THE RELATIONSHIP BETWEEN BARRIERS TO HEALTHCARE ACCESS AND SELF-REPORTED MENTAL HEALTH STATUS: AN EXPLORATORY STUDY

by

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ABSTRACT

MARGARET E. GIGLER. The Relationship Between Healthcare Access Barriers and Self-Reported Mental Health Status: An Exploratory Study. (Under the direction of DR. VICTORIA C. SCOTT)

Mental illness is a critical public health issue, as it is not only one of the most common causes of disability, but also carries a high disease burden with regards to physical health and premature mortality. Despite the high prevalence and its accompanying costs, many individuals who indicate psychological distress encounter barriers to accessing healthcare. This study draws on the Healthcare Access Barriers (HCAB) model to examine the relationship between barriers to mental healthcare and self-reported mental health status. Specifically, it examined whether higher levels of financial, structural, and cognitive barriers to healthcare access were associated with self-reported mental health and the strength of these barriers' associations. Data was collected from 118 participants residing in a place-based initiative participating in a community transformation project by community health workers. Analyses indicated that the relationship between healthcare access barriers and self-reported mental health were not significant. Twenty-four percent of individuals reported "Fair" or "Poor" mental health, and 49% rated their mental health as "Very Good" or "Excellent". These results indicate poorer self-reported mental health than national samples. The demographic composition of this sample (100% Black, 98.7% female, residing in a place-based initiative) has implications for the study's findings. Further research should seek to better understand the relationship between healthcare access barriers and mental health status, such as incorporating cultural factors as well as help-seeking preferences.

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INTRODUCTION

Mental Health as a Public Health Priority

Mental health is a major public health priority, as mental illness is not only one of the most common causes of disability, but also carries a high disease burden with regard to physical health (United States Department of Health and Human Services, Office of Disease Prevention and Health Promotion, 2018; World Health Organization, 2017). One in five Americans in the general population experience mental illness in a given year, and nearly 50% of Americans will be diagnosed with a mental illness at some point in their lifetime (Centers for Disease Control and Prevention, 2018; Substance Abuse and Mental Health Services Administration, 2015a).

Mood disorders such as major depressive disorder, bipolar disorder, and schizophrenia are associated with increased cardiovascular risk as well as with other physical health consequences, including diabetes, stroke, and metabolic syndrome (Celano & Hoffman, 2011; Holt & Peveler, 2010). Globally, mental illness comprises 7.4% of the overall burden of disease (Whiteford et al., 2013). In the United States (U.S.), mental and neurological disorders combined contribute to 13.6% of disability-adjusted life years (U.S. Burden of Disease Collaborators, 2013). Mental illness also places a large strain on our society from an economic standpoint, as untreated behavioral health costs are predicted to be between $150 and $200 billion in a single year (Rampell, 2013). Mental illness is also associated with functional impairment in the workplace, as well as with increased workplace absenteeism (Pratt & Brody, 2008; Valenstein, Vijan, Zeber, Boehm, & Buttar, 2001).

Physical health is inextricably linked to mental health, and individuals with mental illness experience higher rates of premature mortality. A recent meta-analysis by Walker and colleagues (2015) determined a median of ten years of life lost per individual due to serious mental illness. Another review by Correll and colleagues (2015) found that the corresponding loss in life expectancy ranges from 10 to up to 25 years. One of the contributing factors to premature death in individuals with mental illness is cardiovascular disease, as individuals with serious mental illness, including schizophrenia, bipolar disorders, and major depressive disorders have been found to experience higher rates of cardiovascular risk (De Hert, Detraux, & Vancampfort, 2018). This is due to a variety of factors, including health behaviors (e.g., individuals with mental illness have higher rates of cigarette smoking and obesity than the general population), the metabolic effects of prescribed psychotropic medications, and biological mechanisms (Goodarz et al., 2009; Leucht, Burkard, Henderson, Maj, & Sartorius, 2007; Mokdad, Marks, Stroup, & Gerberding, 2004; Parks, Svendsen, Singer, & Foti, 2006). Additionally, in 2008 the Commission on the Social Determinants of Health underscored the impact of social determinants specifically on mental health status.

Although not all individuals who die by suicide are mentally ill, having a mental illness remains one of the strongest predictors of both suicide attempts and completions (Harris & Barraclough, 1997; Nock, Hwang, Sampson, & Kessler, 2010). Suicide is the second leading cause of death in the U.S for individuals aged 10-34 after unintentional injuries (National Institute of Mental Health, 2018). Despite the high prevalence and its accompanying costs, there is a staggering gap between those diagnosed with a mental illness and those receiving treatment. As such, increasing access to mental health care

and achieving better mental health outcomes have been set as a priority for HealthyPeople 2020 (U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, 2018).

Mental Healthcare Treatment Gaps

Despite the need, only 41% of individuals with serious mental illness receive treatment in a given year in the U.S (National Institute of Mental Health, 2017). A large-scale national study found that 62% of individuals with any mental illness did not receive treatment (Walker, Cummings, Hockenberry, & Druss, 2015). Barriers to treatment access have been reported by both patients seeking individual treatment as well as physicians seeking to refer patients for care. Among a national sample of 2,900 primary care physicians, two-thirds reported being unable to obtain outpatient mental health services for their patients (Cunningham, 2009). At the broader community level, reasons for the treatment gap include a lack of access, including a shortage of mental health providers (Butryn, Bryant, Marchionni, & Sholevar, 2017) as well as lack of insurance coverage (Sareen et al., 2007); a full 50% of counties in the U.S. have reported lack of a licensed psychiatrist, and this is particularly notable in rural communities (Douthit, Kiv, Dwolatzky & Biswas, 2015; Meit et al., 2014). On the individual level, reasons reported for lack of receipt of mental healthcare include cost, perceived stigma, and/or lack of knowledge about where to seek mental health care (Mechanic, 2002).

