

# The Relative Impact of Risk Factors for Homelessness, Housing Barriers, and Health Care Barriers on Mental Health Outcomes: A Single-Center Study

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## ABSTRACT

**Background:** Housing and health care both play crucial roles in overall health. Though housing and health care barriers negatively impact affect health, little is known about the relative influence of each. This study sought to understand the relationship between housing circumstance, barriers to care, and mental health outcomes among low-income, uninsured patients seen at a free clinic in Milwaukee, Wisconsin. This includes investigating the relative impact of risk factors for homelessness, housing barriers, and health care barriers on mental health.

**Methods:** Surveys were administered to clinic patients (n = 94) from June to December 2023. Surveys assessed patient demographics, housing and health care barriers, and mental health outcomes, primarily measured by the Patient Health Questionnaire-2 (PHQ-2), General Anxiety Disorder-2 (GAD-2) questionnaire, modified loneliness scale, and individuals' subjective mental health rating.

**Results:** Increased health care barriers and socioenvironmental risk factors for homelessness significantly predicted worse PHQ-2 score, GAD-2 score, loneliness, and mental health rating. Despite significant associations, increased housing barriers did not significantly predict any of the 4 mental health metrics. Furthermore, neither housing barriers nor health care barriers significantly predicted recreational drug use, whereas socioenvironmental risk factors for homelessness were both a significant predictor and response of increased recreational drug use. The most frequently reported mental health care barriers were insurance coverage, financial barriers, and transportation issues. In addition, there was significantly lower patient trust in mental health care providers than in general medical providers, which may reflect increased stigma.

**Conclusions:** Compared to housing barriers, increased health care barriers significantly predicted worse mental health outcomes. This study emphasizes the importance of addressing health care barriers to improve mental health.

## BACKGROUND

Housing and health care have increasingly become more unaffordable and inaccessible in the United States. From 1980 to 2022, home price-to-income ratios rose nationally and reached record highs in many major metropolitan cities.<sup>1</sup> In 2021, out-of-pocket health care spending increased by 10.4% from 2020, the fastest growing rate since 1985.<sup>2</sup>

In the setting of these rising costs, more individuals are experiencing homelessness and delaying necessary health care. In 2023, it was estimated that roughly 653 100 people were experiencing homelessness in a single night in the United States; this point-in-time count is the highest number recorded since reporting began in 2007.<sup>3</sup> In 2023, more than half of working adults with employer health insurance coverage reported that either they or their family members had a health problem that worsened because of delaying or foregoing health care due to anticipated costs.<sup>4</sup> Overall, the United States is currently experiencing a deepening housing and health care crisis.

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Housing circumstances and access to health care both play crucial roles in mental and overall health, and their interplay can have a major impact on an individual's well-being. Research has identified certain risk factors significantly associated with homelessness, including poor family functioning, socioeconomic disadvantages, parental or caregiver separation, childhood trauma, substance use, and a history of mental health disorders. Other demographic risk factors include older age; male sex; Black,

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**Box. Survey Questions**

1. What is your age?
2. What is your gender?
3. What is your sexual orientation?
4. What is your ethnicity?
5. What is your race?
6. What is the highest degree or level of school you have completed?
7. What is your current employment status?
8. Based on the definition provided by the United States (US) Department of Housing and Urban Development (HUD), have you ever experienced homelessness in the past?
9. How many of these housing barriers identified by the US Department of HUD have you faced in the past?
10. In the past 12 months, was there a time when...
  - You/your household didn't pay the full amount of rent or mortgage owed because you didn't have enough money?
  - You/your household didn't pay the full amount on gas, electricity, or oil bills because you didn't have enough money?
  - You/your household worried whether food would run out before you would get money to buy more?
  - You/your household needed to see a doctor or go to the hospital but didn't go because you could not afford it?
11. If any of the conditions below apply, please mark "Yes." If not, please mark "No."
  - Before you were 18, did you ever run away from home?
  - Before you were 18, did your parent(s) or caregiver(s) ever order you to move out of their home?
  - Before you were 18, did anyone in your household regularly receive public assistance or welfare payments?
  - Before you were 18, did your biological father ever serve time in jail or prison?
  - Before you were 18, were you ever placed in foster care?
  - Before you were 18, were you adopted?
  - In the past 5 years, have you ever spent a day or more in a facility where you were treated for a mental health disorder?
12. How many of the following adverse childhood events (ACEs) have you experienced before you were 18?
13. Have you ever been formally diagnosed with any of the following mental health conditions by a psychiatrist?
14. Have you ever been formally diagnosed with any of the following mental health conditions by a non-psychiatric clinician?
15. In the past 12 months, how often have you used the following substances: alcohol, tobacco products, recreational drugs, and prescription drugs for non-medical reasons or prescription drugs not prescribed to you?
16. In the past 2 weeks, how often have you...
  - Felt nervous, anxious, or on edge?
  - Not been able to stop or control your worrying?
  - Had little interest or pleasure in doing things?
  - Felt down, depressed, or hopeless?
  - Felt lonely, left out, or isolated from others?
17. How would you rate your overall mental health right now?
18. Do you have an established mental health care clinician who you see regularly? If so, what kind of provider do you see?
19. How often did you schedule and receive mental health care or attend an appointment in the past 12 months?
20. Where do you usually seek out mental health care?
21. What health care barriers have you faced in the past?
22. How well do you trust mental health care providers? How well do you trust general medical providers?
23. How well does the US health care system provide mental health care?
24. How can the US health care system and clinicians better provide mental health care, counseling, therapy, or psychiatric treatment to patients? Please write your thoughts or ideas below.

