

# Social Stability and Unmet Health Care Needs in a Community-Based Sample of Women Who Use Drugs

Ellesse-Roselee L. Akre<sup>1</sup> , Daniel J. Marthey<sup>2</sup>, Chisom Ojukwu<sup>2</sup>, Casey Ottenwaelder<sup>2</sup>, Megan Comfort<sup>3</sup>, and Jennifer Lorvick<sup>3</sup>

## Abstract

**Objective:** To examine the relationship between social stability and access to healthcare services among a community-based sample of adult female drug users.

**Methods:** We developed a measure of social stability and examined its relationship to health care access. Data came from a cross-sectional sample of female drug users (N = 538) in Oakland, CA who were interviewed between September 2014 and August 2015. We categorized women as having low (1-5), medium (6-10), or high (11-16) social stability based on the tertile of the index sample distribution. We then used ordered logistic regression to examine the relationship between social stability and self-reported access to mental health services and medical care.

**Results:** Compared with women in the low stability group, those with high stability experienced a 58% decline in the odds of needed but unmet mental health services [AOR: 0.42; 95% C.I.: 0.26, 0.69] and a 68% decline in the odds of unmet medical care [AOR: 0.32; 95% C.I.: 0.19, 0.54] after adjusting for confounders. The coefficients we observed reduced in size at higher levels of the stability index suggesting a positive association between social experiences and access to healthcare services.

**Conclusion:** Women who use drugs are at increased risk of adverse health outcomes and often experience high levels of unmet healthcare needs. Our study highlights the importance of addressing social determinants of health and suggests that improving social factors such as housing stability and personal safety may support access to healthcare among female drug users.

## Keywords

access to care, community health, primary care, prevention, health promotion

## Introduction

Social determinants of health, defined as the conditions in which we “are born, live, work, and age” critically influence health behaviors and outcomes.<sup>1</sup> Social determinants of physical and mental health consist of access to resources like housing, education, health care, and income, as well as social capital, a healthy living environment, and general safety.<sup>1,2</sup> Socioeconomic status, homelessness and incarceration are three social factors that play a role in creating health differentials between people who use illicit drugs and the general public.<sup>3</sup> Income, housing security, education, unemployment, child abuse and neglect, neighborhood conditions, food insecurity and social support have repeatedly been demonstrated to influence mental and physical health outcomes.<sup>2,4-6</sup> Many researchers have noted that addressing social determinants of

physical and mental is necessary to improve population health and reduce health disparities.<sup>7</sup> Social determinants of health is a broad concept that is categorized into five domains: health care access and quality, education access and quality,

<sup>1</sup> Geisel School of Medicine at Dartmouth, Lebanon, NH, USA

<sup>2</sup> University of Maryland, College Park, Maryland, USA

<sup>3</sup> RTI International, Rochester, Minnesota, USA

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### Corresponding Author:

Ellesse-Roselee Akre, The Dartmouth Institute of Health Policy and Clinical Practice Geisel School of Medicine at Dartmouth, One Medical Drive, WTRB-5 Lebanon, NH 03766, USA.

Email: [eakre@dartmouth.edu](mailto:eakre@dartmouth.edu)



economic stability, neighborhood and built environment, and social and community contexts. Social and community contexts are concerned with the contexts of how people live, learn, work, and engage in leisurely activities and how it influences their health and overall well-being.<sup>1,8</sup> Social stability is a construct often used to measure social and community contexts.<sup>9</sup>

Social stability refers to how an individual's life is structured and the routines established to maintain social relationships, resources and protect against situational harm.<sup>9</sup> The construct is typically measured by steady social circumstances within the defined domain, for instance, steady housing, employment, healthy relationships, sufficient income, and lack of imprisonment.<sup>9</sup> High levels of social stability have been associated with better physical health outcomes and more favorable mental health outcomes.<sup>9-11</sup> Women who use drugs often experience negative social determinants of health and have limited social stability. They experience violence, poverty, homelessness, low education, and economic instability.<sup>12</sup>

Despite being a high-risk population, the health needs of women who use drugs are often unmet or overlooked which may have significant consequences.<sup>13</sup> Drug use among women is associated with increased barriers to healthcare.<sup>14</sup> Women who use drugs are at greater risk of fatal or late-stage breast cancer diagnoses,<sup>15</sup> and pregnant women who use drugs are at greater risk for receiving late, limited or no prenatal care.<sup>16,17</sup> Better understanding the role of social stability and access to healthcare among this high-need group may support improved policy approaches to address the critical needs of these women and their children.