The disparities in prevalence of mental illness and pursuit of proper treatment are exacerbated in low-income, minority populations. There is a discrepancy in prevalence of mental disorders relative to socioeconomic distribution, and this inconsistency appears long before adulthood (World Health Organization Report, 2017). In a sample of

adolescents of low socioeconomic status, their number of depressive symptoms were higher than their more affluent counterparts (Lemstra et al., 2008). While members of minority groups do not have higher rates of mental illness compared to their White counterparts, the course of mental illness in minorities tends to be more persistent and symptoms are often more severe (Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005). Moreover, minorities seek treatment at nearly half the rate of White Americans (DeNavas-Walt, Proctor, & Smith, 2011; Substance Abuse and Mental Health Services Administration, 2015b). Minority groups are disproportionally affected by poverty, adding an additional barrier to accessing mental health services (Denavas-Walt et al., 2011).

Importantly, research has noted a link between individuals living below the poverty line and poor psychological outcomes (Ljungqvist, Topor, Forssell, Svensson, & Davidson, 2016; Read, 2010; Saraceno & Barbui, 1997). While some have argued via the "downward drift" theory that having a serious mental illness increases the likelihood of experiencing more adverse socioeconomic outcomes, research suggests that it is more likely that the distress related to living in poverty (including factors such as unemployment, lack of access to safe and affordable housing, and food insecurity) increases the likelihood of developing mental illness (Wadsworth & Achenbach, 2005; Hudson, 2005). In addition to increased likelihood of adverse psychological outcomes, living below the poverty line is associated with greater unmet needs for mental health care (Roll, Kennedy, Tran, & Howell, 2013; Shi & Stevens, 2005).

Barriers to Healthcare Access: Definition and Conceptual Framework

While access to healthcare is a recognized social determinant of health, it is a broad construct with varied domains (McGibbon, Etowa, & McPherson, 2008). In defining healthcare access, a delineation has been made between "having access" and "gaining access," the difference being the potential to use healthcare services and the actual initiation of service use (Aday & Andersen, 1975). Conversely, the National Academy of Medicine (formerly the Institute of Medicine, 1993) defines healthcare access as "the timely use of personal health services to achieve the best health outcomes". In citing health care access as a priority for HealthyPeople 2020, the public health initiative supports this definition of healthcare access (U.S. Department of Health and Human Services, 2018). This study uses the National Academy of Medicine's definition of healthcare access.

In 2011, Carrillo and colleagues developed the Healthcare Access Barriers (HCAB) model to understand access to healthcare at the individual level. This model posits that barriers to healthcare access fall into three key categories: financial, cognitive, and structural. Financial barriers consist of those related to either insurance (having versus not-having) or cost (e.g., cost of prescription medications). Cognitive barriers relate to beliefs, attitudes, and knowledge associated with health care (e.g., low perceived need for treatment; health literacy). Finally, structural barriers refer to logistical aspects of healthcare systems impacting access (e.g., transportation; availability of childcare).

Financial barriers. A host of financial barriers impact individual access to mental healthcare. For example, expenses can include prescription medications as well as payments to see a mental healthcare provider. Adding to the complexity is that one's

options of mental health care provider can be greatly restricted depending on the type of insurance one has, if they have insurance at all (Mental Health America, 2018). Financial barriers take into account an individual's insurance status as well as cost of care. In an analysis of the National Survey on Drug Use and Health, Alang (2015) found that cost was the most common reason for not pursuing mental health treatment. Similarly, a 2013 study found that rates of unmet need for mental health care were five times higher for individuals who were uninsured than those who held private insurance (Roll et al., 2013). In a sample of single mothers receiving federal financial aid, of women who expressed desire for treatment, 26.4% of those women cited cost or lack of insurance as their primary reason for not pursuing care (Rosen, Tolmar, & Warner, 2004).

While having access to insurance is only one type of financial barrier, it often aggravates existing issues, as it can delay needed care. Shi and Stevens (2005) found that after controlling for personal demographics (e.g., age; gender; race/ethnicity), individuals who lacked insurance or were low-income were more likely to miss or delay needed mental health care services. Several other studies have similarly found an association between individuals not pursuing mental health treatment and not having insurance (Rowan, McAlpine, & Blewett, 2013; Walker et al., 2015; Byers, Lai, Nelson, &Yaffe, 2017).

Recent legislation has attempted to improve access to mental health care, and expansion in Medicaid has been associated with better mental health outcomes, including decreases in unmet needs for mental health care and prescription drugs due to financial reasons, as well as with a reduction in delay of treatment (Winkelman & Chang, 2018; McMorrow, Kenney, Long, & Goin, 2016). With regard to the impact of financial

barriers on self-reported mental health status (SRMH), analyses of aggregated data from the Behavioral Risk Factor Surveillance System (BRFSS) over the course of 1993-2009 examined the impact of not having insurance on perceived levels of physical and mental health (Strine, Zack, Dhingra, Druss, & Simoes, 2011). Prevalence of frequent mental distress as well as combined frequent mental and physical distress was significantly higher in individuals without insurance, even after controlling for sociodemographic variables (Strine et al., 2011). Importantly, individuals who were experiencing frequent mental distress were more likely to be uninsured.

It is important to note that though much of the research on financial barriers and mental health care access has analyzed aggregate data from national surveys, cost of treatment and insurance status are also frequently cited in the extant qualitative literature (Langholz, 2014; Browne et al., 2016). This discrepancy suggests that while in a qualitative context participants frequently state that financial barriers are present, the quantitative research in specific populations has been sparse.

Cognitive barriers. In the HCAB model, cognitive barriers to pursuing mental health care treatment include those pertaining to attitudes and beliefs about mental health, including fear, stigma, and beliefs about the effectiveness of or need for treatment. Multiple reviews of the literature have demonstrated that the most commonly cited forms of stigma are those of shame or fear of social judgment (Clement et al., 2015; Rosen, Tolman, & Warner, 2004; Schomerus & Angermeyer, 2008). While the literature regarding the direct relationship between mental health stigma and help-seeking behavior is mixed (e.g., Sickel, Seacat, & Nabor, 2014), Vogel and colleagues (2007) established that it is the internalization of public stigma that leads to an individual avoiding seeking

mental health treatment. In particular, fear of social judgment or stigma disproportionately affects minority individuals (Clement et al., 2015; Davis et al., 2008; Ro, Casares, Treadwell, & Braithwaite, 2006; Eliason & Amodia, 2006). In a sample of Black, low-income individuals with undiagnosed PTSD, family and community disapproval were among the most commonly endorsed reasons for not seeking mental health treatment (Davis, Ressler, Schwartz, Stephens, & Bradley, 2008). Stigma not only impacts treatment-seeking behaviors, but has also been associated with poorer attitudes toward treatment and increased discontinuation of treatment (Sirey et al., 2001).