Hispanic, or Native American race/ethnicities; and non-heterosexual orientation.<sup>5-8</sup>

Prior exposure to housing disadvantage is positively associated with worse mental health outcomes, including depression, anxiety, and heightened stress.<sup>9</sup> Adults with severe psychological distress experience the most health care barriers, while adults with no psychological distress experience the fewest barriers. Furthermore, severe mental health challenges exist more when any health care barrier is reported.<sup>10</sup>

It is well known that lower-income patients face a larger share of health challenges, and these health disparities often reflect wealth inequalities. Research has demonstrated that there is a significant positive relationship between income inequality and the risk of depression.<sup>11</sup> As the wealth gap increases, it is crucial to comprehend and address the distinct housing circumstances and barriers to care faced by patients within each health care system—particularly those that serve low-income, under-resourced communities. This enables health care and community organizations to better provide education, resources, and services that are tailored and relevant to their patient population.

This study sought to understand the unique relationship between housing circumstances, barriers to care, and mental health outcomes among low-income patients seen at the Saturday Clinic for the Uninsured (SCU) in Milwaukee, Wisconsin. SCU is a teaching clinic affiliated with the Medical College of Wisconsin that offers free primary care services to medically uninsured individuals in Milwaukee. While it has been shown that housing and health care barriers negatively affect mental health, little is known about the relative influence of each. Thus, we sought to investigate the relative impact of risk factors for homelessness, housing barriers, and health care barriers on mental health outcomes. In addition, we aimed to identify the most prevalent mental health care barriers that SCU patients face in order to address these barriers through a quality improvement project in the future.

**METHODS**

Beginning in May 2022, we conducted a thorough literature review and collaborated closely with the SCU Research Committee to develop a 24-question survey that assessed information such as patient demographics, housing and health care barriers, and mental health outcomes (Box). In April 2023, we applied and received final project approval from the SCU Board of Directors and the Medical College of Wisconsin Institutional Review Board (PRO ID PRO00042922). From June to December 2023, we offered surveys in person to all adult patients (aged 18 and older) at SCU during their clinic appointment. Surveys were completely anonymous and voluntary. Only patients who verbally consented to participation received a survey. Upon survey completion, study participants received a \$10 gift card for their time and contribution. The final study sample consisted of 94 participants.

For this study, exposure variables were characterized by the num-

ber of socioenvironmental risk factors for homelessness (SoRFH), housing barriers, and health care barriers. Response variables were characterized by mental health outcomes, primarily measured by the Patient Health Questionnaire-2 (PHQ-2), General Anxiety Disorder-2 (GAD-2) questionnaire, modified loneliness scale, and individuals' subjective current mental health rating.

Through literature review, we identified and included questions in the survey that assessed significant risk factors for homelessness (Box, questions [Q] 1-14). Nonmodifiable demographic risk factors included age over 50, male sex, nonheterosexual orientation, and Hispanic, Black, or Native American race/ethnicities. SoRFH included educational attainment below high school level; unemployment or underemployment; recent financial strain; household reliance on public assistance; prior experiences of homelessness; previous psychiatric hospitalizations; the presence of mental health challenges, such as depression, anxiety, and substance use disorder; and childhood or familial instability, such as running away or being forced to move out of the home, involvement in foster care or adoption systems, paternal incarceration, and adverse childhood experiences.<sup>5-8</sup> The total number of risk factors for homelessness was determined by tallying each respondent's affirmative response to the survey questions assessing each risk factor.

