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# The Mental Health, Substance Use, Physical Health, and Mental Health Treatment Need of Community Individuals Experiencing Homelessness in Hawai'i

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## Abstract

Limited research has examined the mental health of individuals experiencing homelessness in Hawai'i, which bears the nation's second highest homelessness rate. Mental health, substance use, treatment need, and health data were collected from 162 unhoused individuals in Hawai'i County by visiting community locations where they congregate (e.g., beaches, vacant buildings). 77% of participants were Native Hawaiian/Pacific Islander (NH/PI) with participants demonstrating severe rates of mental and substance use disorders including 57% experiencing major depressive disorder (MDD), 56% experiencing generalized anxiety disorder (GAD), and 64%, 74%, and 12% experiencing alcohol, methamphetamine, and opioid use disorders, respectively—heightening overdose risk. Treatment need was high (62%) but health was poor (85% reporting fair/poor health), with MDD and GAD predicting reduced general health ( $p < 0.05$ ). Study findings indicate Hawai'i unhoused individuals are disproportionately Indigenous NH/PI, enduring striking mental and physical health disparities that may be reduced by increasing access/utilization of community mental health programs/services.

**Keywords** homelessness · mental health · substance use · Native Hawaiian/Pacific Islander · community-based participatory research

## Introduction

Homelessness poses a major community mental health challenge, placing millions of unhoused residents at severe risk for mental health, substance use, and physical health problems each year. An estimated 326,000 to 580,000 individuals experience sheltered homelessness in the U.S. each night

(Housing & Urban Development, 2022) and 2.3 to 3.5 million individuals experience homelessness each year (Koh & O'Connell, 2016), with about one-third living unsheltered (i.e., living on the streets, abandoned buildings, and other unsuitable habitats) (Koh & O'Connell, 2016). These individuals are disproportionately racial/ethnic minority and many reside in locations burdened by extreme housing costs (e.g., New York, Los Angeles, Seattle) (Batko et al., 2020; Smiljanic, 2022), with the number of individuals experiencing chronic homelessness—who are most likely to be unsheltered and bear the greatest mental and physical health risks—increasing 20% from 2020 to 2021 (Housing & Urban Development, 2022).

In prior data, homelessness has been linked to numerous adverse mental health outcomes including high rates of depression, anxiety, serious mental illness, and alcohol and other substance use disorders (SUD) (Gutwinski et al., 2021; Hossain et al., 2020; Perry & Craig, 2015; Unger et al., 1997). In addition, individuals experiencing homelessness—particularly the unsheltered or chronically unhoused—suffer heightened prevalence of chronic disease (e.g., respiratory disease, cardiovascular disease, cancer), dying an average of

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20–30 years earlier than the general population with up to 10 times greater rates of all-cause mortality .

Yet, despite their immense risk, we know surprisingly little about the mental health, substance use, and behavioral health treatment need of the millions of community-dwelling unhoused individuals living outside of major U.S. urban centers such as New York or Los Angeles (Rollinson & Pardeck, 2019) as most extant data is derived from non-research point-in-time counts or pre-pandemic studies with urban populations conducted at point-of-contact locations/services (e.g., hospitals, shelters, meal programs) versus the community locations in which they live (Grinman et al., 2010; Housing & Urban Development, 2022; LAHSA, 2021; Taylor et al., 2019). Accordingly, using funding from the National Institute of Mental Health and National Institute on Drug Abuse, the present community-based participatory research (CBPR) study investigated the scope of mental health and substance use disorders, mental health treatment need, and physical health among community-dwelling individuals experiencing homelessness—many unsheltered or chronically unhoused—in Hawai‘i.

