Association between Perceived Mental Health and Sociodemographic Factors among Adults in Mississippi: Results from BRFSS, 2016

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ABSTRACT: Mental health is an essential concept in health status indicator because it involves emotional as well as psychological well-being. Socioeconomic characteristics have been shown to be a determinants of physical and mental health outcomes. The purpose of study was to explore the relationship between perceived mental health and sociodemographic factors among adults in Mississippi.

This study used the data from 2016 Mississippi Behavioral Risk Factor Surveillance System (BRFSS). Poor mental health was defined as any experience of stress, depression, and problems with emotions within the past 30 days.

One third of participants had perceived poor mental health status. Younger ($p<.0001$), less educated ($p=0.0176$), and lower income ($p<.0001$) people were more likely to have poor mental health then their subgroup counterparts. Females were more likely to have poor mental health then males ($p<.0001$). Smokers were more likely to have poor mental health then non-smokers ($p<.0001$). However, there was no difference between races ($p=.7684$).

Results from this study was similar to findings among other studies. Behavioral factors like smoking status also had an impact on perceived mental health status. To improve the overall health report of the state, prioritizing mental health through improved mental health funding and research is of utmost importance.

KEYWORDS: self-reported mental health, sociodemographic factors, disparities

I.INTRODUCTION

Mental health is a complex and multifaceted area of healthcare which has several different contextual definitions, with its focus being on appropriate and acceptable cognitive and social skills (Galderisi, Heinz, Kastrup, Beezhold, & Sartorius, 2015; Manwell et al., 2015). It is an issue that is receiving increased attention in the literature and media in recent times, due to the increased association between poor mental health and resulting suicides and gun violence (Safran et al., 2009; CDC, 2018). It is a global issue affecting people of all age groups and races (WHO, 2018). In the US, mental health ailments are the second leading burden of healthcare costs with some states and communities being disproportionately affected compared to others (Mental Health America, 2018). This highlights the fact that poor mental health and resulting suicide is a result of multifactorial issues entrenched in socioeconomic factors (CDC, 2018). The state of Mississippi ranks the lowest in most health indicators, with mental health being one of the areas in which it is the last (50th) in the country (Mental Health America, 2018). It is considered the poorest state in the US, with a high poverty level of 22.5 %, and the worst with regards to health outcomes for chronic diseases (Mississippi State Department of Health, 2016). Studies have shown a relationship between poverty, low socioeconomic status and poor mental health (Santiago, Kaltman, & Miranda, 2012; Santiago, Wadsworth, & Stump, 2011). This is supported by Hart's inverse care law which states that the availability of healthcare resources is abundant among populations with little need for it, and limited among populations with a greater need of it (Peters et al., 2008). Mississippi demonstrates a need; therefore, it is of utmost importance to maintain and foster the mental health of the residents of the state (Mississippi Department of Mental Health, 2018).

Based on this premise, we hypothesize that sociodemographic factors are associated and have a significant contribution with the lifetime onset and persistence of mental disorders. This is irrespective of family history of mental disorders, childhood physical illness or any comorbidities. By focusing on socioeconomic status (SES) factors, we can get a

snapshot of the Mississippi population, which have not been a focus of previous studies. Hence, the purpose of this study is to investigate the association between sociodemographic characteristics and self-reported mental health status among adults in Mississippi based on the 2016 data from the Mississippi Behavioral Risk Factor Surveillance System (BRFSS).

II. LITERATURE REVIEW

Mental health is a very important concept in overall well-being, and health status because it is the aspect of health which involves the emotional and psychological well-being, and impacts how people think and act in relation to handling stress (CDC, 2018; WHO, 2014; Galderisi et al., 2015). Likewise, a quote from Her Majesty's cross-government mental health outcomes strategy states 'No health without mental health.' This may sound trite, but studies have shown an association between poor mental health and adverse physical health outcomes such as cardiovascular disease (American Heart Association, 2018; Chaddha, Robinson, Kline-Rogers, Alexandris-Souphis, Rubenfire, 2016). Like health, mental health can be measured on a continuum, rather than solely with the presence or absence of clinical manifestations of mental illness (Westerhof, & Keyes, 2010).