To determine the number of housing barriers, we provided survey participants with a comprehensive list of housing barriers identified by the United States (US) Department of Housing and Urban Development (HUD) and asked participants to select the number of barriers they experienced (Box, Q9). These barriers included absent or unfavorable rental history, such as prior evictions or outstanding bills, lack of income, or insufficient savings; poor credit history; inconsistent employment record; low educational attainment, such as lack of high school diploma; recent or ongoing experiences of abuse, such as fleeing domestic violence; being the head of a household under the age of 18; belonging to a large family with 3 or more children; having a criminal background; recent substance use history; and coping with serious health issues or disabilities.<sup>12</sup>

Similarly, health care barriers were assessed by examining respondents' selections from a list of common health care barriers including, but not limited to, financial constraints, transportation issues, lack of insurance coverage, time constraints, stigma or fear of judgement, difficulty navigating the health care system, challenges finding mental health care clinicians, lack of appointment availability, and telehealth barriers<sup>10</sup> (Box, Q21). Participants also were allowed to write in additional barriers not listed.

Mental health outcomes were assessed using PHQ-2, GAD-2, a 4-point loneliness scale, and a 5-point mental health rating scale (Box, Q16-17). The PHQ-2 is a commonly used screening tool for depression that assesses the frequency of depressed mood in the past 2 weeks; a PHQ-2 score  $\geq 3$  indicates that major depressive disorder (MDD) is likely.<sup>13</sup> Likewise, GAD-2 is a commonly

| Table. Patient Demographics      |         |
|----------------------------------|---------|
| Median age (n = 91)              | 51      |
| Sex (n=94)                       | n (%)   |
| Male                             | 32 (34) |
| Female                           | 62 (66) |
| Sexual orientation (n = 88)      | n (%)   |
| Straight or heterosexual         | 81 (92) |
| Bisexual                         | 3 (3)   |
| Gay, lesbian, or homosexual      | 4 (5)   |
| Race/ethnicity (n = 92)          | n (%)   |
| Hispanic                         | 20 (21) |
| Non-Hispanic Black               | 45 (49) |
| Non-Hispanic White               | 18 (20) |
| Asian                            | 8 (9)   |
| Multiracial                      | 1 (1)   |
| Level of education (n = 93)      | n (%)   |
| Less than a high school diploma  | 14 (15) |
| High school degree or equivalent | 30 (32) |
| Trade school/vocational degree   | 9 (10)  |
| Associate degree                 | 12 (13) |
| Bachelor's degree                | 14 (15) |
| Graduate degree                  | 12 (13) |
| Some college (other)             | 2 (2)   |
| Employment status (n = 78)       | n (%)   |
| Working for pay (<10 hours/week) | 10 (13) |
| Working for pay (>10 hours/week) | 52 (66) |
| Unemployed with no salary        | 16 (21) |

used screening tool for generalized anxiety disorder (GAD) that assesses the frequency of anxiety or worrying in past 2 weeks; a GAD-2 score  $\geq 3$  indicates that GAD is likely.<sup>14</sup> To assess the frequency of loneliness, a 4-point scale was created that was modeled after PHQ-2 and GAD-2, ie, “In the past 2 weeks, how often have you felt lonely, left out, or isolated from others?” with choices ranging from “not at all” to “nearly every day.” Additionally, the current mental health rating was assessed with a 5-point scale, ie, “How would you rate your overall mental health right now?” with choices ranging from “not well at all” to “extremely well.”

Other measures assessed on the survey included frequency of substance use in the past 12 months, patient trust in mental health care providers versus general medical providers, and overall rating of the US health care system in delivering mental health care (Box, Q15, Q22-23). These measures also were assessed on a 5-point Likert scale. Additionally, patients had the opportunity to answer a free-response prompt asking how the US health care system can improve mental health counseling and treatment (Box, Q24).

SPSS Statistics for Windows version 24.0 (IBM Corp) was used for statistical analysis. Nonresponses were removed prior to each statistical analysis.