We conducted this novel mental health study in Hawai‘i because it possesses the nation’s second highest rate of homelessness (Housing & Urban Development, 2022) yet is unique among major U.S. communities battling extreme homelessness (e.g., New York, San Francisco) in being predominantly rural (rural areas constitute 94% of Hawaii’s total land area; Hawaii State Office of Planning, 2013). However, despite its rural nature, Hawai‘i mirrors many U.S. cities with high homelessness rates (e.g., Los Angeles, Chicago) in having the nation’s highest costs of living, real estate, and rental prices (Lapera & Depietro, 2022)—rendering nearly half of Hawai‘i residents just paychecks away from homelessness (Hawaii News Now, 2016). Similarly, numerous news reports and growing evidence suggest that illicit substance use (e.g., cannabis, methamphetamine) (Goebert et al., 2008; Kiyokawa et al., 2021) and fatal drug overdoses (Kabir, 2022; Kawano, 2022) may be rampant among unhoused individuals in Hawai‘i; consuming substantial social service, policing, and healthcare resources (Pruitt & Barile, 2021; Schultz et al., 2018). Despite this, almost no empirically-focused studies have detailed the mental health or substance use challenges of unhoused individuals in Hawai‘i and relatively few have studied non-urban unhoused community populations in the U.S. (Brott et al., 2019, 2022). This lack of research is particularly problematic given indications that up to 40% of Hawai‘i unhoused residents may be Native Hawaiians/Pacific Islanders (NH/PI) (Samarripa, 2014); who possess the state’s poorest economic and health outcomes (Fogleman, 2018; Wu et al., 2017; Yamane et al., 2010) due to the profound negative effects of U.S. colonization and cultural trauma on this understudied racial group (Cook et al., 2003; Hoshide et al., 2011; Subica & Link,

2022). Therefore, by conducting this novel mental health investigation of unhoused individuals in a non-urban community deeply affected by homelessness (Withy et al., 2008), study findings may provide key insights into the potential health disparities facing other non-urban U.S. communities as they become increasingly afflicted by the dual problems of rising housing costs and homelessness.

## Methods

### Study Sample

This study was approved by the University of California, Riverside IRB. The sample originated from Hawai‘i County—the state’s second largest county—where 1 in 3 persons experiencing homelessness are chronically unhoused. Using established CBPR best practices for assessing representative community populations (Alvarez et al., 2006; Breland-Noble & Board, 2012; Lee et al., 2020), between November 2021 to March 2022, community partner staff trained by the research team visited in pairs an array of known community locations where unhoused individuals congregate (e.g., beach encampments, parks, alleyways). Staff informed individuals about the study and administered informed consent and the 30–45 min survey via interview. Participants received \$20 gift cards upon survey completion.

### Measures

Demographic variables of age, gender, education, and marital status were assessed. Depression and anxiety severity were assessed via the Patient Health Questionnaire-9 (Kroenke et al., 2001) and Generalized Anxiety Disorder-7 (Spitzer et al., 2006), which uses diagnostic cut-points of 10+ to identify major depressive disorder (MDD) and generalized anxiety disorder (GAD), respectively (Kroenke et al., 2001; Spitzer et al., 2006). Alcohol use disorder (AUD) was screened using the Alcohol Use Disorders Identification Test-Consumption, which uses diagnostic cut-points of  $\geq 4$  for men and  $\geq 3$  for women (Bush et al., 1998). Lifetime and current (past-30 day) cigarette, cannabis, prescription opioids, heroin, and methamphetamine use were assessed using items from established assessments (e.g., Alcohol, Smoking, and Substance Involvement Screening Test [ASSIST]) (Humenuik et al., 2010; Pokhrel et al., 2014, 2018). Opioid use disorder (OUD) and methamphetamine use disorder (MUD; past 3-months) were assessed using the Rapid Opioid Dependence Screen (OUD  $\geq 3$ ) (Wickersham et al., 2015) and ASSIST (MUD  $\geq 4$ ) (Humenuik et al., 2010), respectively. Mental health and substance use treatment need and treatment delay/avoidance were assessed via four commonly-used Medical Expenditure Panel Survey

items (Agency for Healthcare Research & Quality, 2011). Health outcomes included general health (“*In general, would you say your health is excellent, very good, good, fair, or poor?*”) and three key CDC-defined health indices linked to chronic disease: obesity (body mass index = 30+), unhealthy sleep (< 7 h per night), and current cigarette smoking (Liu, 2016).