Another cognitive barrier to healthcare access is health literacy, which can be defined as the ability of an individual to obtain, understand, and act upon information and services regarding their health (Institute of Medicine, 2004). In a prospective cohort analysis following participants over 24 months, Lincoln et al. (2006) found that lower health literacy was negatively associated with depressive symptoms, and that participants with lower health literacy were found to have significantly more depressive symptoms. A review looking at the impact of low health literacy on outcomes found similar results in eight out of ten of these studies, although not all studies controlled for SES (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011).

In addition to health literacy, Jorm and colleagues (1997) have defined mental health literacy as its own separate construct, which they define as a layperson's knowledge and beliefs regarding mental disorders and how these pertain to their ability to recognize, prevent, or manage mental illness. In order to examine whether individuals could recognize the presence of a mental illness and assess the effectiveness of various treatments, 1,012 individuals were provided with two vignettes, one describing an

individual with depression and another describing an individual with schizophrenia). While the majority identified some kind of illness (72% and 84%, respectively), only 27% and 39% correctly labeled the vignettes as depression and schizophrenia, respectively (Jorm et al., 1997). Interestingly, this study also demonstrated that the public often holds different opinions regarding the effectiveness of various methods of seeking help: in both scenarios, primary care physicians and close friends, family, and telephone counseling were rated as more helpful than mental health specialists (i.e., psychiatrists and psychologists). While this study examined beliefs and perceptions within the general public, these results are not entirely dissimilar from individuals experiencing mental illness themselves. In a global study reviewing results from the World Health Organization's World Mental Health Surveys, Andrade and colleagues (2014) found that the most prevalent reason cited for not seeking treatment by individuals who had been diagnosed with a mental illness in the previous year was "low perceived need." A similar result was observed in the National Comorbidity Survey Replication in the U.S., in which 45% of participants also reported "low perceived need" as a reason for not seeking treatment (Mojtabai et al., 2011).

It is important to note that low perceived need is not necessarily related to psychopathology severity and indeed appears to be independent of it (Mojtabai et al., 2011). Put another way, low perceived need for treatment is unrelated to an individual's symptoms and is instead indicative of an individual's attitudes toward mental health treatment. It suggests that even while individuals experience psychiatric symptoms, individuals either do not have the mental health literacy to recognize the need for treatment, or their interpretation of their symptoms is that they do not need treatment.

Even among those who recognized and perceived a need for treatment, another common reason that has surfaced in the literature is the desire to handle the problem on one's own (Andrade et al., 2011; Mojtabai et al., 2011).

Within the U.S., research has identified cultural differences regarding how mental health symptoms are reported. In a nationally representative sample exploring mental health and service use disparities in minority groups, Black and Hispanic individuals were more likely than other groups within the sample to report their mental health status as "Very Good" or "Excellent," even when they had high levels of psychological distress (Zuvekas & Fleishman, 2008). Further, the relationship between SRMH and mental health service use was weaker for Blacks and Hispanics than Whites. Taken together, these findings indicate that not only are there disparities between reflection and experiences of symptoms as indicated by SRMH, but that these differences in interpretations are often reflected in mental health service utilization.

Structural barriers. Structural barriers refer to those that are either systemic or logistical and prevent individuals from seeking mental healthcare (Carrillo et al., 2011). Examples of structural barriers include transportation, availability of care, wait times, ability to take time off of work, and ability to find childcare. These structural obstacles systematically prevent groups of people from receiving proper mental health care treatment, and the onus of this burden falls largely on marginalized individuals, particularly those of low-socioeconomic status, as well as people of color (San Francisco Department of Public Health, 2017; Priester et al., 2016).

Structural barriers, particularly those involving transportation, disproportionately affect individuals from low-income neighborhoods, as they are more likely to rely on

public transportation to travel to appointments (San Francisco Department of Public Health, 2017; Davis et al., 2008). In a study conducted in Southern Alabama consisting of nine focus groups among low-income residents, transportation was the most frequently cited barrier to seeking healthcare treatment (Freed, Hansberry, & Arrieta, 2013). In addition to not having access to private transportation, public transportation concerns included both long wait for providers and travel, leading to frustration and avoiding seeking medical care. In a study specifically looking at barriers to prenatal care, 70% of the participants reported having to rely on public transportation to travel to prenatal care appointments (Lia-Hoagberg et al., 1990). In this sample, transportation was found to be closely related to inability to find childcare; 26% of patients reported child care as a barrier to care, and this difficulty was associated with an increased likelihood of missing appointments. Inability to find childcare has been corroborated in the literature as a barrier to healthcare access (Zuckerman, Perrin, Hobrecker, & Donelan, 2013).

Another important structural barrier frequently cited is that of long clinic wait times. Participants in Freed and colleague's (2013) aforementioned study stated that experiencing wait times of several hours would decrease their likelihood of seeking medical care in the future. Additionally, participants noted that having a predetermined appointment time had no impact on reducing wait times, which often led to frustration (Freed et al., 2013). Notably, structural barriers such as transportation, inability to find childcare, long appointment wait times, and inability to find childcare, and operating hours of doctors' offices systematically preclude individuals from gaining access to the help they need.