The purpose of this study is to examine the relationship between social stability and unmet healthcare needs among women who use drugs. We created a measure of social stability that is representative of varying levels of exposure to social advantages (ie, safety from violence, housing stability, financial support from friends and family) and assessed their relationship with health care access measures. By measuring women's experiences with social stability, that is measuring the structure and routine in their lives that is protective against situational hazards often attributed the absence of structure,<sup>9</sup> along a gradient and across multiple domains we assess the relationship between an additive measure of social stability and access to care.

## Methods

Data was collected between September 2014 and August 2015 in Oakland, CA, a racially diverse city in Alameda County. Recruitment was conducted in two neighborhoods with high levels of drug trade and urban blight using targeted sampling techniques,<sup>18</sup> carried out by an outreach worker with previous experience in recruiting people who use drugs.<sup>19</sup> The outreach worker approached potentially eligible women on the streets, homeless encampments, parking lots, or similar locations; briefly explained the study and procedures; and referred the women to a community field site where screening and eligibility was determined. Data was not collected during the recruitment process thus refusal rates could not be documented. Eligible participants met the following criteria: (1) 18 years of age or older,

(2) biological female, and (3) used heroin, methamphetamine, crack cocaine, or powder cocaine in the past 30 days prior to the interview. Eligible participants consented to participate in a 30- to 45-min quantitative survey interview administered by trained interviewers who recorded responses in a laptop-based survey instrument using Blaise (Westat, Rockville, MD). Data were uploaded regularly into a secure service and deleted from the laptops. All procedures were approved by a federally accredited Institutional Review Board. The final sample size was 538 women; 93 women were excluded from the analysis because they were missing responses for variables of interest.

The survey asked a series of questions related to health status, health conditions and access to healthcare services. Our primary outcomes of interest were whether women needed but did not receive health services in the past year. This was ascertained through two survey questions: "In the past year, were there times when you thought you should see a health care provider for mental health issues but didn't go?" and "In the past year, were there times when you thought you should see a healthcare provider for a physical health problem but didn't go?" Women who responded "yes" to either question were considered to have an unmet health care need. For each question we constructed a binary indicator for whether respondents had an unmet medical or mental healthcare need in the past year.

Previous work has demonstrated a significant association between social stability, social determinants of health, and health outcomes.<sup>9</sup> Consistent with that literature, we designed a 16-point index of constructs including housing safety and stability, having basic needs met, socioeconomic status, and other social determinants of health. For each construct, women receive a positive score for having a protective factor. Women's scores were categorized into 3 groups, low- a score of 1 to 5; medium- a score from 6 to 10; high- a score from 11 to 16. The index had high internal consistency with a combined Cronbach's alpha of 0.82.<sup>20,21</sup> We did not test the index dimensionality. However, previous latent class analyses demonstrate that housing stability, income, and social support sufficiently capture social stability as a single construct.<sup>9</sup>

We used the Aday-Andersen model of health services utilization to identify a series of confounders that influence our outcomes and independent variable of interest.<sup>22</sup> These included age (18-24; 25-34; 35-44; 45-54; 55+), race/ethnicity (Non-Latino White [White]; Non-Latino Black [Black]; Latino; Other/Multiple), self-reported physical health status (good or better; fair or poor), health insurance status (yes/no), a binary variable measuring perceived stress score of 10 or greater based on a 16-point (four item) stress index,<sup>2</sup> and whether women had ever been told by a medical or other professional that they have a mental health issue (yes/no).