## RESULTS

Within the sample, the median age was 51 years (range 19-80), and most respondents were female (66%) and either Hispanic

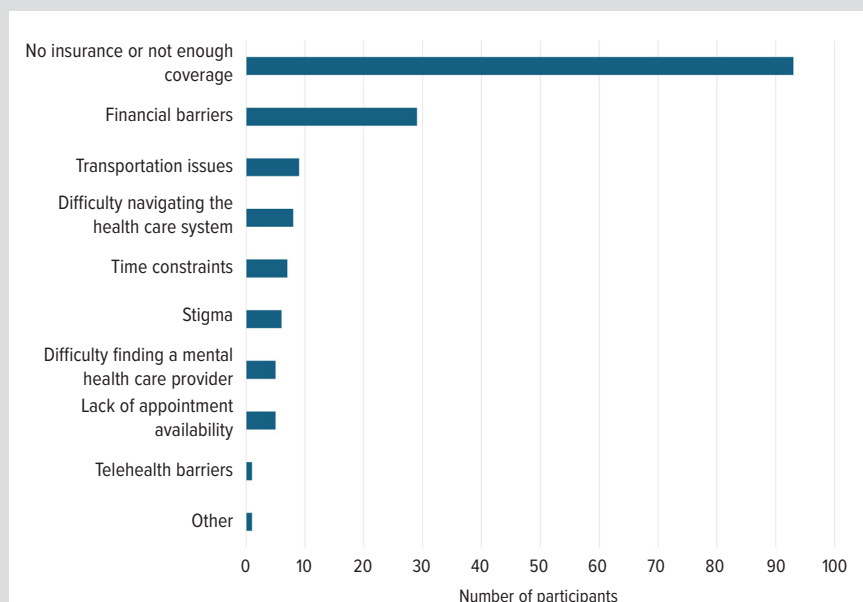
(21%) or non-Hispanic Black (49%) (Table). Thirty-eight percent of respondents had a mental health disorder diagnosed by a psychiatrist, of which MDD (25%) and GAD (23%) were the most common. At the time of the survey, 18% of respondents had a PHQ-2 score  $\geq 3$ , indicating a high likelihood of MDD, and 19% had a GAD-2 score  $\geq 3$ , indicating a high likelihood of GAD. In addition, 15% of respondents reported loneliness more than half the days or nearly every day, and 18% rated their current mental health as not that well or not well at all. Despite these findings, only 9% of respondents had an established mental health care provider, and only 9% received mental health care or attended an appointment with a mental health care provider at least once in the past 12 months. Of the respondents who sought mental health care, the most common site was an outpatient clinic (52%) followed by a peer support group (17%).

The top 3 health care barriers reported by respondents were no insurance or not enough coverage, financial barriers, and transportation issues (Figure 1). Similarly, the most common themes in patient feedback were related to improving affordability and accessibility to care. Though only 4% of respondents reported stigma as a barrier to mental health care, there was significantly lower mean patient trust in mental health care providers versus general medical providers (3.25 vs 3.72,  $P \leq 0.001$ ) via 2-tailed Wilcoxon signed rank test. It was determined that this gap in trust was not statistically different across all racial groups, age groups, sexes, and education levels (all  $P > 0.05$ ) via a 2-tailed Kruskal-Wallis test.

Among respondents, the median number of SoRFH was 3, the median number of housing barriers was 1, and the median number of health care barriers was 1. A 2-tailed Kendall's correlation test was performed to determine significant associations between variables (Appendix). Overall, our study found that increased SoRFH, increased housing barriers, and increased health care barriers were all significantly associated with worse PHQ-2 scores, worse GAD-2 scores, higher loneliness ratings, and poorer mental health ratings. All 3 exposure variables were also significantly associated with increased recreational drug use, such as marijuana or cocaine, in the last 12 months. Whereas increased SoRFH and housing barriers were significantly associated with increased tobacco and alcohol use, increased health care barriers were significantly associated only with increased alcohol use.

A path analysis was performed to assess the predictive strength of each variable and their relationship to one another (Figure 2).