Understanding Barriers to Access Specific to Mental Health Care & Existing Gaps in Knowledge

The HCAB model was developed as a framework for evaluating community health interventions and assessing access to overall healthcare in a way that recognizes the role of social determinants of health on health care access (Carrillo et al., 2011). Studies conducted internationally largely sought to identify healthcare access barriers in at-risk populations (e.g., Romani individuals in Romania; sex workers in Malawi; Syrian refugees in Jordan), and none looked at the relationship between healthcare access barriers and mental health status specifically (Gyedu et al., 2017; George, Daniels, & Fioratou, 2018; Toor et al., 2016; Varghese, Grills, & Mathias, 2015; Ay, Gonzalez, & Delgado, 2016; Linde, Rasch, Mwaiselage, & Gammeltoft, 2019; Antonipillai, Baumann, Hunter, Wahoush, & O'Shea, 2017; Roos, 2018). To date, studies that have employed the HCAB model to assess the impact of barriers to healthcare access as they relate to mental health are limited. Only four such studies have been conducted in the U.S., and only two involved mental health outcomes (Carrillo et al., 2011; De Heer et al., 2013; Pierre-Louis, 2018; Kelly, 2019; Kelly, 2019 and De Heer et al., 2013 examined mental health outcomes).

Importantly, both of these studies examined the presence of barriers to healthcare access barriers and higher incidences of mental illness. Kelly (2019) loosely utilized the HCAB model as a guiding framework and used population data to examine the relationship between mental healthcare access and the rate of opioid overdose. Findings included that the more mental healthcare providers available relative to county population, the fewer opioid overdoses. In the latter study, researchers examined the

relationship between cognitive, structural, and financial barriers in Mexican-American border households and medical comorbidities (De Heer et al., 2013). Notably, they found that financial barriers were the most common among those with comorbidities, with 80.4% of their sample reporting that cost was a prohibitive factor in accessing medical care. Additionally, transportation was noted as a common barrier, as well as cognitive barriers. Finally, depression and anxiety were reported by 12.3% and 9.4% of the sample, respectively (De Heer et al., 2013). It is notable that this study examined overall rates of comorbidities and included anxiety and depression, but did not explicitly examine the relationship between barriers to healthcare access and mental health. Further, to date, no studies have examined the relationship between the HCAB model and SRMH.

There is a need to formulate a comprehensive view of barriers to mental healthcare and their impact on SRMH. At present, the approach to overcome barriers to mental health care access is primarily comprised of the integration of behavioral care with primary care, largely through implementation of screening efforts. Additionally, many of the studies assessing barriers are from large aggregate data sets (Mojtabai et al., 2011; Andrade et al., 2014; Roll et al., 2013; Strine et al., 2011). Limited studies employing the HCAB model have been conducted to examine the impact of healthcare access barriers on mental health, but these efforts have largely been piecemeal, focusing on specific or singular barriers. Research specifically applying the HCAB model to mental health has been minimal at best, and presently no studies have examined the relationship between healthcare access barriers and mental health status through the HCAB framework.

The Present Study

Using the HCAB Model as an organizing framework, the aim of this study was to examine the relationship between barriers to healthcare access and SRMH in a low-income community. Better understanding these relationships between specific barriers to mental healthcare access and their impact on SRMH holds important implications for addressing these barriers. Specifically, this study intended to illuminate the types of barriers most salient for researchers, practitioners, and policymakers, laying the groundwork for a more comprehensive study in the future and can better inform where to focus research efforts. The study was guided by the following research questions and associated hypotheses:

Research Question 1: What is the relationship between the three types of categorical barriers to accessing health care (cognitive, financial, and structural) and SRMH in underprivileged populations?

Hypothesis 1: A negative relationship exists between barriers to mental healthcare access (cognitive, financial, and structural) and SRMH, such that a greater number of healthcare access barriers is associated with poorer SRMH.

Research Question 2: Are any of the categorical healthcare access barriers of greater salience to SRMH in underprivileged populations?

Hypothesis 2: There will be a statistically significant difference in the effects of these barriers on SRMH in underprivileged populations.

METHOD

Participants

Participants of this study were residents from a residential nonprofit located in the Southeastern U.S.. The median household income in this neighborhood was $13,000, and the majority of the participants were Black single mothers. The data from this study was a subset of a larger program evaluation that assessed the performance of a multi-sector community transformation effort between two large integrated healthcare systems, the local public county health department, and a residential non-profit initiative. The community transformation effort included working with a Life Navigator, an experienced case manager, as well as the provision of individualized support to residents in a wide range of areas, including connecting them to community resources, and setting goals for education, health, and/or employment. Participants were recruited by the Life Navigators through extensive community outreach, including neighborhood "pop-ups," health fairs, and other events around the neighborhood. Inclusion criteria in this study included those who were 18 years and older, able to speak and comprehend English, and were involved in the aforementioned community transformation effort. Residents who were not involved in the community transformation effort, not English speaking, or under 18 were not eligible to participate.

Procedure

Upon enrollment in the effort, participants completed a demographic survey, a risk assessment questionnaire developed by the Public Housing Authority, and reported their mental health status. Questions and response data were entered by the Life Navigators into REDCap, a third-party, HIPAA-compliant, cloud-based software. The

University of North Carolina at Charlotte IRB waived need for consent due to the purpose of the data collection being for program evaluation and improvement.

Measures

Demographics. Demographic data collected included age, race, date of birth, sex, and education level.

Healthcare Access Barriers. Metrics for each categorical healthcare access barrier were derived from the Behavioral Risk Factor Surveillance System (BRFSS), a telephone-based survey regarding chronic disease conditions, health behaviors, and health care access conducted by the Centers for Disease Control and Prevention (CDC, 2018).

Financial barriers. Financial barriers were assessed through two items: i) "*During the last 12 months, was there a time when you needed to see a doctor, but could not because of the cost?*" and ii) "*Do you currently have health insurance?*". Both items have dichotomous response options ("Yes" or "No"). A financial barrier score for participants was calculated using their responses to both questions. For example, if an individual responded "Yes" to "*During the last 12 months, was there a time when you needed to see a doctor, but could not because of the cost?*", an individual received a "1," and if they respond "No," they received a "0." If an individual indicated that they did not have health insurance, they received a "1," whereas if they indicated they did have health insurance, they received a "0." An individual's financial barrier's score could range from 0-2, with a higher score indicative of a greater level of financial barrier.

