

# Prevalence of Homelessness by Gender in an Emergency Department Population in Pennsylvania

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**Context:** According to the US Department of Housing and Urban Development, nearly 1.5 million people spend at least 1 night in an emergency shelter or transitional housing each year, and more than 500,000 people are homeless on a given night in the United States. To our knowledge, limited data exist regarding the prevalence of homelessness in ED patients by gender (male, female, and transgender)

**Objective:** To assess the prevalence of homelessness by gender in 3 EDs in Pennsylvania.

**Methods:** From May 2015 through February 2016, patients in 3 EDs were approached to take a 5-question homelessness screening survey. To participate, patients had to be aged at least 18 years, speak English, have capacity to complete the survey, be willing to participate, and not be critically ill. Frequency comparisons were made using  $\chi^2$  analysis. Statistical significance was defined as  $P \leq .05$ .

**Results:** A total of 4395 patients were included in the analysis. The mean (SD) age of the participants was 50.8 (20.5) years; 2557 (58.2%) were women and 3 (0.07%) were transgender. No difference in the rate of homelessness was observed between men and women, with 135 of 1835 men (7.4%) and 173 of 2557 women (6.8%) screening positive for homelessness ( $P = .472$ ). Forty of 2557 women (1.6%) and 41 of 1835 men (2.2%) admitted they had slept outside or in an abandoned building, their car, an emergency shelter, or a hotel due to financial hardship in the past 60 days ( $P = .26$ ). One transgender patient screened positive for homelessness. The mean age of participants who screened positive for homelessness was 40.9 (15.9) years.

**Conclusion:** No significant difference was observed in the rate of homelessness between men and women in this ED population, which defies the perception that this issue primarily affects men. Public health interventions aimed at homeless populations should consider that both men and women may be equally affected by homelessness.

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Nearly 1.5 million people in the United States spend at least 1 night in an emergency shelter or transitional housing each year, and more than 500,000 people are homeless on a given night.<sup>1</sup> People who are homeless have substantially

higher rates of emergency department (ED) visits and hospital use than the general population.<sup>2,3</sup> Because the ED is a regularly used point of contact with the health care system for the homeless population,<sup>2,3</sup> it is important that health care practitioners in the ED are aware of the characteristics of homeless persons in their community so they can facilitate access to proper health care.

There is a lack of literature that examines the difference in the prevalence of homelessness in men vs women who present to the ED. The annual assessment report on homelessness compiled by the US Department of Housing and Urban Development only recently began to incorporate demographics regarding gender into its report.<sup>1</sup> In 2015, the first year that such data were made available, a reported 40% of all homeless persons in the United States, and 44% of the sheltered population, were women.<sup>1</sup> Among sheltered youth, 58% were women or girls.<sup>1</sup> The subsequent release of *The 2016 Annual Homeless Assessment Report*<sup>4</sup> all but ratified these 2015 figures, suggesting that the female homeless population had not only been grossly underestimated, but also potentially undertreated.

In their analysis of the homeless population in urban EDs across the United States, Ku et al<sup>5</sup> suggested that there is a higher percentage of homeless men that visit the ED annually than women, but the method used in their assessment did not use prospective universal screening. The authors<sup>5</sup> explained that the ED staff might have failed to inquire about or record the housing status of patients, as it is not a required item in medical records. The authors also disclosed the limitation that homeless patients presenting to the ED may not be easily identifiable on medical record review because the patient might list an address of a shelter, a friend or family member's house, or a fictitious address as their primary residence.<sup>5</sup>

Statistics regarding the homeless population that are typically cited in the literature analyzing this topic are queries on national databases that rely on self-reporting of homelessness or data from local shelters, which may not adequately assess the differences in gender within this vulnerable population.<sup>5-7</sup> In our recent study,<sup>8</sup> we

examined the overall prevalence of homelessness in an ED population in northeastern Pennsylvania. In the present study, we used the same dataset to investigate the prevalence of homelessness by gender.

## Methods

This study was determined to be exempt by the Lehigh Valley Hospital Institutional Review Board. A survey was administered in 3 emergency departments in northeastern Pennsylvania. The hospitals included were a Level I trauma center with an annual census of 100,000 visits; a suburban hospital with an annual census of 45,000 visits; and an inner city hospital with an annual census of more than 20,000 visits. Participants had to be registered patients in the ED, be aged at least 18 years, speak English, have the capacity to answer survey questions, be willing to participate, and not have taken the survey before. Critically ill patients were not eligible for inclusion.