However, mental health is often erroneously assumed to be interchangeable with mental illness (Goldman &Grob, 2006; WHO, 2014). Mental illness is a physiological manifestation of not being in good mental health (WHO, 2014). Mental illnesses and disorders account for one of the most serious but under-prioritized public health issues globally, affecting people in both developed and less developed countries significantly (Ngui, Khasakhala, Ndetei, & Roberts, 2010; WHO, 2018). In the United States, 1 in 5 adults will be diagnosed with a mental illness annually, and 4 percent of the total population already suffers from a serious mental health problem such as schizophrenia (CDC, 2018). Mental health ailments are the second leading burden of healthcare costs with an estimated two hundred billion dollars spent on mental health services in the year 2013 (Holmes, 2016). Although it is a national problem, some states and communities are disproportionately affected by mental health illnesses and disorders than others (Mental Health America, 2018). These observed differences can be associated with several factors which predominantly reflect the adverse health outcomes observed in these populations and the relative attributable health disparities.

The Healthy People 2020 defines health disparity as "any type of health difference that is closely linked with social, economic, and/or environmental disadvantage." (Office of Disease Prevention and Health Promotion, 2018). Thomson, Mitchell & Williams, (2006), highlight the fact that disparities are unfair and inequitable differences in health outcomes among different populations. Disparities are complicated challenges which span the spectrum of the social ecological model when trying to approach the problem of mental health (Safran et al., 2009; McAneney et al, 2015). These disparities significantly impact the poor and vulnerable adversely, resulting in worsening health outcomes which lead to or exacerbate poor mental health or pre-existing mental conditions (WHO, 2018). Socioeconomic status has been proven by several studies to be a pre-determinant of health care disparities because it affects the overall biology and psyche of individuals (APA, 2018; Williams, Priest, & Anderson, 2016;Braveman, Cubbin, Egerter, Williams, &Pamuk, 2010).

Another influencing factor is the racial-ethnicdisparity observed in minorities who are disproportionately affected with mental health illness across their life time compared to whites (American Psychological Association, 2018). A report on mental health by the US Surgeon General's Office (2001), highlighted the fact that minorities bear the brunt of unmet mental health needs with respect to accessing care as well as the quality of care received when they access the needed care. Ethno-racially, Mississippi has a large population of minorities, especially African Americans, who account for 37.7% of the total population (Census Bureau, 2018). Thus, an understanding of the role of socio-demographic factors in mental health outcomes is essential in Mississippi.

III. METHODS

We used data from the 2016 Mississippi BRFSS, administered by the Centers for Disease Control and Prevention.The BRFSS is a state-based, random–digit–dialed telephone survey of the US noninstitutionalized civilian population aged 18 years and older. The survey is conducted in all 50 states, the District of Columbia, and 3 US territories (Puerto Rico, Guam, and the US Virgin Islands). Data from the BRFSS have been shown to provide reliable and valid assessments of different behavioral health risk factors (Pierannunzi, Hu &Balluz, 2013). The Mississippi BRFSS was approved by

human research review board of the Mississippi State Department of Health (MSDH). Detailed information about BRFSS is available on the CDC website (www.cdc.gov/brfss/).

The outcome variable is perceived mental health status and the dependent variables are select demographic characteristics. Sociodemographic variables included gender, race, level of educational attainment, age, and annual household income. Mental health was defined as any experience of stress, depression, and problems with emotions within the past 30 days.

Adjusted and weighted prevalence rates were conducted using a weighting factor in BRBSS to provide nationally representative estimates and using PROC SURVEYFREQ in SAS version 9.4 (SAS Institute, Cary, NC) to account for the complex sampling design. A weighting factor in BRBSS data was made to adjust age, race and ethnicity, sex, geographic region within a population. Rao-Scott chi-square tests, which were adjusted for the complex sampling design(using PROC SURVEYFREQ),were conducted to assess any differences in sociodemographic factors between poor and healthy mental status. A two-sided p-value of <0.05 was considered statistically significant.