Structural barriers. To assess the presence of structural barriers, two items assessed well-established structural barriers to healthcare access. Availability of transportation was assessed with the item, *"Has lack of transportation kept you from medical appointments, meetings, work, or from getting things needed for daily living?"*. Need for childcare was assessed with the item, *"The individual is pregnant and needs prenatal assistance or is a custodial parent or guardian and needs child care in order to access services or seek and sustain employment."* Responses to both items were in a "Yes/No" format. Structural barriers were coded such that "0" indicated no structural barriers, "1" indicated the presence of at least one structural barrier, and "2" indicated the presence of both structural barriers.

Cognitive barriers. Cognitive barriers were assessed using two items regarding the ease with which participants can access and interpret health information, including, "*During the last 12 months how difficult was it for you to understand information that doctors, nurses, and other health professionals tell you*?" and "*During the last 12 months, how difficult was it for you to get advice or information about health or medical topics if you need it?*" Both items were measured using a Likert scale format, with "1" indicating "Very easy" and "4" indicating "very difficult." A cognitive barriers score was calculated for each participant by summing their responses to these two items, with a higher score indicating a greater level of cognitive barrier.

Self Reported Mental Health (SRMH). SRMH status was assessed using a single item: "*In general, would you say your mental health is*…". This item was

measured on a Likert scale ranging from “1” to “5”, where “1” indicated “Excellent” and “5” indicated “Poor.” It has been demonstrated that self-report ratings of mental health can accurately predict an individual’s trajectory of functioning (Idler & Kasl, 1995; Miilunpalo, Vuori, Oja, Pasanen, & Urponen, 1997). Additionally, this one-item assessment has been shown to be associated with higher rates of mental illness (Hoff, Bruce, Kasl, & Jacobs, 1997) as well as need for care (Fleishman & Zuvekas, 2007).

Data Analyses

Data Management. Data were collected and entered by Life Navigators using REDCap. Data were then downloaded into an Excel file and imported into a SPSS Statistical Software, Version 26. SPSS 26 (IBM, 2019) was used for data analyses.

Missing Data. The current study involved a cross-sectional design. A between-subject analysis was conducted to investigate the relationship between barriers to healthcare access and SRMH. One hundred eighteen participants enrolled in the received Life Navigation services. Of the 118 participants enrolled, 19 participants were missing structural barriers data, 34 participants were missing financial barrier data, and 32 participants were missing cognitive barriers data. Two participants indicated they ‘didn’t look for health information’ or ‘did not know/were unsure,’ and they were excluded from analysis. Twenty-six participants were missing data for SRMH status. Using pairwise deletion as inclusion criteria, 78 participants had complete data for variables of interest (66.01%), with the exception of age, for whom an additional three participants were missing data. The final analytic sample included data from 78 participants.

RESULTS

Sample Characteristics

The final analytic sample consisted of 78 individuals and ages ranged from ages 21 to 65. The sample was reflective of the neighborhood's demographics, with the majority of participants being female (98.7%) and Black (100%). With regard to education level, 34.6% reported having less than high school, 39.7% reported having a high school diploma or a GED, 14.1% reported having some college, 7.7% had technical/vocational certificate or an associate's degree, and 3.8% had a bachelor's degree. Approximately three-fourths (83.3%; n=65) of the sample reported having health insurance. With regard to SRMH, 47.4% of participants reported that their mental health was "Excellent" or "Very Good," 29.5% reported that their mental health was "Good," and 23% of participants reported "Fair" or "Poor" mental health.

Descriptive Analyses

Descriptive statistics indicated that all means were within a reasonable range and standard deviations indicated acceptable variability in responses, given our variables (see Table 1). Pearson product moment correlation analyses revealed that education was significantly correlated with self-reported mental health, $r = .22$, $p < .05$. These findings indicated that participants with higher education levels reported poorer mental health status.

Education was also significantly correlated with sex, $r = .31$, $p < .01$, indicating that in the sample, women tended to report having achieved a lower level of education than did men. It is important to note that nearly 99% of the study sample was female.

Substantive Analyses

Hypothesis 1 Results. It was hypothesized that a negative relationship exists between barriers to mental healthcare access (cognitive, financial, and structural) and self-reported mental health status, such that a greater number of healthcare access barriers is associated with poorer SRMH. SRMH was coded such that "1" indicated "Excellent," and "5" indicated "Poor". Hierarchical multiple regression was conducted to test if barriers to healthcare access significantly predicted SRMH after controlling for age, sex, and education level. In step 1, the control variables were entered (age, sex, and education level), and in step 2, the healthcare access barriers were entered. SRMH was entered as the dependent variable. The results of the regression indicated that these barriers explained 14% of the variance in self-reported mental health rate among participants (R^2 = .14, $F(6,68)$, p = .07); the relationship was not significant. The associations for cognitive and structural barriers were positive; however, the association of SRMH with financial barriers were negative such that as amount of financial barriers increased, SRMH decreased, indicating better SRMH.

Hypothesis 2 Results. It was hypothesized that there would be a statistically significant difference in the effects of these barriers on SRMH, with structural barriers expected to be most salient for this population. However, as no barriers were found to be statistically significant in the regression analyses, further analyses were deemed inappropriate. The relationships between both cognitive and structural barriers with SRMH were trending in the expected direction, such that an increased number of barriers were associated with poorer SRMH, as indicated by positive beta values.

Post-hoc Analyses

In order to detect a medium effect size (f^2 = .15) at 95% power, the power analysis using the program G*power indicated a sample size of 119 (Erdfelder, Faul, & Buchner, 1996). Based on prior literature indicating relationships between the individual categorical barriers and SRMH, multiple regression analyses were conducted to test if individual categorical barriers to healthcare access were associated with SRMH. None of the relationships between the individual categorical barriers were significantly associated with SRMH after controlling for age, sex, and education level (Tables 3-5).