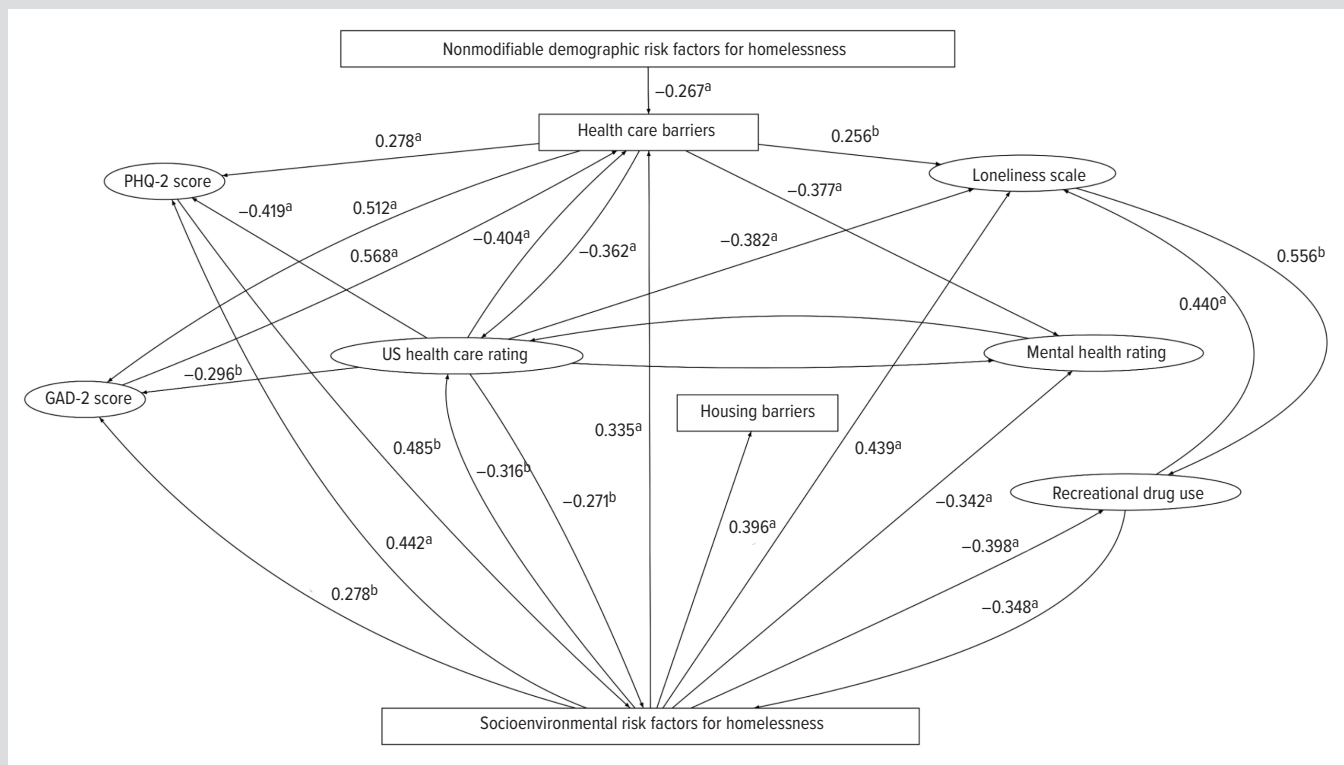
**Figure 1. Mental Health Barriers Reported by Participants**



We found that increased SoRFH significantly predicted increased health care barriers ( $B = 0.335$ ,  $P \leq 0.01$ ) and increased housing barriers ( $0.396$ ,  $P \leq 0.01$ ), but not vice versa. Though there were significant associations, increased housing barriers did not predict increased health care barriers ( $P > 0.05$ ).