IV.   RESULTS

Among total number of respondents was 5,135, 47.8% were males and 52.2% females. Over one third (35%) of the respondents were blacks and over half of the population (51.8%) had at least a high school diploma or more. Almost 70% of the respondents earned an annual income of less than $50, 000. While one third of the respondents had any experience of stress, depression, and problems with emotions within the past 30 days, while 67% had good mental health (Table 1).

Table 2 presents the prevalence of mental health status by each category in sociodemographic characteristics and the results of Rao-Scottchi square analysis. Younger (p<.0001), less educated (p=0.0176), and lower income (p<.0001) people were more likely to have poor mental health then their subgroup counterparts. Females were more likely to have poor mental health then males (p<.0001). Smokers were more likely to have poor mental health then non-smokers (p<.0001). However, there was no difference between races (p=.7684).

V.   DISCUSSION

This study was a state-wide analysis of perceived mental health among Mississippi residents. The principal findings of this study were that the prevalence of poor mental health in Mississippi based on self-report is 33%, which is comparable to data reported by the Kaiser Family Foundation (KFF, 2018). Mental health status differed significantly among adults based on age, gender, education levels, income levels, and smoking status. With respect to race, there was no statistically significant difference among Whites, African Americans, and others, even though there was a larger proportion of African-Americans (34.2%) who reported poor mental health compared to 32.8% among whites. Hence we can postulate that race as a factor is not directly related to disparities in mental health (Rosenthal, & Wilson, 2012). This supports the American Psychological Association, (2018) that there exists a racial difference in lifetime burdens of mental health disorders between whites and minorities.

Nonetheless, several studies have established the relationship between other sociodemographic factors, such as age, income levels and lifestyle to self-reported mental health status (Frandsen et al., 2016; Walsh, Senn, & Carey, 2013; Williams et al., 2016). Socioeconomic status has been proven to affect the overall biology and psyche of individuals (APA, 2018; Williams, Priest, & Anderson, 2016;Braveman et al., 2010). The prevalence reported for people 65 and older was 17.8%, which is like WHO estimates of mental health prevalence among people of this age group (WHO, 2017). Furthermore, there was a higher prevalence of self-reported mental health status in younger adults compared to the elderly, which is a similar finding among other studies (Frandsen et al., 2016).

The relationship between smoking and mental health status is consistent with findings from other studies and national reports (NAMI, 2018; CDC, 2018; Walsh, Senn, & Carey, 2013). According to the CDC (2018), people with mental health disorders have a higher rate of smoking compared to the population as a whole and amounting to over 40 percent of the total national cigarette consumption. In this study, 29.3% of those with poor mental health were smokers which is slightly lower than the estimated national average (not shown). However, this study also provided that smoking is

associated with poor mental health. This is not surprising as a study by Walsh et al., (2013) found that poor self-reported mental health was a predictor of health-compromising behaviors such as smoking.

Table 1. Sociodemographic Characteristics of Mississippi Adults, BRFSS 2016

Characteristics	n (%)
Mental Health Status	
Poor	1456 (33.2)
Good	3516 (66.8)
Age (Years)	
18- 24	268 (13.8)
25-44	1180 (33.5)
45-64	1903 (32.5)
65 or older	1727 (21.2)
Gender	
Male	1973 (47.8)
Female	3161 (52.2)
Race	
Whites	3021 (58.7)
African Americans	1898 (35.1)
Others	162 (6.2)
Education level	
less than High school graduate	680 (17.9)
High school graduate	1663 (30.3)
Attended college or Technical school	1324 (33.5)
College graduate and more	1455 (18.4)
Annual Household Income (USD)	
< $15,000	703 (15.0)
$15,000 - <25,000	1010 (25.2)
$25,000 - <35,000	513 (13.2)
$35,000 - <50,000	571(14.2)
$50,000 or more	1325 (32.3)
Smoking Status	
Current smokers	904 (22.7)
Non-smokers	4071 (77.3)