DISCUSSION

The aim of the study was to examine whether barriers to healthcare access was associated with SRMH using the HCAB model in an underprivileged population. While previous literature has not explored the HCAB model specifically as it relates to SRMH, studies have demonstrated that each categorical barrier—structural, cognitive, and financial—are significantly related to mental health outcomes. The present study expanded existing research by examining the relationship of all three categorical barriers of the HCAB model to SRMH.

Under the first research question, a negative association was hypothesized between the categorical barriers to healthcare access and SRMH. The model was not significant; while relationships between SRMH and both cognitive and structural barriers trended in the predicted direction, the relationship between SRMH and financial barriers did not. The second hypothesis was that there would be a statistically significant difference between the barriers within the model. However, this hypothesis was not tested, as the first hypothesis was not statistically significant.

Because prior literature indicates that the three categorical barriers are individually associated with self-reported mental health, post-hoc analyses were conducted. In post-hoc analyses, the relationship between each categorical barrier and SRMH was examined. Analyses indicated no significant relationship between healthcare barriers and SRMH. Notably, this is inconsistent with previous literature that has reported significant positive associations between cognitive, structural, and financial barriers and poor mental health outcomes, including psychological distress and depression (Howard, Gazmararian, & Parker, 2005; Murphy et al., 2010; Strine et al., 2011). Current literature

explicitly relating the relationship between these barriers and mental health outcomes is limited; much of the present literature explores the relationship between these barriers and delaying care or self-reported 'unmet need' (Alang, 2015; Byers et al., 2015; Clement et al., 2015; Mechanic, 2002; Roll et al., 2013; Rosen et al., 2004; Rowan et al., 2013; Shi & Stevens, 2005; Walker et al., 2015; Zuckerman et al., 2013).

A key aspect of this study that requires consideration is the environment. Participants in the current study reside in a mixed-income neighborhood where a place-based intervention is in active implementation. Within this context, Life Navigators work to connect residents to a variety of resources, including barriers examined in this study (i.e. childcare and transportation). The majority of the residents indicated that they did not experience any barriers at all (50%). Further, just 10.3% of the residents reported at least three barriers, 12.8% indicated that they experienced at least two barriers, and 26.9% indicated that they experienced at least one barrier. Other studies examining barriers (Alang, 2015; Browne et al., 2016; Corscadden et al., 2018) have reported that underprivileged populations experience multiple barriers to healthcare access. The fact that participants in this study did not report a high rate of barriers suggests that interventions and services provided by the place-based initiative are effective for linking residents to community resources. Additionally, the minimal variability in total number of barriers could have affected statistical results due to the homogeneous experiences of minimal barriers. It could be that the individuals are reporting fewer barriers in this context because they are being connected to these resources, such as receiving scholarship programs to receive childcare at free or reduced costs or transportation vouchers (i.e., reducing structural barriers). In our sample, having fewer financial barriers

was associated with poorer mental health, contrary to our hypothesis. While this was not a significant finding, this could be an artifact of the place-based initiative. As part of the initiative, there are nurses from the two healthcare systems involved who provide care on-site, reducing financial and structural barriers. Further, one potential confounding variable is individuals' length of residence in the community, as this could have an influence on SRMH as well as barriers experienced. Participants with longer lengths of residence within the community could have had more knowledge regarding resources to reduce barriers to health care access or been connected to certain programs within the community (e.g., job fairs; financial literacy training).

Other studies reporting relationships between barriers to healthcare access and mental health outcomes had a different demographic makeup than the current study (Alang, 2015; Byers et al., 2015; Clement et al., 2015; Mechanic, 2002; Roll et al., 2013; Rosen et al., 2004; Rowan et al., 2013; Shi & Stevens, 2005; Walker et al., 2015; Zuckerman et al., 2013), which may explain differences in results. With regard to socioeconomic status, the participants in the current sample reside in a neighborhood with a history of intergenerational poverty. Further, participants in the current study have a lower reported education level compared to national averages (U.S. Census Bureau, 2019). In our sample, just under four percent of participants reported having a bachelor's degree, where in the United States, the average is approximately one-third (U.S. Census Bureau, 2019). Additionally, participants with higher levels of education reported worse SRMH. In a study examining concentration of advantage and disadvantage, the interaction indicated that individuals with more education benefited more from living in "advantaged" neighborhoods than did individuals with lower levels of education;

however, in disadvantaged neighborhoods, the environmental influences nullified individual education effects (Finch et al., 2010).

The racial composition of the current study's participants is another important factor that may have shaped the results. In this sample, 100% of participants identified as Black. Several studies have reported lower rates of mental illness in Black individuals in the U.S. compared to their White counterparts, despite a history of prejudice, discrimination, and associated stress (Barnes & Bates, 2017; Breslau et al., 2005; Lincoln, Taylor, Watkins, & Chatters, 2011; Sue & Chu, 2003). However, despite lower prevalence rates, overall symptom levels, as well as psychological distress levels, are higher in Black individuals, indicating that rate of mental illness may not be fully captured for Black individuals (Barnes & Bates, 2017; U.S. Department of Health and Human Services, 2001). In the current study, 24% of individuals reported "Fair" or "Poor" mental health, and 49% rated their mental health as "Very Good" or "Excellent." These percentages indicate poorer SRMH compared to analyses from nationally representative data derived from the Medical Expenditure Panel Survey, where just 7% of participants had fair or poor SRMH and 70% reported their mental health was "Very Good" or "Excellent" (Fleishman & Zuvekas, 2007; Zuvekas & Fleishman, 2008). Considering these insights, along with the fact that our sample had worse SRMH compared to the national sample, it is possible that this sample had high levels of psychological distress that are going unobserved.