Eligible patients were approached for study participation on systematically scheduled shifts in each of the 3 EDs. As noted in our previous study,<sup>8</sup> shifts were selected to proportionally represent site location and evenly represent time of day and day of the week. Survey periods were chosen to ensure representation of both summer and winter months (May 27 to August 6, 2015, and December 3, 2015 to February 29, 2016). Participants were informed of the voluntary and anonymous nature of the study, and verbal consent was obtained. As previously outlined,<sup>8</sup> a 5-question survey was derived from definitions of homelessness from the US Departments of Housing and Urban Development,<sup>9</sup> Health and Human Services,<sup>10</sup> and Veterans Affairs<sup>11</sup> to screen participants for homelessness.

Surveys were administered by members of the research team (including J.E. and T.B.) on iPads or laptop computers with a secure online interface that stored only anonymous information. Minimal demographic information was collected (age, gender [male, female, transgender], and site location). The primary

outcome of this secondary analysis was the difference between the prevalence of homeless by gender in an ED population.

### Statistical Analysis

Participants were considered at risk for homelessness if they responded “yes” to question 1 and homeless if they responded “yes” to questions 2, 3, 4, or 5 in the survey (Table). The demographic parameter of gender was summarized as a proportion of the subject group. Frequency comparisons were made using  $\chi^2$  analysis. Stratified logistic regression models, with the 4 questions from the survey that tested for homelessness as

the outcome variable and age and gender as covariates, were used to assess the interrelationships between age and gender in the study population. Marginal probabilities were calculated for the responses of each survey question to help visualize the relationship between gender and age. Analysis was performed using Stata software version 14.1 (Stata Corporation). Statistical significance was defined as  $P \leq .05$ .

### Results

As reported previously,<sup>8</sup> 4395 participants were included in the study on 150 separate screening days.

**Table.**  
**Screening for Housing Status of Emergency Department Patients: Survey Questions and Responses**

| Question: In the last 60 days, have you...                                                                                                      | Gender, No. (%)    |                  |                      | Total, No. %<br>(N=4395) | P Value |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|----------------------|--------------------------|---------|
|                                                                                                                                                 | Female<br>(n=2557) | Male<br>(n=1835) | Transgender<br>(n=3) |                          |         |
| <b>1. ...been concerned about losing your housing?<sup>a</sup></b>                                                                              |                    |                  |                      |                          |         |
| No                                                                                                                                              | 2420 (94.6)        | 1717 (93.6)      | 3                    | 4140 (94.2)              | .29     |
| Yes                                                                                                                                             | 137 (5.4)          | 118 (6.4)        | 0                    | 255 (5.8)                |         |
| <b>2. ...changed residencies twice?<sup>b</sup></b>                                                                                             |                    |                  |                      |                          |         |
| No                                                                                                                                              | 2518 (98.5)        | 1799 (98.0)      | 3                    | 4320 (98.3)              | .53     |
| Yes                                                                                                                                             | 39 (1.5)           | 36 (2.0)         | 0                    | 75 (1.7)                 |         |
| <b>3. ...lived with a friend or family member you do not normally reside with due to financial hardship?<sup>b</sup></b>                        |                    |                  |                      |                          |         |
| No                                                                                                                                              | 2433 (95.2)        | 1739 (94.8)      | 2                    | 4174 (95.0)              | .07     |
| Yes                                                                                                                                             | 124 (4.8)          | 96 (5.2)         | 1                    | 221 (5.0)                |         |
| <b>4. ...been evicted or served eviction?<sup>b</sup></b>                                                                                       |                    |                  |                      |                          |         |
| No                                                                                                                                              | 2513 (98.3)        | 1813 (98.8)      | 3                    | 4329 (98.5)              | .37     |
| Yes                                                                                                                                             | 44 (1.7)           | 22 (1.2)         | 0                    | 66 (1.5)                 |         |
| <b>5. ...slept outside or in an abandoned building, your car, in an emergency shelter, or in a motel due to financial hardship?<sup>b</sup></b> |                    |                  |                      |                          |         |
| No                                                                                                                                              | 2517 (98.4)        | 1794 (97.8)      | 3                    | 4314 (98.2)              | .26     |
| Yes                                                                                                                                             | 40 (1.6)           | 41 (2.2)         | 0                    | 81 (1.8)                 |         |