## Statistical Analyses

Analyses were conducted in SPSS v.27. Descriptive statistics were conducted to calculate frequencies, means, and standard deviations while chi-square and independent t-tests analyzed significant gender differences. To explore possible predictors of general health using linear regression, we regressed general health on our demographic variables of age, gender, education, and marital status (Step 1), and the mental and physical health variables of body mass index, sleep hours, current cigarette smoking (Step 2), MDD, GAD, Any SUD (Step 3), and mental health and substance use treatment seeking (Step 4).

## Results

In the study sample, NH/PIs composed 77% ( $n = 124$ ) of participants, 94% of whom were Indigenous Native Hawaiian ( $n = 117$ ). Sixty-three percent of the sample were men ( $n = 102$ ), 17% had less than high school education ( $n = 26$ ), 32% had some college education ( $n = 50$ ), and 68% were single/unmarried ( $n = 105$ ).

Participants’ mean depression and anxiety scores exceeded the 10-point diagnostic cut-points for MDD ( $M = 11.37$ ,  $SD = 5.14$ ) and GAD ( $M = 11.09$ ,  $SD = 5.28$ ), with 57% ( $n = 92$ ) and 56% ( $n = 90$ ) of participants screening positive for MDD and GAD, respectively, and 39% ( $n = 63$ ) possessing comorbid MDD and GAD. For alcohol use, 64% ( $n = 104$ ) of participants screened positive for AUD with higher prevalence in men versus women (71% versus 54%;  $X^2(1, 161) = 4.37$ ,  $p < 0.05$ ).

For illicit substance use, a startling 93% ( $n = 151$ ) of participants reported lifetime cannabis use, 86% ( $n = 140$ ) reported lifetime methamphetamine use, and 60% ( $n = 97$ ) and 33% ( $n = 54$ ) reported lifetime illicit prescription opioid and heroin use, respectively. Current substance use rates were also high with 70% ( $n = 113$ ) of participants reporting current cannabis use, 69% ( $n = 111$ ) reporting current methamphetamine use, and 24% ( $n = 39$ ) reporting current illicit use of prescription opioids or heroin. Accordingly, 74% ( $n = 120$ ) of participants screened positive for MUD (past 3-months), 12% ( $n = 19$ ) for OUD, and 94% ( $n = 153$ ) for any SUD (alcohol, methamphetamines, or opioids). Sixty-two percent ( $n = 100$ ) and 48% ( $n = 78$ ) of participants

reported needing past-year mental health or substance use treatment, respectively, with 65% of these participants delaying the mental health/substance use treatment they reported needing. Women were more likely to report needing past-year mental health treatment than men (80% vs. 51%;  $X^2(1, 161) = 12.99$ ,  $p < 0.01$ ).

For our health indices, 85% ( $n = 138$ ) of participants reported poor/fair health, 78% ( $n = 126$ ) reported current smoking, 16% ( $n = 26$ ) had obesity, and 77% ( $n = 124$ ) reported unhealthy sleep with participants averaging only 5.00 ( $SD = 2.08$ ) sleep hours per night. Fifteen percent ( $n = 24$ ) of participants also reported being diagnosed with COVID-19 with participants reporting high mean COVID-19 distress scores of 7.69 ( $SD = 2.74$ ) out of 10 points.

In the linear regression model, the significant predictors ( $p < 0.05$ ) of general health were being married ( $\beta = 0.28$ ), having college education ( $\beta = -0.31$ ), MDD ( $\beta = -0.30$ ), and GAD ( $\beta = -0.26$ ). Notably, no health indices (body mass index, smoking, sleep) or treatment need variables significantly associated with general health after accounting for the effects of demographics, MDD, and GAD in our model.