When assessing the impact of each exposure variable (SoRFH, housing barriers, and health care barriers) on mental health outcomes (PHQ-2 score, GAD-2 score, loneliness, and mental health rating), we found that increased SoRFH and health care barriers significantly predicted poorer mental health outcomes, with SoRFH being the stronger predictor for PHQ-2 score ( $B = 0.442$ ,  $P \leq 0.01$  vs  $B = 0.278$ ,  $P \leq 0.01$ ) and loneliness ( $B = 0.439$ ,  $P \leq 0.01$  vs  $B = 0.256$ ,  $P \leq 0.05$ ) and increased health care barriers being the stronger predictor for GAD-2 score ( $B = 0.512$ ,  $P \leq 0.01$  vs  $B = 0.278$ ,  $P \leq 0.05$ ) and current mental health rating ( $B = -0.377$ ,  $P \leq 0.01$  vs  $B = -0.342$ ,  $P \leq 0.01$ ). Reciprocally, worse PHQ-2 and GAD-2 scores also significantly predicted increased SoRFH and health care barriers, respectively ( $B = 0.485$ ,  $P \leq 0.05$  and  $B = 0.568$ ,  $P \leq 0.01$ ). Despite having significant associations, increased housing barriers did not predict any of the 4 mental health metrics (all  $P > 0.05$ ). Furthermore, neither increased housing barriers nor health care barriers significantly predicted alcohol use, tobacco use, illegal prescription drug use, or recreational drug use in the last 12 months and vice versa (all  $P > 0.05$ ). In contrast, SoRFH was a significant predictor and response of increased recreational drug use ( $B = 0.398$ ,  $P \leq 0.01$  and  $B = 0.348$ ,  $P \leq 0.01$ ) with recreational drug use also being a significant predictor and response of increased loneliness ( $B = 0.440$ ,  $P \leq 0.01$  and  $B = 0.556$ ,  $P \leq 0.01$ ).

**Figure 2.** Path Analysis Demonstrating the Relationship Between Variables and Their Significant Predictive Strength



<sup>a</sup> $P \leq 0.01$ ; <sup>b</sup> $P \leq 0.05$ .

Arrow signifies a significant predictive relationship; coefficients presented are the beta weight from path analysis.

None of the 3 exposure variables (SoRFH, housing barriers, or health care barriers) predicted patient trust in mental health care providers or general medical providers and vice versa (all  $P > 0.05$ ). However, both increased SoRFH and health care barriers significantly predicted worse ratings of the US health care system in delivering mental health care ( $B = -0.316$ ,  $P \leq 0.05$  and  $B = -0.362$ ,  $P \leq 0.01$ ). In turn, lower US health care ratings predicted poorer mental health outcomes, ie, worse PHQ-2 scores ( $B = -0.419$ ,  $P \leq 0.01$ ), worse GAD-2 scores ( $B = -0.296$ ,  $P \leq 0.05$ ), increased loneliness ( $B = -0.382$ ,  $P \leq 0.05$ ), and worse mental health ratings ( $B = 0.275$ ,  $P \leq 0.05$ ).

## DISCUSSION

According to the Kaiser Family Foundation analysis of the US Census Bureau Household Pulse Survey (2020-2023), about 18% of adults in Wisconsin had a PHQ-2 score  $\geq 3$ , and about 22% of adults had a GAD-2  $\geq 3$ .<sup>15</sup> In comparison, 18% of our survey respondents had a PHQ-2 score  $\geq 3$ , and 19% had a GAD-2 score  $\geq 3$ . These findings were unexpected given our assumption that our sample of low-income, uninsured patients would exhibit higher rates of anxiety and depression relative to the state population. Nonetheless, our study demonstrates that there is still a potential gap between the need for mental health care and seeking treatment; for example, almost a fifth of our respondents had a

high likelihood of MDD or GAD at the time of the survey, but less than a tenth had an established mental health care clinician or attended a mental health care appointment at least once in the past 12 months.

Although stigma was reported as a barrier by only a small percentage of respondents (4%), it was noted that patient trust in mental health care providers was significantly lower compared to general medical providers. This discrepancy suggests that while stigma may not be explicitly recognized as a barrier, underlying distrust in mental health care may serve as a deterrent to seeking or receiving care. The lack of significant differences in trust across sex, racial, age, and education groups suggests that this issue is pervasive across diverse demographics. In contrast to medical diagnoses, psychiatric diagnoses rely more heavily on patient interviews to guide clinical diagnosis and treatment. A patient's level of trust in mental health care may determine whether a patient chooses to engage in mental health services and whether they feel comfortable enough to disclose information that may facilitate more effective treatment by providers. These issues are further highlighted by our study's finding that negative perceptions of the US health care system's ability to deliver mental health care significantly predicted poorer mental health outcomes. This suggests that broader systemic distrust may contribute to worsening mental health that is beyond individual-provider relationships.