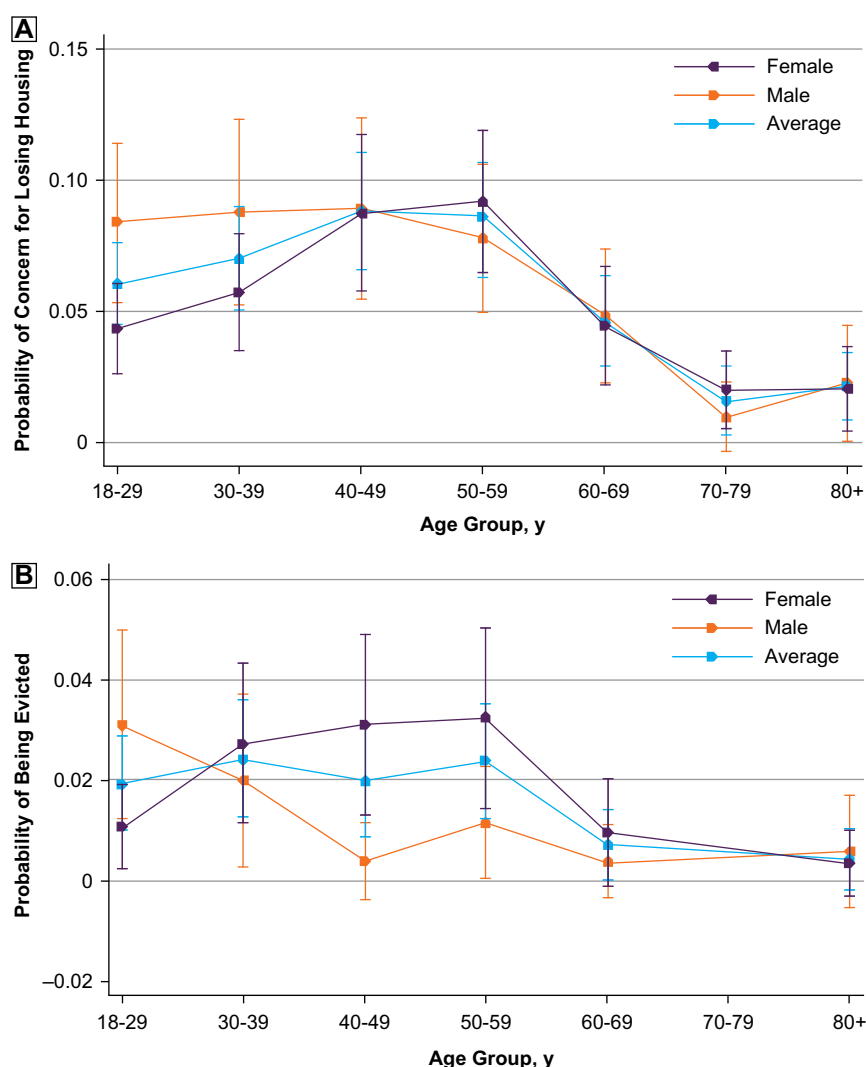
<sup>a</sup> Participants were considered at risk for homelessness if they answered “yes” to this question.

<sup>b</sup> Participants were considered homeless if they answered “yes” to this question.

Of the 4395 participants, 2557 (58.2%) were women, and 3 (0.07%) were transgender. The mean (SD) age of the participants was 50.8 (20.5) years. The distribution of survey responses by participant gender is presented in the [Table](#). No significant differences in responses were observed for participant responses by gender.

Question 1, which assessed patients' concern about losing their housing, had the highest positive response

(indicating at risk for homelessness) from both men and women (118 [6.4%] and 137 [5.4%], respectively). Closely following in affirmative response rate was the question regarding living with a friend or family member owing to financial hardship, a definition for homelessness used by both the US Department of Health and Human Services and the US Department of Veterans Affairs (96 [5.2%], men; 124 [4.8%], women).



**Figure.**

Marginal probability plots of (A) reported concern for losing housing by age group stratified by gender and (B) reporting being evicted by age group stratified by gender (n=4392). Predictive margins are provided with 95% CIs.

The mean (SD) age of the participants who screened positive for homelessness was 40.9 (15.9) years; the mean age of men who screened positive was 42.4 (16.2) years and 43.7 (16.9) years for women. One hundred thirty-five of 1835 men (7.4%), 173 of 2557 women (6.8%), and 1 of 3 transgender participants screened positive for homelessness. The difference between the number of men and women who screened positive for homelessness was not statistically significant ( $P=.472$ ). Because of the small sample size of transgender patients, no comparisons in that population group could be made.

When analyzed by age group, differences were noted between men and women for questions regarding concern for losing housing and being evicted (**Figure**). The probability of concern for losing their housing increased for women between the ages of 18 to 59 years, after which it declined and paralleled men's reported concern. The probability of concern for losing housing for men was higher than for women from the ages of 18 to 40 years, and then declined, with men aged 70 to 79 years having the lowest concern. Reported evictions rose for women from the ages of 18 to 59 years; it was less than that of men aged 18 to 29 years as well as men aged 80 years or older. Between men and women aged 30 years and older, similar findings were seen stratified by age regarding living with a friend, changing addresses, and sleeping outside or in an abandoned building.