An important attribute related to the racial composition of the study sample is the culture of Black communities. The HCAB questions used in the current sample did not account for cultural variations in help-seeking preferences. Literature has indicated that

Black Americans often prefer to seek informal support, including from relatives, friends, clergy, or community members, rather than more 'formal' sources such as medical settings (Neighbors & Jackson, 1984; Woodward et al., 2008). As it is currently designed, "seeking help" within the HCAB model focuses on "brick-and-mortar" forms of healthcare, which may not align with help-seeking mechanisms more frequently sought within Black populations. Put another way, the model as it is currently conceptualized potentially omits pertinent cultural factors for Black individuals, such as whether or not individuals feel like they have community or clergy members from whom they can seek support. For examining barriers to healthcare access in Black populations, the HCAB model likely requires cultural adaptations to acknowledge forms of healthcare that extend beyond the conventional walls of healthcare systems. Future research should consider help-seeking preferences and barriers in addition to SRMH status in order to further explore the relationship among these constructs.

A concept nested within the cultural context of this community is one that pertains to the intersection of gender, socioeconomic status, and race. Literature has referred to the 'strong Black woman (SBW) schema,' a construct theorized to be an internalization of sexism and racism (Harris-Lacewell, 2001). More specifically, the SBW schema results in external expression of strength and resilience, despite adversity. Internalization of the SBW schema has been linked to negative psychological outcomes, including increased psychological distress and depression (Donovan & West, 2015; Harrington, Crowther, & Shipherd, 2010). In a 2018 study of both college students and community members, 80% of the sample endorsed the SBW schema (Abrams, Hill, & Maxwell, 2018). One possible consideration for results is the intersectionality of gender,

socioeconomic status, and race within our sample. It is possible that participants in our sample are experiencing higher levels of psychological distress as a result of the amalgamation of these factors. Originally, intersectionality—the notion that one's identities are interconnected, creating interdependent systems of discrimination and disadvantage—emerged as a critical framework out of Black feminist theory, as Black women had historically been excluded from mainstream feminism (Crenshaw, 1989). Quantitatively, this notion has been explored and suggests that the intersection of multiple marginalized identities is associated with greater psychological distress (Alvarado & Chi, 2016). Future research should consider inclusion a measure of internalization of this schema, as well as consideration of the relationship mental health through an intersectional lens, to better understand the influence of the SBW schema and its relationship with the HCAB model and SRMH.

Limitations

Related to the issues discussed above, a number of study limitations should be considered along with the findings. This study had a highly homogeneous population (98.7% female, 100% Black, and the majority living in poverty). Furthermore, the participants in the sample resided in a residential community supported by place-based interventions. As such, the study findings may not generalize to other low-income, minority populations. In fact, analyses indicate greater severity and rates of fair/poor SRMH compared to U.S.-born Black adults as well as a nationally representative sample (Santos-Lozada, 2016; Fleishman & Zuvekas, 2007). However, compared to another sample of U.S.-born Black adults, their mean SRMH was higher (i.e., indicated more positive SRMH; Henning-Smith et al., 2013).

This study was conducted within the context of a larger initiative, and therefore in this study, barriers were measured with a small handful of items. While other studies examining barriers to healthcare access have also used a few items to measure barriers (Motjabai et al., 2011; Roll et al. 2013), it is plausible that the items used in this study inadequately captured the examined categorical barriers. For example, to assess the presence of structural barriers, the items used were those regarding childcare and transportation. However, the HCAB model also cites waiting times, continuity of care, and operating hours of healthcare facilities as structural barriers to care (Carrillo et al., 2011); additional literature also supports these as pertinent structural barriers (Freed et al., 2013). Therefore, it could be that the items limited the degree to which we were able to capture the extent to which participants were truly experiencing structural barriers. Previous cognitive barriers linked to poor mental health include stigma, shame, or low perceived need (Clement et al., 2015; Schomerus & Angermeyer, 2008; Vogel et al., 2007), which were not assessed in the present study. Objective measures of internalized stigma, shame, and perceived need for treatment would be valuable.

Further, SRMH was assessed using a single-item measure. While SRMH measured as a single item has been widely used and found to correlate with other validated measures of mental illness and psychological distress (Ahmad et al., 2014), a full questionnaire such as the Kessler Nonspecific Psychological Distress Scale (Kessler et al., 2003) or the Self-Reporting Questionnaire (Beusenberg, Orley, & World Health Organization, 1994) would provide for a more robust measure. Given that SRMH was measured with one item, it is unclear from the data available how participants were interpreting symptoms. However, it is worth noting that while barriers were seemingly

reduced in a place-based initiative, SRMH levels reflected continued potential need for mental healthcare in the study sample.

Lastly, the power analysis indicated a sample size of 119 to detect a medium effect size (f^2 = .15) at 95% power. While the original study sample was 118, the sample size was reduced to 78 as a result of missing data. Bootstrapping and multiple imputation techniques were not conducted given that missing data percentages exceeded 10% (Lodder, 2014). A larger sample would be required to detect small or medium effect.

Future Directions

Insights from this study point to several opportunities for future research. First, additional research is needed to investigate the relationship between barriers to healthcare access and mental health outcomes that incorporate help-seeking preferences and cultural factors within the model. One area for further exploration is the relationship between SRMH and need for mental health services, taking into consideration specific cultural factors for target populations. As described earlier, the relationship between SRMH and report of symptoms of psychological distress has been found to be negatively correlated in Black individuals, meaning that SRMH may not be a useful indicator of mental health status for these individuals. Here, investigating preferences for seeking help, as well as motivations for help-seeking, may inform policy for how to best address psychological distress in this population.

Our sample reported still worse SRMH compared to other samples, despite receiving support services. The current initiative is structured such that it has wraparound services, yet is still located in one of the area's most distressed neighborhoods. While residents in this neighborhood are provided with more supportive services than other

residents in the immediate surrounding areas, the environment itself is still one that has less access to resources than the general population. Qualitative research could help elucidate additional factors and better understand these relationships, as well as nuances, that are contributing to worse SRMH in this sample. Qualitative research exploring the influence of place-based initiatives on mental health status is limited. However, the extant literature indicates that place-based initiatives can positively influence mental health (Turney, Kissane, & Edin, 2012). For example, Turney and colleagues interviewed participants in the experimental condition of Moving to Opportunity, a program in Baltimore that moved participants from high-poverty to low-poverty neighborhoods. Themes that emerged in interviews with these participants were that the transition to the low-poverty neighborhood increased self-efficacy and reduced shame (Turney et al., 2012). Similar results were found in a Canadian initiative that provided supported housing for individuals who had experienced homelessness and had severe mental illness (Aubry, Nelson, & Tsemberis, 2015). To better understand the nuances of our data, one area for future research includes seeking greater clarity on the influence of place-based initiatives via qualitative methods. This could include an exploration into the characteristics of this neighborhood that provide protective factors specifically for mental health, building on previous literature.