We described the demographic characteristics and average stability indicators of women based on their stability score grouping. We used chi-square tests to examine statistical differences in characteristics between women of varying levels of social stability. Next, we estimated ordered logistic regression models, adjusting for the confounders described above, to examine the association between social stability and mental

**Table 1.** Characteristics of Women by Stability Index Grouping.

	Stability Index			Total (n = 538) %	P-Value
	Low (n = 236) %	Medium (n = 173) %	High (n = 129) %		
<i>Panel A: Confounders</i>					
Age					P < .001
18 to 24	<b>4.24</b>	<b>2.31</b>	<b>0.78</b>	<b>2.79</b>	
25 to 34	<b>16.53</b>	<b>16.76</b>	<b>7.75</b>	<b>14.50</b>	
35 to 44	<b>25.42</b>	<b>23.12</b>	<b>17.83</b>	<b>22.86</b>	
45 to 54	<b>41.95</b>	<b>35.26</b>	<b>31.01</b>	<b>37.18</b>	
55+	<b>11.86</b>	<b>22.54</b>	<b>42.64</b>	<b>22.68</b>	
Race/Ethnicity					.745
NH-White	5.51	4.05	2.33	4.28	
NH-Black	83.48	82.08	84.50	83.27	
Latino	3.81	5.20	6.20	4.83	
Other/Multiple	7.20	8.67	6.98	7.62	
Good or Better Health Status	<b>30.51</b>	<b>39.31</b>	<b>42.64</b>	<b>36.25</b>	.042
Has Health Insurance	<b>75.85</b>	<b>84.39</b>	<b>85.27</b>	<b>80.86</b>	.033
Mean Stress Score	8.35	8.05	7.85	8.13	.232
Ever told mental health issue	<b>53.39</b>	<b>45.67</b>	<b>34.11</b>	<b>46.28</b>	.002
<i>Panel B: Dimensions of Stability</i>					
Feels safe in current living situation	<b>11.44</b>	<b>30.64</b>	<b>76.74</b>	<b>33.27</b>	P < .001
No trouble finding a place to sleep in past 6 months	<b>0.85</b>	<b>36.99</b>	<b>96.12</b>	<b>35.32</b>	P < .001
Stable housing for past 6 months	<b>15.68</b>	<b>34.68</b>	<b>82.17</b>	<b>37.73</b>	P < .001
Living Environment					P < .001
Hospital/Jail/Shelter	<b>17.37</b>	<b>10.41</b>	<b>0.00</b>	<b>10.97</b>	
Temp Hotel	<b>8.48</b>	<b>6.36</b>	<b>2.33</b>	<b>6.32</b>	
Room/Family	<b>65.68</b>	<b>63.58</b>	<b>37.98</b>	<b>58.36</b>	
Permanent Housing	<b>8.48</b>	<b>19.65</b>	<b>59.69</b>	<b>24.35</b>	
In past 6 months, had no trouble:					
Getting enough to eat	<b>2.54</b>	<b>47.40</b>	<b>86.05</b>	<b>36.99</b>	P < .001
Having enough clothing	<b>0.85</b>	<b>46.24</b>	<b>89.15</b>	<b>36.62</b>	P < .001
Finding a place to wash	<b>1.70</b>	<b>56.65</b>	<b>98.45</b>	<b>42.57</b>	P < .001
Finding a place to use the bathroom	<b>2.54</b>	<b>53.76</b>	<b>100.00</b>	<b>42.38</b>	P < .001
Education					P < .001
Less than HS	<b>49.15</b>	<b>32.95</b>	<b>20.93</b>	<b>37.18</b>	
HS or more	<b>50.85</b>	<b>67.05</b>	<b>79.07</b>	<b>62.83</b>	
Monthly Income					.120
Less than \$970	83.05	86.13	76.74	82.53	
\$970-\$1940	14.83	10.41	17.05	13.94	
More than \$1940	2.12	3.47	6.20	3.53	
Received financial support from steady partner, relatives, or friends	<b>2.97</b>	<b>36.42</b>	<b>44.96</b>	<b>23.79</b>	P < .001
Did not receive money in exchange for sex	<b>15.68</b>	<b>82.08</b>	<b>100.00</b>	<b>57.25</b>	P < .001
Was not assaulted by current or former partner, your child, or friend in the past year	<b>73.73</b>	<b>83.24</b>	<b>95.35</b>	<b>81.97</b>	P < .001

**Source:** WHS 2014 to 2015 **Notes:** Women were excluded (n = 93) if missing on covariates of interest. Estimates unweighted. Bold indicates a P value ≤ .05.

health and medical care. Statistical procedures were conducted using Stata version 16.1.<sup>23</sup>

## Results

We present characteristics of women in the sample in Table 1, panel A. Overall, most of the female respondents were older

with only 17.3% falling below the age of 35. Over 83% of respondents self-identified as Black. Just 36.3% of women reported excellent or good physical health status. The average stress score among women was 8.13/16.