## Discussion

Results of the current study do not indicate significant differences in the prevalence of homelessness or risk for homelessness among men and women in the ED. The finding that both men and women admitted they had slept outside or in an abandoned building, their car, a shelter, or a motel because of financial hardship is worthy of attention. Although this study may challenge the stereotype of homeless persons being mostly male, it is not the first to assess differences in the homeless population by gender. Other studies have shown

that homelessness is associated with adult men that have psychiatric or substance abuse disorders,<sup>6,12</sup> but there are no data, to our knowledge, that compare the rate of homelessness between men and women with psychiatrics or substance abuse disorders. It is also reported that the number of injuries in the homeless population treated in the ED are significantly higher in men.<sup>12</sup>

In the current study, the reported concern for losing housing and being evicted increased in women from the ages of 18 to 50 years; this is the age range in which women are most likely to be responsible for dependent children, which is supported by demographics from the US Department of Housing and Urban Development that show that women are 1.5 times more likely than men to be in homeless families with children.<sup>1</sup> Our findings are also consistent with reports concerning homeless subpopulations. One report indicated that young female veterans (aged 18-29 years) of more recent conflicts are overrepresented in the homeless population,<sup>13</sup> and another concluded that women are the most vulnerable to becoming homeless when they are heading families with young children.<sup>14</sup> Women are among the 3 fastest-growing homeless populations in the United States,<sup>15</sup> which, in congruence with our study, suggests that further research into these causes is necessary because current resources may not meet the housing and health care needs of the female homeless population.

The results of the current study, which indicate that there is no difference in the prevalence of homelessness by gender in the ED, should prompt future research into what other specific differences exist for this population. Further research in different geographic areas using this type of universal screening could be done to substantiate these study findings. If women are not being tallied in traditional modes (ie, they are not visible on the streets), it could indicate that an even greater prevalence of homeless women exists.

We did not assess the interplay between gender of a homeless person and domestic violence, substance abuse, and sex trafficking, but some studies suggest

correlation. One report stated that 92% of homeless mothers have been victims of severe physical or sexual violence at some point in their lives.<sup>16</sup> Another report<sup>17</sup> stated that 13% of homeless women reported having been raped in the past 12 months, while 9% reported at least one experience of sexual victimization in the past month. Both local communities and policy makers must be cognizant that a shelter paradigm created primarily for men may not be meeting the needs of vulnerable homeless women identified in a universal screening tool.

The National Health Care for the Homeless Council has launched initiatives to increase access to community resources for the homeless population and to improve ED visits for homeless persons by transitioning them to primary care providers.<sup>18</sup> Appropriately identifying candidates who would benefit from these initiatives is critical to the effectiveness of this program. If universal screening is not used, patients who are vulnerable may be overlooked. Identifying homeless patients and connecting them with resources could improve their overuse of the ED and health care outcomes. In the current study, participants who screened positive for homelessness or at risk for homelessness were offered a street-medicine consultation by a team that provides care for the homeless population.

### Limitations

The eligibility requirements may have caused selection bias, as the sample population may not be geographically generalizable to other ED populations, even though the survey was administered in both urban and suburban settings, as described in our previous study.<sup>8</sup> The study was survey-based, which can have selection bias that skews results. The survey was based on predetermined definitions of homelessness, but it was not evaluated or validated. Homeless people constitute a population that is difficult to quantify, and effectively quantifying this population is made more difficult by the absence of an agreed definition of homelessness across time and place. This difficulty results in a

bias or unreliability in counting.<sup>19</sup> Virtually all definitions require enumerators to make a decision as to whether a person is homeless according to an operationalized measurement definition.<sup>19</sup> In addition, only a few patients included in this study were transgender, prohibiting any statistical comparisons with this group, which has its own unique health care needs. Additional studies are needed to better understand the prevalence of this population in the ED setting.

### Conclusion

No differences were observed in the rate of homelessness between men and women in the ED populations examined. These data dispute the common perception that the issue of homelessness is a problem that primarily affects men. Public health interventions aimed at helping homeless populations should be cognizant that both men and women are dealing with this issue. A deeper understanding of the demographics of homelessness may allow for better access to medical treatment for homeless women, who have different health care needs than men.

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### Author Contributions

All authors provided substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; all authors drafted the article or revised it critically for important intellectual content; all authors gave final approval of the version of the article to be published; and all authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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