americans. Table 1 also describes the sample sizes of each ethnic group. As shown in the table, the largest population was composed of Non-Hispanic Whites (41.6%). Our population was representative of over 200 million individuals in the United States.

Unadjusted associations

Table 2 provides a summary of bivariate correlates of SRMH across ethnic groups. Major ethnic differences were found in correlates of SRMH. MDD was the only psychiatric disorder which was associated with poor SRMH across all ethnic groups. More correlations between psychiatric disorders and SRMH were found in Non-Hispanic Whites, Cubans, and Other Hispanics. In Chinese individuals, other than MDD, no other psychiatric disorder was associated with SRMH. (Table 2)

Partially adjusted associations

Table 3 summarizes partially adjusted associations when age and gender are controlled for. This table also describes major ethnic differences found in correlates of SRMH. Still, MDD is shown to be better correlated with SRMH. Demographic factors did not explain the correlation between MDD and SRMH in any ethnic group. With demographic factors controlled, psychiatric disorders better correlated with SRMH in Non-Hispanic Whites, Cubans, and Other Hispanics. (Table 3)

Fully adjusted associations

Table 4 shows the results of fully adjusted associations when demographic factors as well as SES indicators are controlled. Above and beyond demographic and SES factors, the association between MDD and SRMH was consistent across almost all ethnic groups. Ethnic groups show different patterns in the adjusted associations between other psychiatric disorders and SRMH. More adjusted correlations were found between psychiatric disorders and SRMH in Non-Hispanic Whites, Cubans, Other Asians, and Puerto Ricans, than in other ethnic groups. (Table 4)

Summary of similarities and differences across ethnic groups

The only psychiatric disorder which was universally associated with SRMH across all ethnic groups was MDD. Other psychiatric disorders should variations in their unadjusted and adjusted associations with SRMH. A higher number of psychiatric disorders were associations with SRMH in Non-Hispanic Whites than other ethnic groups. In African Americans, demographic and socioeconomic factors could fully explain the associations between psychiatric disorders and SRMH. Among Mexican and Other Hispanics, demographic and socioeconomic factors could only explain the association between some but not all psychiatric disorders and SRMH. In other ethnic groups, demographic and socioeconomic factors failed to explain the link between psychiatric disorders and SRMH.

Discussion

This study showed at least three novel findings regarding cross-ethnic variations in the associations between psychiatric disorders and SRMH. First, MDD was the only psychiatric disorder which was consistently linked to poor SRMH across all ethnic groups. Psychiatric disorders other than MDD showed a heterogeneous pattern of association with SRMH across ethnic groups. Second, a larger number of psychiatric disorders were associated with poor SRMH in Non-Hispanic Whites than any other ethnic groups. Third, ethnic groups differed in the role of demographic and social factors in explaining the links between psychiatric

disorders and SRMH. In African Americans, demographic and socioeconomic factors fully explained the associations between psychiatric disorders and SRMH. Among Mexican and Other Hispanics, demographic and socioeconomic factors partially explained the association between psychiatric disorders and SRMH. In other ethnic groups, demographic and socioeconomic factors failed to explain the link between psychiatric disorders and SRMH.

Our findings showed that poor SRMH differently reflects the risk of psychiatric disorders across ethnic groups. This finding is consistent with previous research which has documented major ethnic differences in the associations between SRH and psychiatric disorders.[12,23,24,78] It is still not clear how poor SRMH reflects past, current, and future health needs of diverse populations.[29,37] This result highlights a need for additional research on ethnic differences in the role of culture, SES, and health on shaping health evaluation.[47–57]