Women with the highest levels of stability were older, on average, compared with other groups. Over 70% of women with a stability score greater than or equal to 11 were aged 45

years or older, compared with just 54% of women with a stability score less than or equal to 5 ( $P < .001$ ). On average, women with the highest levels of stability also reported better physical health ( $P = .042$ ), were more likely to have health insurance coverage ( $P = .033$ ), and were less likely to report having been diagnosed with a mental health condition ( $P = .002$ ).

In Table 1 panel B we present dimensions of social stability among women, overall and by subgroup. Overall, women appeared to experience high levels of social disadvantage. For example, only 33.3% of women reported feeling safe in their current living situation, 37.7% reported stable housing for the past 6 months, and 37% reported no trouble getting enough to eat in the past 6 months.

After adjusting for confounders, we found that women with higher levels of social stability were less likely to experience unmet mental health needs compared with those who had lower social stability. Women with a moderate stability score experienced a 51% decrease in the odds of experiencing an unmet need for mental health services compared with the referent group (95% CI [0.32, 0.76]). Likewise, women with a high

stability score experienced a 58% decrease in the odds of experiencing unmet mental health needs compared with women in the lowest stability group (95% CI [0.26, 0.69]). Age, health status, stress, and history of mental illness were also significant predictors of unmet mental health needs. These results are presented in Table 2 panel A.

Social stability also appears to be independently associated with unmet medical care (Table 2 panel B). Women with a medium stability score experienced a 67% decrease in odds of reporting unmet medical care compared with those who had low stability (95% CI [0.21, 0.51]) and those with a high stability score experienced a 68% decrease compared with the referent group (95% CI [0.19, 0.54]). Compared with White women, women of other racial/ethnic subgroups appear less likely to experience unmet medical care. For example, adjusting for all other covariates in our model, Black women experienced a 76% reduction in the odds of reporting unmet medical care compared with White women (95% CI [0.07, 0.86]). Health status and stress also appear to be significant predictors of unmet medical care.

**Table 2.** Odds of Experiencing Unmet Mental Health or Medical Needs by Social Stability Index.

	Panel A: Needed but didn't receive MH services				Panel B: Needed but didn't receive medical care			
	AOR	SE	P-Value	95% C.I.	AOR	SE	P-Value	95% C.I.
Stability Index								
Low	Ref.	—	—	—	Ref.	—	—	—
Medium	<b>0.49</b>	<b>0.11</b>	<b>.001</b>	<b>[0.32,0.76]</b>	<b>0.33</b>	<b>0.08</b>	<b>P &lt; .001</b>	<b>[0.21,0.51]</b>
High	<b>0.42</b>	<b>0.11</b>	<b>.001</b>	<b>[0.26,0.69]</b>	<b>0.32</b>	<b>0.08</b>	<b>P &lt; .001</b>	<b>[0.19,0.54]</b>
Age								
18 to 24	Ref.	—	—	—	Ref.	—	—	—
25 to 34	2.22	1.48	.232	[0.60,8.18]	1.00	0.68	.997	[0.27,3.76]
35 to 44	<b>3.53</b>	<b>2.27</b>	<b>.050</b>	<b>[1.00,12.5]</b>	1.16	0.76	.820	[0.32,4.22]
45 to 54	<b>4.26</b>	<b>2.71</b>	<b>.023</b>	<b>[1.22,14.8]</b>	1.20	0.78	.774	[0.34,4.28]
55+	<b>3.69</b>	<b>2.41</b>	<b>.046</b>	<b>[1.02,13.3]</b>	1.46	0.97	.572	[0.40,5.36]
Race/Ethnicity								
Non-Latino-White	Ref.	—	—	—	Ref.	—	—	—
Non-Latino-Black	1.28	0.61	.609	[0.50,3.25]	<b>0.24</b>	<b>0.16</b>	<b>.028</b>	<b>[0.065,0.86]</b>
Latino	1.45	0.93	.561	[0.41,5.10]	<b>0.21</b>	<b>0.16</b>	<b>.046</b>	<b>[0.045,0.98]</b>
Other/Multiple	1.20	0.69	.756	[0.39,3.71]	<b>0.23</b>	<b>0.17</b>	<b>.042</b>	<b>[0.054,0.95]</b>
Health Status								
Fair or Poor	Ref.	—	—	—	Ref.	—	—	—
Good or Better	<b>0.67</b>	<b>0.13</b>	<b>.042</b>	<b>[0.45,0.99]</b>	<b>0.43</b>	<b>0.09</b>	<b>P &lt; .001</b>	<b>[0.29,0.64]</b>
Health Insurance								
No	Ref.	—	—	—	Ref.	—	—	—
Yes	0.80	0.20	.371	[0.49,1.30]	0.61	0.17	.069	[0.36,1.04]
Stress Score								
0 to 9	Ref.	—	—	—	Ref.	—	—	—
10 to 16	<b>1.79</b>	<b>0.39</b>	<b>.007</b>	<b>[1.17,2.73]</b>	<b>1.80</b>	<b>0.42</b>	<b>.012</b>	<b>[1.14,2.85]</b>
Ever told MH issue								
No	Ref.	—	—	—	Ref.	—	—	—
Yes	<b>2.89</b>	<b>0.56</b>	<b>P &lt; .001</b>	<b>[1.98,4.22]</b>	1.01	0.21	0.953	[0.68,1.51]

