

Homelessness, Health Status, and Health Care Use

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Health problems associated with homelessness are documented throughout the literature. Increased rates of infectious diseases as well as chronic medical conditions have been reported, ranging from community-acquired pneumonia, tuberculosis, and HIV to cardiovascular disease and chronic obstructive lung disease.^{1–7} For some cancer risk factors, prevalence rates are higher in the homeless than in the general population, including sun exposure, cigarette smoking, and alcoholism.⁸ Nearly 40% of homeless individuals are reported to have some type of chronic health problem.⁹ Psychotic and affective disorders are common, with prevalence rates ranging for the former between 10% and 13% and for the latter between 20% and 40%.^{10,11} Individuals lacking stable housing are more likely to use the emergency department as their regular source of care.¹² In one study, homeless individuals made 20% to 30% of all adult emergency department visits.¹³ Homeless patients are admitted to inpatient units 5 times more often and have average lengths of stay that are longer than those of nonhomeless persons.^{14,15} Homelessness is also associated with a foreshortened lifespan.^{16,17}

A similar literature exists relating poor health status to lower socioeconomic level^{18–21} as well as racial and ethnic categories.²² The relation has been reported for dental care,²³ cancer screening,²⁴ life expectancy,²⁵ the effect of smoking on health,²⁶ mortality rates after elective surgery,²⁷ and many other aspects of physical health and health outcomes. A similar relation has been documented between lower socioeconomic status and poorer mental health.^{28–30}

The literature highlights the effect that socioeconomic status has on health status, regardless of housing status. Given the additional stress of homelessness, we questioned whether homelessness would further negatively affect health status and use of the health care system.

Objectives. Little is known about the health status of those who are newly homeless. We sought to describe the health status and health care use of new clients of homeless shelters and observe changes in these health indicators over the study period.

Methods. We conducted a longitudinal study of 445 individuals from their entry into the homeless shelter system through the subsequent 18 months.

Results. Disease was prevalent in the newly homeless. This population accessed health care services at high rates in the year before becoming homeless. Significant improvements in health status were seen over the study period as well as a significant increase in the number who were insured.

Conclusion. Newly homeless persons struggle under the combined burdens of residential instability and significant levels of physical disease and mental illness, but many experience some improvements in their health status and access to care during their time in the homeless shelter system. (*Am J Public Health.* 2007;97:464–469. doi:10.2105/AJPH.2005.076190)

A few studies have followed homeless individuals longitudinally. These studies confirmed the potentially negative effect homelessness can have on mortality, physical health, mental well-being, and substance use.^{31–36} However, these studies focused on either chronically homeless persons or those living on the street, with the studies beginning after the participants were already homeless. We investigated the effect of being homeless on individuals who were new to homelessness and whether their course—finding housing or remaining homeless—made a difference. In addition, we focused on homeless shelter residents, whose experience of homelessness was most likely different from that of homeless persons living on the street.

We chose to study newly homeless individuals from their entry into the New York City homeless shelter system until 18 months later to examine the effect of the longitudinal course of homelessness on health status and health care use. Our data describe health changes that occur over the course of early homelessness experienced in shelters.

METHODS

Participants

The study was carried out in cooperation with the Department of Homeless Services,

the municipal agency responsible for the provision of shelter care in New York City. The participants were men and women aged 18 to 65 years who were homeless for the first time, had entered the shelter system within 2 weeks of losing their housing, and intended to remain in New York for at least 1 year. There were no medical or psychiatric exclusion criteria. The participants were recruited from the 3 men's and 3 women's assessment shelters, the portals of entry into the New York City shelter system, run by the Department of Homeless Services and located throughout the city, over a 12-month period. A total of 445 newly homeless respondents consented to be in the study, and complete follow-up data was collected on 351 respondents. Baseline interviews were carried out on the day of entry into the study in a private area in the assessment shelter. Follow-up interviews were carried out in the project's offices or at the participant's home. Interviews were conducted in English or Spanish. The participants were also contacted each month by telephone to gather weekly timeline data relating to housing status, health status, service use, and criminal justice contacts.

The interviewers engaged in assertive procedures to minimize loss to follow-up. These included consistency of interviewing staff and frequent contacts over the follow-up period

to note any change in residence. Attempts to maintain contact were made even in the event that participants left the shelter system. The respondents also received a product voucher or a monetary incentive for each completed follow-up interview. The study was approved by the Columbia University Medical Center institutional review board.