Poor SRH better predicts mortality for Whites than minority groups.[18,19,29,59] In a four year follow up study using data from the Health and Retirement Study (HRS), SRH was a weaker predictor of mortality in Blacks than in Whites.[29] In a 20 year follow up study of the National Health and Nutrition Examination Survey (NHANES) Epidemiologic Follow up Study (n = 6833), baseline SRH predicted mortality in Whites but not in Blacks.[19] Over a 6 year period in the Longitudinal Study of Aging (LSOA), SRH failed to predict mortality in Blacks after adjustment for functional limitations.[20] In a study by Woo and Zajacova using data from the National Health Interview Survey (*NHIS*) Linked Mortality Files (1989–2006; N = 289,432), SRH predicted mortality risk less well for Non-Hispanic Blacks and Hispanics than for Non-Hispanic Whites. The study also showed that SES, immigration status, and cause of death do not explain such variations and concluded that "*individuals from different racial and ethnic groups may evaluate their heath differently, and thus caution is necessary when using SRH to estimate racial and ethnic health disparities*."[59 (page 2)] In another study, SRMH was associated with GAD and MDD in African Americans and Caribbean Blacks, respectively.[16]

Ethnic minorities, as well as individuals with less education, may have lower reliability of SRH reports, which causes additional measurement error in SRH for low SES and minority groups.[60] SRH may also have lower validity for measuring "true" health status among racial and ethnic minorities.[61,62] As a result, SRH reflects different aspects of health across ethnic groups.[23,24,26] These findings help us explain differential health correlates of SRH across ethnic groups. This literature also explains differential role of demographic and SES in explaining the link between psychiatric disorders and SRMG across ethnic groups.

Based on our results, sole reliance on single-item SRMH measures will result in larger false negative (or false positive) rates for estimation of mental health need of ethnic minority groups.[26,60,63] Single item SRMH measures are not ideal indicators of ethnic health disparities, as they do not reflect similar health needs across diverse populations.[62] Using SRMH items in surveys to screen individuals with health problems may result in enrollment of populations with different health needs. Currently, SRMH is being employed in some primary care settings as a screening tool to detect individuals at higher risk of psychiatric disorders.[64,65] Using other measures in addition to SRMH is recommended for the screening

of ethnically diverse populations. Thus, our findings have implications for clinical practice as well as public health practice with ethnic groups.[60]

Differential patterns of correlation between health problems and SRMH across ethnic groups can be interpreted as differential validity of single-item SRH measures across diverse ethnic groups. Single-item SRMH measures may particularly result in larger false negative rates for Non- Whites.[23,66] Such single item measures should not be used as universal screening tools across ethnic groups.[67,68] The same is true for application of single-items SRMH measures to compare the efficacy of interventions across ethnic groups.[67–69]

Our findings have implications for designing screening tools for the detection of individuals with health problems in ethnically diverse settings. Although SRMH can still be considered a useful tool for screening MDD for all ethnic groups, poor SRMH does not universally reflect risk of other psychiatric disorders such as anxiety disorders (e.g. GAD, PTSD, panic disorder, and social phobia), alcohol abuse, and binge eating disorders across all ethnic groups.[16,24]As poor SRMH does not convey any meaningful information for several ethnic groups regarding the presence of such psychiatric disorders, more comprehensive screening measures are needed to detect disorders other than MDD across ethnic groups. Such variation has important implications for the screening of psychiatric disorders in the community and primary care settings, where SRH is commonly used as a widely accepted screening tool. Single item SRMH measures are still a useful screening tool for the detection of MDD across all ethnic groups studied.

Our findings help us better understand why ethnic groups with similar health needs differ in seeking help.[12,23,24,76] Although stigma, knowledge, access, insurance, and several other factors also play a role, perceived health is a central element for linking actual health care need to the utilization of health care services in the community. As health problems differently translate to SRH across ethnic groups, group differences in the effect of health problems in service use and help seeking should be expected, even when we eliminate all barriers. Unfortunately, very little is known about the role of the perception of health in shaping under utilization of health services by ethnic minority groups.[33] Both the effects of health need on SRH and also the effect of poor SRH on service use are systematically weaker for ethnic minorities when compared to Whites.[70]

This study had a number of limitations. First, the CIDI may have differential validity for the diagnosis of psychiatric disorders across ethnic groups. Second, we did not measure whether participants had previously received any psychiatric diagnosis. Third, we only included a limited number of psychiatric disorders; other conditions such as drug abuse and medical conditions were not included. Fourth, single item SRH measures are sensitive to the contextual effects of preceding questions in survey instruments, which vary across CPES surveys.[20] Using nationally representative data and a large sample size were two major strengths of this study.