**Source:** WHS 2014 to 2015 **Notes:** Women were excluded ( $n = 93$ ) if missing on covariates of interest. Estimates unweighted. AOR = Adjusted odds ratio, SE = standard error. Bold indicates a  $p$  value  $\leq 0.05$ .

## Discussion

Our study examined the association between social stability and unmet need for physical and mental health services in a community-based sample of 538 women who use drugs in Oakland, California. Findings from the study demonstrate that increased levels of social stability are associated with decreased levels of unmet healthcare after adjusting for other factors. The decreasing magnitude of coefficients in the models suggests a dose-response effect between the accumulation of experiences with negative social determinants of health and access to healthcare. Since all women in the sample used illicit drugs, we can be certain that drug use is not the main driver for the instability our constructs measure. Preliminary models controlled for types of drugs women reported using in addition to the number of drugs used and results were consistent.

There are some limitations to consider for this study. First, the measure of social stability we developed could be missing important constructs. While our index was highly correlated, factors that were not captured that may have resulted in more insight into the effects of social determinants of physical and mental health. Additionally, some of the covariates in the model are related to the outcomes in ways that potentially mask the true effects of the stability measure. For instance, race is intrinsically related to social stability because racism is systemic and systematic. Also, self-reported data may have some inaccurate information due to recall bias.<sup>24</sup> Access to the administrative claims data for the study sample would provide a more verifiable source of data and better understanding of women's health experiences. While sample size is small and slightly dated there are no studies examining social stability, drug use, and access to healthcare. Another limitation of the study is that our sample is not representative of all women who use drugs. There are more women who use drugs who have jobs, homes, and families than that were represented in the study. The sampling method allowed for most of our sample to include women with unstable social situations. Despite this sampling bias our findings were consistent demonstrating in demonstrating the women with lower levels of stability in the form of jobs, stable housing, and family support, along with other factors included in the index, experienced less access to care. Furthermore, the data was collected in a post ACA health care environment and there have yet to be significant changes to the US health care system that would lead us to believe that this data is no longer relevant. Lastly, findings are from one city and may not be generalizable on a state or national level. While the findings may not be generalizable there is great insight to be gleaned from the study findings that could be applied to future and larger studies.

Our findings suggest that addressing the basics needs such as food, clothing, safety, and housing of female drug users who lack these necessities may support improved access to care. State Medicaid programs may be well-positioned to lead on this front given their flexibility in program design, waiver authority, ability to offer provider incentive payments, and the patient populations they support.<sup>25</sup> In California, one

novel approach to integrating health and social needs is the Whole Person Care Medicaid Section 1115 waiver demonstration, launched in 2016, which provides patients from state-identified high risk groups (including patients with substance use disorder) with integrated local systems of healthcare, behavioral, and social services.<sup>26</sup> Implemented at the local level, the Whole Person Care pilot programs coordinate services through partnerships between health agencies, the social safety net, and Medicaid managed care plans.