Measures

We used the Structured Clinical Interview for the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*, nonpatient edition, in a structured assessment designed to yield current or lifetime psychiatric diagnoses according to *DSM-IV* criteria.³⁷ It has been shown to have good test–retest reliability for both Axis I and antisocial personality disorder.^{37,38} Master’s-level clinicians trained in the administration of the assessment battery conducted all of the structured interviews and other study procedures.

Demographic data and information on living arrangements, homelessness history, current housing status, education, employment, marital status, citizenship, and the respondents’ reports of medical illnesses and insurance status were obtained with the Community Care Schedule.³⁹

Health data was also collected through the Medical Outcomes Study 36-Item Short Form Health Survey,⁴⁰ which evaluates general physical and mental health status as well as health perceptions. It has been shown to have good correlation to other health-rating scales. Health ratings were done at baseline, 6 months, 12 months, and 18 months.

The data were analyzed in a stepwise manner with SPSS version 13.0 (SPSS Inc, Chicago, Ill). Frequencies of reported baseline health problems were determined and compared with those reported for the general population in the literature. Chi-square analysis was performed to identify significant differences in reported health status between those who found housing and those who remained homeless at 18 months. McNemar tests were used to discover significant changes over time.

RESULTS

Follow-up rates over the course of the study were as follows: 85% (n=377) at 6 months,

82% (n=365) at 12 months, and 79% (n=351) at 18 months, despite continuous movement out of the shelter (at 18 months only 22% [n=82] of the participants remained in the shelter system). We compared the 94 respondents with incomplete data with the 351 cases with complete data for the full 18-month period on age; gender; race; lifetime diagnoses of substance abuse/dependence; lifetime *DSM-IV* Axis I disorder diagnosis; health insurance status; rates of medical complaints (Physical Health Index); the presence of diabetes mellitus, hypertension, and asthma; health care use in the year before becoming homeless; emergency department visits in the year before becoming homeless; and use of prescription medication. A greater number of men than women were lost to follow-up ($P<.001$), and fewer persons lost to follow-up complained of medical problems ($P=.007$), but no other differences were observed.

Demographics

The baseline sample was slightly more than half male (n=225). The majority of participants belonged to minority groups (n=401), with a mean age of 36.9 years and a mean duration in New York City of 23.6 years before becoming homeless. Two thirds (n=290) of the respondents were African American, one fifth (n=91) Hispanic, and just under 15% (n=64) White or other ethnicities. More than 85% (n=385) of the participants were unemployed at the time of their entry into the shelter system. The median length of time homeless was 190 days. At 18

months, 265 participants had housing and 86 remained homeless.

At entry into the homeless shelter system, 60% (n=212) of the participants who remained in the study at 18 months had at least 1 medical complaint. The respondents reported a high rate of medical diseases: 17% of the respondents had hypertension, 6% diabetes mellitus, and 17% asthma (Table 1). Mental health disorders were more prevalent: one third of the respondents had been diagnosed with major depression and more than one half with a substance use disorder (Table 1). We found significant rates of comorbidity between physical medical complaints and major depression ($P<.005$) and between physical medical complaints and substance use disorders ($P<.001$).

Despite the presence of multiple medical problems, the participants’ sense of their health status and how their health affected their functioning, as indicated by their mean scores on the Medical Outcomes Study health survey, was equivalent to that of individuals of similar age who were not homeless (35–44 years). The 1 exception was the participants’ mean score on the mental health questions, which was 15 points lower than the mean norm score, although still within 1 standard deviation (Table 2).

The group that remained homeless at 18 months (chronic homeless) had higher rates of physical and mental illness, including substance use disorders, than did respondents who had housing at 18 months, but the difference did not reach the level of statistical

TABLE 1—Baseline General Health Status of Newly Homeless Persons in the New York City Shelter System

Diagnosis or Health Indicator	All Respondents (N = 351)	Participants With Housing at 18 mo (n = 265)	Participants Homeless at 18 mo (n = 86)	US Population (aged 18–44 y)	US Population Living in Poverty (all ages)
Diabetes mellitus, %	6.3	5.7	8.1	1.9 ⁴¹	9.5 ⁴¹
Hypertension, %	17.1	16.2	19.8	7.4 ⁴¹	26.1 ⁴¹
Asthma, %	17.4	17.0	18.6	11.5 ⁴¹	14.6 ⁴¹
Major depression, %	35.0	33.1	36.0	6.5–10.1 ⁴²	...
Substance use disorder, %	53.0	51.7	57.0	10–20 ⁴¹	...
Uninsured, %	54.1	51.3	62.8	25.3 ⁴³	24.3 ⁴³

Note. No significant differences between those who found housing and those who became homeless were observed. Ellipses indicate data not available.