The findings reported here emphasize a need for future research on variation in types of psychiatric conditions that influence evaluation of one’s health.[12] These findings may help us understand why different ethnic groups differ in how psychiatric conditions influence

their perceived health, which is a pre requirement for mental health care use. Thus, the same psychiatric disorder may have different effects on mental and physical SRH of ethnic groups.[24,78] Poor SRH has ethnic specific meanings, and thus require ethnic informed interpretations. Furthermore, SRH should not be used as a tool to compare health status of multiple ethnic groups. It is still unclear to what degree these ethnic differences are shaped by socioeconomic status, historical life experiences, stigma, health literacy, cognitive styles, and memory or attention.[44,71–75] Researchers studying ethnic differences in health should consider that poor SRMH reflects different psychiatric conditions across ethnic groups.

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Table 1:

Descriptive statistics across ten ethnic groups

	Vietnamese		Filipino		Chinese		Other Asian		Cuban		Puerto Rican		Mexican		Other Hispanic		African American		Non-Hispanic Whites	
Characteristics	**M**	**SE**	**M**	**SE**	**M**	**SE**	**M**	**SE**	**M**	**SE**	**M**	**SE**	**M**	**SE**	**M**	**SE**	**M**	**SE**	**M**	**SE**
SRMH	2.40	0.05	2.00	0.04	2.41	0.04	1.86	0.04	2.17	0.05	2.22	0.05	2.32	0.03	2.11	0.03	2.15	0.02	2.18	0.02
Age	43.73	0.67	42.98	0.75	42.88	0.61	38.10	0.68	48.97	0.73	41.17	0.72	36.68	0.48	38.38	0.52	42.19	0.27	46.73	0.45
Gender (Female)	1.55	0.02	1.55	0.02	1.54	0.02	1.50	0.02	1.48	0.02	1.51	0.02	1.47	0.02	1.52	0.02	1.56	0.01	1.53	0.01
Education	2.33	0.05	2.92	0.05	2.90	0.05	3.24	0.04	2.39	0.05	2.14	0.05	1.82	0.03	2.25	0.04	2.28	0.02	2.69	0.02
Income	51.25	2.18	79.01	2.54	74.32	2.56	76.07	2.59	52.22	2.25	50.52	2.18	41.40	1.30	49.43	1.54	37.12	0.54	61.72	1.08
N	520	508	600	656	577	495	1442	1106	4746	7587	520	508	600	656	577	495	1442	1106	4746	7587
Weighted	1156	1909	2533	3452	1060	1864	15763	5869	22049	1.48E	1156	1909	2533	3452	1060	1864	15763	5869	22049	1.48E
n	292	580	495	027	586	484	471	754	686	+08	292	580	495	027	586	484	471	754	686	+08
%	2.85	2.79	3.29	3.6	3.16	2.71	7.91	6.06	26.02	41.6	2.85	2.79	3.29	3.6	3.16	2.71	7.91	6.06	26.02	41.6

SRNH; Self-Rated Mental Health

Table 2:

Bivariate (unadjusted) correlations between psychiatric disorders and self-rated mental health across ten ethnic groups