Healthcare providers should be emboldened with the time and resources to adequately address the comorbidity of substance abuse and mental illness. This would allow for better detection of substance abuse and mental illness comorbidity to be identified and treated regardless of the financial resources of the patient. Furthermore, health systems should create safe spaces that allow women with limited social stability to be able to access care free of charge to remove the burden of cost from care.<sup>27</sup> To contend with drug dependence, we must address mental health issues and create curated programs that address the specific needs of women who use drugs, focusing on the demonstrated effectiveness of targeted interventions rather than criminalization.<sup>28-31</sup>

Moving forward, studies should focus on drug use among specific ethnic minority populations. There is a lack of literature on the impact of social determinants of health on mental health access of the Black and Hispanic population who use illicit drugs, as well as studies that directly compare drug user and non-user health outcomes. Future research should investigate the effectiveness of gender-based drug program treatment with a special focus on the needs of female drug users with mental health disorders.

## Conclusions

We found that among a community-based sample of female drug users in Oakland, California, those with more social stability were less likely to report unmet mental health or medical needs. Our results indicate that addressing the social needs of female drug users may support improved access to needed healthcare services. This is especially important given the high rates of comorbid conditions and unmet health needs among women who use drugs.

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## ORCID iD

Ellesse-Roselee L. Akre  <https://orcid.org/0000-0002-2380-6344>

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## Authors Biographies

**Ellesse-Roselee L. Akré**, is an Assistant Professor of Health Policy and Clinical Practice at the Dartmouth Institute of Health Policy and Clinical Practice at the Geisel School of Medicine.

**Daniel J. Marthey** MPH is a doctoral candidate in the department of Health Policy and Management at the University of Maryland School of Public Health.

**Chisom Ojukwu** was an undergraduate student at the University of Maryland School of Public Health.

**Casey Ottenwaelder** is an undergraduate student at the University of Maryland School of Public Health.

**Megan Comfort**, PhD, is a Senior Research Sociologist with the Applied Justice Research Division at RTI International and affiliated faculty in the Department of Medicine at the University of California, San Francisco.

**Jennifer Lorvick**, DrPH, is the Associate Director of RTI's Urban Health Program.

## Appendix

To test the ability of our index in measuring the intended constructs we examined measures of inter-item correlation and values of the index alpha if any single item were to be excluded (Table A1). We found that removing education and income from the index would improve the overall index, however, because we believe these indicators to be theoretically important in predicting social position, we chose not to remove them. Overall, we observed a strong correlation between our observed scale and the true stability score with an alpha coefficient greater than 0.80. This suggests our index items are measuring the similar constructs.

**Table A1.** Stability Index Cronbach's Alpha.

Item	item-test correlation	item-rest correlation	alpha
Feels safe in current living situation	0.53	0.42	0.81
No trouble finding a place to sleep in past 6 months	0.81	0.76	0.79
Stable housing for past 6 months	0.50	0.39	0.82
Living Environment	0.37	0.25	0.83
In past 6 months, had to trouble:			
Getting enough to eat	0.74	0.66	0.80
Having enough clothing	0.77	0.71	0.79
Finding a place to wash	0.85	0.81	0.78
Finding a place to use the bathroom	0.85	0.81	0.78
Education	0.27	0.13	0.84
Monthly Income	0.13	0.00	0.84
Received financial support from steady partner, relatives, or friends	0.47	0.35	0.82
Did not receive money in exchange for sex	0.79	0.72	0.79
Was not assaulted by current or former partner, your child, or friend in the past year	0.29	0.15	0.83
Test index			0.82

**Source:** WHS 2014 to 2015.

**Notes:** Unweighted sample size = 538. Index items standardized. Item-test correlation shows the correlation of each item with the index. Item-rest correlation is the correlation of each item with an index constructed without that item. Alpha is the scale's Cronbach alpha value without the item. The test index value is the standardized alpha coefficient for the index including all items.