TABLE 2—Mean Scores of Newly Homeless Persons in the New York City Shelter System on the Medical Outcomes Study 36-Item Short Form Health Survey

Medical Outcomes Study Category	All Respondents (N = 351)		Participants With Housing at 18 mo (n = 265)		Participants Homeless at 18 mo (n = 86)		Norms ^a (aged 35–44 y)
	Baseline Mean (SD)	Mean (SD) After 18 mo	Baseline Mean (SD)	Mean (SD) After 18 mo	Baseline Mean (SD)	Mean (SD) After 18 mo	
Physical functioning	87.2 (23.4)	84.8 (24.8)	88.6 (21.4)	85.7 (23.8)	84.2 (28.3)	82.3 (27.5)	89.7 (16.4)
Role of physical functioning	83.8 (34.5)	80.5 (36.0)	84.4 (34.3)	81.0 (35.5)	82.3 (36.2)	78.8 (37.7)	86.7 (28.9)
Bodily pain	82.2 (28.2)	83.8 (24.6)	83.2 (27.4)	83.4 (25.1)	83.5 (28.3)	85.0 (22.6)	77.1 (22.1)
General health	71.9 (24.1)	74.3 (23.1)	73.4 (23.8)	74.1 (22.7)	71.2 (24.5)	75.0 (24.2)	75.9 (17.9)
Vitality	58.7 (24.3)	57.9 (23.4)	60.3 (24.1)	57.4 (22.8)	58.8 (23.8)	59.6 (25.2)	62.4 (19.4)
Social functioning	80.6 (28.3)	88.1 (22.9)	81.2 (28.2)	87.3 (23.9)	80.1 (28.3)	90.7 (19.4)	85.75 (21.0)
Role of emotional functioning	76.2 (39.0)	82.5 (35.1)	76.0 (39.2)	82.3 (35.6)	84.9 (31.8)	83.1 (34.0)	82.8 (31.3)
Mental health	60.0 (21.9)	65.4 (19.6)	60.1 (21.5)	64.9 (18.9)	62.9 (20.1)	66.7 (21.6)	75.1 (16.7)

Note. No significant difference between those who found housing and those who remained homeless was observed at either baseline or 18 months.
^aNorms are determined by the Medical Outcomes Study for a healthy population.

significance. Nor was there a statistically significant difference in levels of health care use. A respondent's burden of medical illness at baseline was statistically unrelated to duration of homelessness.

Health Status and Health Care Use

The participants' health status was followed over the study period to determine the effects of homelessness on their physical health. Some aspects of the participants' health status showed improvement, and none significantly worsened. More positive change was noted in the group that found housing than in the group that remained homeless. Among the whole group, there

were statistically significant decreases in the number of visual ($P < .001$), dental ($P < .001$), and podiatric complaints ($P < .005$). The group that found housing also had a statistically significant decrease in the reported rates of high blood pressure ($P < .05$). The group that remained homeless had a statistically significant reduction in their number of visual ($P < .001$) and dental ($P < .005$) complaints (Table 3).

No significant change was found in the participants' subjective sense of their health status and its effect on their functioning over the course of the 18 months, regardless of whether the individuals found housing or remained homeless (Table 2).

Nearly 80% of the respondents sought out medical treatment in the year before becoming homeless. Slightly more than one third of the group made a visit to the emergency department, and a similar number took at least 1 nonpsychotropic prescription medication in the year before becoming homeless. More than 40% of the participants did not have any type of health insurance (Table 4). There was no association between employment status and health insurance status.

There were no changes over the study period in the use of health care services by either the group that found housing or those who remained homeless. There were significant increases in the number of individuals who became insured over the 18-month study period ($P < .001$), regardless of eventual housing status (Table 4).