	Vietnamese	Filipino	Chinese	Other Asian	Cuban	Puerto Rican	Mexican	Other Hispanic	African American	Non- Hispanic Whites
Major Depressive Disorder (MDD)	**.196***	**.143***	**.135***	**.268***	**.286***	**.239***	**.143***	**.231***	**.210***	**.343***
General Anxiety Disorder (GAD)	**.144***	.064	.022	**.175***	**.274***	.114	.077	**.101***	0.011	**.209***
Social Phobia (SP)	.106	.113	.050	**.136***	**.297***	**.188****	**.142***	**.163***	**.152***	**.188***
Panic Disorder (PD)	.110	**.120***	.030	.115	**.189***	**.187***	**.085***	**.137***	**.139***	**.192***
Posttraumatic stress disorder (PTSD)	.052	.021	.060	**.222***	**.238***	**.150***	**.101***	.068	**.131***	**.175***
Alcohol Use Disorders (AUD)	.046	**.148***	.003	**.129***	.033	−.013	**.087***	.065	**.100***	**.177***
Binge Eating Disorders (BED)	.074	.003	−.022	.075	.084	.079	−.050	**.134***	**.093***	.073

SRH; Self-Rated Health, MDD; Major Depressive Disorder, GAD; General Anxiety Disorder, PTSD; Posttraumatic Stress Disorder

*$p < 0.01$

Table 3:

Partially adjusted associations between psychiatric disorders and self-rated mental health across ten ethnic groups

	Vietnamese	Filipino	Chinese	Other Asian	Cuban	Puerto Rican	Mexican	Other Hispanic	African American	Non- Hispanic Whites
Major Depressive Disorder (MDD)	**.212** *	**.159** *	**.149** *	**.271** *	**.283** *	**.236** *	**.142** *	**.233** *	**.173** *	**.328** *
General Anxiety Disorder (GAD)	.112	.063	.017	**.172** *	**.259** *	.106	.071	.091	.002	**.206** *
Social Phobia (SP)	**.117** *	**.118** *	.079	**.134** *	**.298** *	**.198** *	**.141** *	**.153** *	.150	**.178** *
Panic Disorder (PD)	.099	**.121** *	.023	.112	**.174** *	**.186** *	.084	**.167** *	.087	**.158** *
Posttraumatic stress disorder (PTSD)	.034	.017	.051	**.207** *	**.240** *	**.150** *	**.098** *	.030	**.187** *	**.168** *
Alcohol Use Disorders (AUD)	.065	**.156** *	.024	**.173** *	.071	.019	**.096** *	.088	.068	**.179** *
Binge Eating Disorders (BED)	.078	.009	−.019	.079	.077	.089	−.050	**.103** *	.026	.070

SRH; Self-Rated Health, MDD; Major Depressive Disorder, GAD; General Anxiety Disorder, PTSD; Posttraumatic Stress Disorder

* $p < 0.01$.

Age and gender are controlled

Table 4:

Fully adjusted associations between psychiatric disorders and self-rated mental health across ten ethnic groups

	Vietnamese	Filipino	Chinese	Other Asian	Cuban	Puerto Rican	Mexican	Other Hispanic	African American	Non- Hispanic Whites
Major Depressive Disorder (MDD)	**.209** *	**.159** *	**.157** *	**.268** *	**.258** *	**.202** *	**.155** *	**.230** *	.181	**.314** *
General Anxiety Disorder (GAD)	.109	.062	.029	**.173** *	**.235** *	.090	.075	.087	−.035	**.194** *
Social Phobia (SP)	**.117** *	**.125** *	.078	**.139** *	**.290** *	**.170** *	**.153** *	**.161** *	.181	**.155** *
Panic Disorder (PD)	.098	**.128** *	.019	.109	**.178** *	**.160** *	.080	**.159** *	.062	**.147** *
Posttraumatic stress disorder (PTSD)	.025	.022	.065	**.202** *	**.225** *	**.122** *	**.108** *	.037	.176	**.155** *
Alcohol Use Disorders (AUD)	.059	**.149** *	.022	**.171** *	.064	.025	**.101** *	.095	.041	**.130** *
Binge Eating Disorders (BED)	.074	.003	−.002	.069	.076	.066	−.048	**.104** *	.018	.070

SRH; Self-Rated Health, MDD; Major Depressive Disorder, GAD; General Anxiety Disorder, PTSD; Posttraumatic Stress Disorder

* $p < 0.01$.

Age, gender, education, and income are controlled