When assessing the impact of the exposure variables (SoRFH, housing barriers, and health care barriers) on mental health outcomes (PHQ-2 score, GAD-2 score, loneliness, and mental health rating), our study found that only specific exposure variables emerged as significant predictors. Of the 3 exposure variables, only SoRFH and health care barriers significantly predicted worse mental health outcomes. Notably, health care barriers emerged as a stronger predictor of GAD symptoms and poorer overall mental health, whereas SoRFH was a stronger predictor for MDD symptoms and loneliness. Not surprisingly, reciprocal relationships were observed, wherein poor mental health outcomes further exacerbated socioenvironmental risk factors and health care barriers, emphasizing the cyclical nature of worsening mental health disparities. Despite having significant associations, housing barriers surprisingly did not predict any of the 4 mental health metrics, differing from previous studies that have emphasized housing instability as a critical determinant of psychological disparities. This discrepancy could be due to sample-specific factors or differences in the operationalization of housing barriers affecting analysis.

Similarly, despite significant associations, neither housing barriers nor health care barriers significantly predicted substance use and vice versa, which deviates from established literature and could be influenced by our study's lower statistical power. Nonetheless, our potential findings may help serve to dispel the inaccurate stigma that all homeless individuals "abuse" drugs or that drug use is a cause for someone's housing or health care challenges. Refuting this stigma is crucial in preventing further marginalization of the unhoused community and aids in helping them receive the support and resources they need. Of note, we found that there was a significant predictive relationship between SoRFH, recreational drug use, and loneliness, wherein recreational drug use was both a significant impetus and response to increased SoRFH and loneliness. This reciprocal relationship between SoRFH, recreational drug use, and loneliness may be a key area of interest for outreach programs and community involvement. Interventions that bolster support, access to resources, and social networking may alleviate some of the strain on a high-risk population that struggles with ostracization and equitable access to health care.

Overall, the main findings of our study suggest that mitigating health care relative to housing barriers may wield greater influence on mental health outcomes. This may be particularly relevant in resource-limited communities that do not have the funds or infrastructure to address housing challenges immediately. Collaboration between health care institutions and social service organizations will be crucial for addressing health care barriers, such as affordability, accessibility, and trust-building. Expanding community health programs that offer sliding scale or free mental health services may help address financial barriers to care.<sup>16</sup> Patient navigation programs, where trained individuals

assist patients in navigating the health care system and accessing available resources (eg, legal or social support) may help reduce systemic obstacles and improve accessibility.<sup>16,17</sup> Additionally, mobile health clinics and telemedicine also may increase access for individuals facing transportation challenges.<sup>18,19</sup> Furthermore, community outreach programs and local advocacy groups may help bridge gaps in trust and combat stigma surrounding mental health care.<sup>20</sup>

### **Limitations and Generalizability**

While this study provides valuable insights, several limitations should be noted. To keep the surveys brief, we utilized PHQ-2 and GAD-2 screening tools for MDD and GAD to assess mental health outcomes. However, these screening results may not be extrapolated neatly into conclusions about mental health outcomes and diagnoses since we were unable to follow up with a patient interview or full psychiatric assessment for the sake of preserving patient anonymity. Furthermore, there were overlaps in some measures (eg, substance use history when assessing housing barriers and SoRFH) that we could not separate due to phrasing of certain survey questions. For example, participants were asked to select the number of housing barriers they experienced, but not which specific housing barriers they experienced. This was done to maximize anonymity in the setting of highly sensitive questions. However, this overlap in measures may introduce some confounding that could impact analysis. Moreover, our findings were based on self-reported data, which may be subject to recall and reporting biases.

Another limitation is the study sample's small size and selection, which decreases statistical power and limits the generalizability of our findings to broader populations. For one, the survey was available only in English, which excluded non-English speaking patients from participating. As such, our sample does not fully represent the diversity of SCU's patient population. Furthermore, the sample primarily consisted of individuals from low-income backgrounds who are medically uninsured. While this focus provides critical insights into the experiences of vulnerable populations, it does not fully capture the experiences of individuals with greater financial stability or health care access. Consequently, the reported barriers and observed associations between SoRFH, housing barriers, health care barriers, and mental health outcomes may be more skewed in our sample versus more socioeconomically diverse populations. Future studies should aim to replicate these findings in larger and more representative samples to determine the extent to which these relationships hold across different socioeconomic strata.

### **CONCLUSIONS**

Though housing and health care are both critical to overall health, this study found that compared to housing barriers, increased health care barriers significantly predicted worse mental health

outcomes. This highlights the importance of addressing health care barriers, such as expanding insurance coverage and transportation services, to improve mental health.

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**Appendix:** Available at [www.wmjonline.org](http://www.wmjonline.org)

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