## Discussion

As the first study to our knowledge to detail the mental health, substance use, and treatment needs confronting Hawai‘i’s unhoused, and often unsheltered, individuals—and one of very few community-based empirical studies of U.S. unhoused populations conducted during COVID-19—study findings revealed exceptionally high prevalence of mental health and substance use problems in this understudied and underserved community population. On average, participants evidenced high levels of COVID-19-related distress along with clinical levels of depression and anxiety as nearly 60% of participants screened positive for MDD, over half screened positive for GAD, and two thirds screened positive for AUD. Consequently, over 60% of participants reported needing past-year mental health treatment with 65% delaying/avoiding needed treatment; revealing a substantial need and unmet need for formal treatment services in this high-risk community population.

Illicit substance use was pervasive in the sample with 7 in 10 participants currently using methamphetamines and one quarter currently using illicit opioids, leading approximately 80% of participants to screen positive for opioid or methamphetamine use disorders. As methamphetamines and opioids are the leading causes of drug overdose fatalities in Hawai‘i (Wilson, 2020), an overwhelming majority of unhoused individuals bore severe drug overdose risk; necessitating the urgent development/implementation of targeted community resources and services (e.g., opioid education/

outreach, naloxone distribution) to reduce overdose-related harms within Hawai‘i (and potentially other non-urban) unhoused communities.

Additionally, community participants reported poor outcomes on all health indices (except obesity) with 85% of participants suffering from poor/fair health, over three fourths of participants reporting current cigarette smoking, and three fourths of participants reporting unhealthy sleep duration—increasing these individuals’ risk for chronic disease and early mortality (Liu, 2016). In our regression model examining participants’ general health, having a mental disorder (MDD or GAD) was among the strongest predictors of poor general health of all study variables; revealing a strong link between mental health difficulties and reduced physical health in this vulnerable population.

Of particular concern, over 70% of our unhoused community sample were of Native Hawaiian heritage despite Native Hawaiians composing just 13% of Hawai‘i County’s total population (U.S. Census Bureau, 2022). This troubling finding that Indigenous Native Hawaiian people may compose the vast majority of unhoused individuals living in Hawai‘i further underscores the growing socioeconomic challenges facing NH/PIs in the U.S., who in 2021 suffered the nation’s greatest increase in homelessness (12.5%) of any U.S. racial group (Housing & Urban Development, 2022).

Study limitations include our cross-sectional design, which restricted causal inference. In addition, our non-probabilistic sampling approach may potentially limit generalizability to other rural populations. To address these limitations, additional longitudinal and qualitative research (Buck-McFadyen, 2022a, 2022b; Schiff et al., 2015) is needed to monitor and explore the negative behavioral and physical health patterns and mechanisms of risk driving poor mental and physical health among U.S. non-urban individuals experiencing homelessness. Further, due to the critical health and overdose risks facing this population, a larger CBPR study is needed to (1) identify potentially effective strategies to reduce their risk such as peer navigator programs to engage at-risk individuals in treatment, supervised injection sites, or permanent supportive housing (Henwood et al., 2013; Parkes et al., 2022; Potier et al., 2014), thereby informing the (2) community-informed adaptation/design and pilot testing of these programs within Hawai‘i and other high-risk non-urban contexts in the U.S.

## Conclusion

Overall, the findings of this novel community mental health investigation suggests that community-dwelling unhoused individuals in Hawai‘i—many of whom are unsheltered or chronically unhoused—endure heavy burdens of depression and anxiety, SUDs, unmet treatment need, and poor

health that likely interact in a complex synergistic cycle to exacerbate existing health disparities (Folsom et al., 2005). Because mental disorders were strongly associated with poor health in our study, allocating greater resources and funding to increasing the engagement of non-urban individuals experiencing homelessness in extant mental health and substance use services may be an effective way to improve health outcomes in non-urban communities within the U.S.

## Declarations

**Conflict of interest** The authors have no conflicts of interest to disclose. The University of California, Riverside Institution Review Board approved all study protocols. Informed consent was obtained from all participants in this study. This project was supported by funding from the National Institute of Mental Health [R34 MH122641] and National Institute on Drug Abuse [R34 DA049989 and R34DA049989-S1]. The content is solely the responsibility of the authors and does not represent the official views of the National Institute of Mental Health or National Institute on Drug Abuse.

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