Table 2: Rao-Scott Chi square analysis of relationship between self-reported mental health status and sociodemographic characteristics

	Mental Health		
	Good	Poor	
	n (%)	n (%)	p-value
Age (Years)			
18- 24	147(54.4)	117(45.6)	<.0001
25-44	729(64.0)	431(36.0)	
45-64	1230(65.4)	602(34.6)	
65 or older	1374(82.2)	288(17.8)	
Gender			
Male	1465(73.0)	450(27.0)	<.0001
Female	2051(61.1)	1005(38.9)	
Race			
Whites	2112(67.2)	817(32.8)	0.7684
African Americans	1266(65.8)	568(34.2)	
Others	100(67.0)	56(33.0)	
Education level			
less than High school graduate	434(63.1)	208(36.9)	0.0176
High school graduate	1141(68.1)	464(31.9)	
Attended college or Technical school	860(64.6)	426(35.4)	
College graduate and more	1069(71.6)	358(28.4)	
Annual Household Income (USD)			
< $15,000	389(53.7)	281(46.3)	<.0001
$15,000 - <25,000	662(63.9)	314(36.1)	
$25,000 - <35,000	348(66.5)	153(33.5)	
$35,000 - <50,000	394(64.3)	169(35.7)	
$50,000 or more	1022(75.9)	291(24.1)	
Smoking Status			
Current smokers	2885(69.5)	1067(30.5)	<.0001
Non-smokers	514(56.4)	352(43.6)	

Generally, mental health is a strong predictor of overall health and thus provides a snapshot of overall population health (Galderisi et al, 2015). In line with this, Levinson and Kaplan (2014) established that a report of good mental health does not nullify the presence of an underlying mental disorder or illness. On the contrary, self-reported mental health is a poor representation and predictor of mental illness (Levinson & Kaplan, 2014). Hence, the misrepresentation of mental health as mental illness should be highlighted, and emphasis placed on the differences between these concepts. A better understanding will enable clearer legislation and policy enforcement to improve the overall population health.

The data were a representative sample of the state of Mississippi and to our knowledge, a state-wide analysis of mental health and correlation with sociodemographic factors has not been carried out before. Another strength of this study is

that the data used have been proven valid and reliable by other studies, and was relatively cost-effective because they were secondary data. Contrarily, this study was limited because it established a relationship between the sociodemographic variables and self-reported mental health but did not establish the type of relationship through regression analysis. Additionally, the fact that mental health status was self-reported and the poor mental health status did not cover all the spheres of mental illness or disorders. Another limitation is that only a few sociodemographic factors were analyzed in this study.

Mental health issues are increasing at great proportions and spiralling out of control. The increase in suicide rates, existence of chronic disease comorbidities and devastating effects of natural disasters increases the incidence and prevalence of this plight. Healthy People 2020 highlights improving mental health as a priority goal because among the most common causes of disability and increases in national health care cost are mental health disorders. This study provided an insight into some of the sociodemographic factors which impact mental health outcomes in the state of Mississippi. This is of relevance to the public and policy makers to improve mental health and overall health of the population by establishing and promoting equitable policies which will improve the socioeconomic status of the residents of this state. Self-reported poor mental health is an issue which affects every age group, race and level of SES. Hence a top-bottom approach to improve access to and utilization of health services will impact the entire population. Also, mental health reform in the legislature should address every mental disorder, especially those which affect most of the population like depression and anxiety.

Future studies should include an analysis of how the different sociodemographic factors predict mental health outcomes. Additionally, an analysis of access to healthcare services and utilization patterns of mental health services should be explored. The impact of community stakeholders in mental health education and promotion will be another viable avenue to pursue.

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