Future research may explore the adaptation of the HCAB model to be more pertinent for examining these relationships in other Black samples. Further, replications of this study, accounting for existing study limitations, in other place-based initiative settings are important for understanding the relationship between healthcare access barriers and SRMH in similar populations. In addition, a longitudinal design could

extend prior work examining the impact of place-based initiatives on mental health trajectory (Neighbor & Jackson, 1984, Woodward et al., 2008; Brisson et al., 2014). Data over the long-term regarding self-reported mental health in place-based initiatives has the potential to shed more light on the impact of a place-based initiative on SRMH.

While the study hypothesis was not supported, the findings offer rich opportunity for future study, underscoring the complexity of linkages between individuals and their environments, as well as the critical importance of taking an ecological and developmental perspective when examining mental health status. As researchers, policymakers, and community leaders try to improve community mental health, further parsing out the relationships between environmental factors, socioeconomic status, gender, and race, and how these interact to affect access to mental healthcare services.

Literature examining the relationship between the HCAB model and mental health outcomes is sparse, with only two studies identified at the time of this study (Kelly, 2019; De Heer et al., 2013). This is the first known study to examine these barriers collectively, as well as their relationship to SRMH. Future research to better understand and contextualize the relationship between SRMH and the presence of healthcare access barriers could better inform which barriers would be most effective to target in order to improve overall population health, particularly among society's vulnerable.

Table 1. *Descriptive statistics and zero-order correlations*

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Education	1.06	1.07	--						
2. Self-reported mental health	2.69	1.06	.22*	--					
3. Financial Barriers	1.03	.48	.08	-.07	--				
4. Cognitive Barriers	3.74	1.29	-.14	.14	.29*	--			
5. Structural Barriers	.29	.49	-.09	.13	.03	.08	--		
6. Age	34.56	10.74	.06	.04	.05	-.18	-.16	--	
7. Sex	.01	.11	.31**	.14	.12	.02	-.07	-.13	--

Note. $N = 78$. * indicates $p < .05$; ** indicates $p < .01$.

Table 2. *Hierarchical Multiple Regression Analyses Predicting Self-Reported Mental Health from Financial, Cognitive, and Structural Barriers to Healthcare Access*

Model		*b*	*S.E.*	*β*	R^2	ΔR^2	*F*
1					.06	.06	1.48
	(Intercept)	2.35**	.43				
	Age	.00	.01	.04			
	Sex	.77	1.14	.08			
	Education	.20	.12	.20			
2					.14	.08	1.89
	(Intercept)	1.34**	.63				
	Age	.01	.01	.09			
	Sex	1.00	1.13	.11			
	Education	.23*	.12	.23			
	Financial barriers	-.28	.21	-.16			
	Cognitive barriers	.19	.10	.22			
	Structural barriers	.38	.25	.17			

Note. $N = 78$. *b* = unstandardized regression weight; *S.E.* = standard error of the unstandardized coefficient; *β* = standardized beta weight.
* $p < .05$; ** $p < .01$

Table 3. *Hierarchical Multiple Regression Analyses Predicting Self-Reported Mental Health from Financial Barriers to Healthcare Access*

Model		*b*	*S.E.*	*β*	R^2	ΔR^2	*F*
1					.06	.06	1.48
	(Intercept)	2.35**	.43				
	Age	.00	.01	.04			
	Sex	.77	1.14	.08			
	Education	.20	.12	.20			
2					.07	.01	1.25
	(Intercept)	2.39**	.43				
	Age	.00	.01	.04			
	Sex	.89	1.16	.10			
	Education	.20	.12	.20			
	Financial barriers	-.16	.21	-.09			

Note. $N = 78$. *b* = unstandardized regression weight; *S.E.* = standard error of the unstandardized coefficient; *β* = standardized beta weight.
* $p < .05$; ** $p < .01$

Table 4. *Hierarchical Multiple Regression Analyses Predicting Self-Reported Mental Health from Cognitive Barriers to Healthcare Access*

Model		*b*	*S.E.*	*β*	R^2	ΔR^2	*F*
1					.06	.06	1.48
	(Intercept)	2.35**	.43				
	Age	.00	.01	.04			
	Sex	.77	1.14	.08			
	Education	.20	.12	.20			
2					.10	.04	1.84
	(Intercept)	1.60**	.62				
	Age	.01	.01	.07			
	Sex	.68	1.13	.07			
	Education	.22	.12	.22			
	Cognitive barriers	.17	.10	.19			

Note. $N = 78$. *b* = unstandardized regression weight; *S.E.* = standard error of the unstandardized coefficient; *β* = standardized beta weight.
* $p < .05$, ** $p < .01$

Table 5. *Hierarchical Multiple Regression Analyses Predicting Self-Reported Mental Health from Structural Barriers to Healthcare Access*

Model		*b*	*S.E.*	*β*	R^2	ΔR^2	*F*
1					.06	.06	1.48
	(Intercept)	2.35**	.43				
	Age	.00	.01	.04			
	Sex	.77	1.14	.08			
	Education	.20	.12	.20			
2					.09	.03	1.72
	(Intercept)	2.12**	.45				
	Age	.01	.01	.07			
	Sex	.89	1.13	.10			
	Education	.21	.12	.21			
	Structural barriers	.39	.26	.18			

Note. $N = 78$. *b* = unstandardized regression weight; *S.E.* = standard error of the unstandardized coefficient; *β* = standardized beta weight.
* $p < .05$, ** $p < .01$

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