TABLE 3—Changes in Health Status in Newly Homeless Persons 18 Months After Entering New York City Shelter System

Diagnosis or Complaint	All Respondents (N = 351)			Participants With Housing at 18 mo (n = 265)			Participants Homeless at 18 mo (n = 86)		
	Baseline, %	18 mo, %	P	Baseline, %	18 mo, %	P	Baseline, %	18 mo, %	P
Any medical complaint	60.6	64.4	.241	61.1	65.3	.266	59.3	61.6	.839
Visual complaints	25.9	4.6	<.001 ^a	25.6	4.2	<.001 ^a	26.7	5.8	<.001 ^a
Dental complaints	23.3	4.6	<.001 ^a	23.7	3.4	<.001 ^a	22.1	8.1	<.005 ^a
Podiatric complaints	12.4	5.7	<.005 ^a	12.6	6.5	<.05 ^a	11.6	3.5	.065
Diabetes mellitus	6.3	7.8	.332	5.7	6.1	.99	8.1	12.8	.125
Hypertension	17.2	13.2	<.05 ^a	16.4	11.8	<.05 ^a	19.8	17.4	.687
Asthma	17.5	16.7	.749	17.2	16.8	.99	18.6	16.3	.754

^aStatistically significant difference at $P \leq .05$.

DISCUSSION

Given the known association between socioeconomic status and health,^{44,45} it was not surprising that individuals who became homeless bore a heavy disease burden. This was particularly striking when comparing the study population's prevalence of disease to that found in all individuals aged 18 to 44 years who participated in the National Health Interview Survey (NHIS).⁴⁶ Our sample consistently had higher rates of medical illness; psychopathology, including major depression and anxiety; and substance use disorders than

TABLE 4—Changes in Health Care Use by Newly Homeless Persons 18 Months After Entering New York City Shelter System

Indicator	All Respondents (N = 351)			Participants With Housing at 18 mo (n = 265)			Participants Homeless at 18 mo (n = 86)		
	Baseline, %	18 mo, %	P	Baseline, %	18 mo, %	P	Baseline, %	18 mo, %	P
Sought medical treatment in past year	79.8	84.0	.155	79.2	83.0	.295	81.4	87.2	.405
Made a visit to emergency room	34.2	31.9	.543	34.0	32.1	.691	34.9	31.4	.720
Took prescription medication in the past	36.5	40.5	.175	35.9	42.0	.072	38.4	36.0	.832
Had health insurance	46.3	69.5	<.001 ^a	49.2	71.8	<.001 ^a	37.2	62.8	<.001 ^a

^aStatistically significant difference at $P \leq .001$.

did participants in a similarly aged general population sample.^{46,47} Rates of medical illness in our participants, however, were similar to rates cited for individuals of all ages classified as poor (below the poverty threshold) by the NHIS.⁴⁶

The results also highlight the active nature of these individuals' medical and psychiatric problems before becoming homeless. The vast majority sought out treatment of some sort in the year before entering the homeless shelter system, and more than one third were taking prescription medication. They were coping with diseases when they became homeless and were reaching out to the medical community for assistance. Despite some improvement in their health status, however, this population continued to heavily use the medical system—in particular, emergency departments—while homeless and after finding housing.

Persons at risk of becoming homeless also stressed the health care system as they sought help for primary care medical and psychiatric problems in emergency departments instead of in outpatient clinics or private offices. They overused an already overcrowded and expensive part of health delivery facilities. A survey of hospital directors found that emergency departments were overcrowded in almost every state, with 10% to 30% of hospitals surveyed reporting daily overcrowding.⁴⁸ The NHIS found that fewer than 1% of Americans used the emergency department as their usual source of care,⁴⁹ but slightly more than one third of the newly homeless in this study reported using the emergency department for treatment. The number of uninsured respondents in this study was also larger than the roughly 25% uninsured rate found in a

similarly aged US population (35–44 years) and in the US population defined as poor (earning less than \$25 000) by the US Census Bureau.⁵⁰

Most striking was what happened to this population over their time in the homeless shelter system and beyond. The health of these first-time homeless individuals did not significantly worsen, and certain aspects actually improved. There was also a huge surge in the numbers of individuals who became insured.

We did not ask people why they felt their health status improved, but several explanations are possible. One is a bias toward successful follow-up among those whose health improved. Although this is possible, it is not likely because the group lost to follow-up had fewer medical complaints at baseline than did the group successfully followed. Another possibility is that improvement is simply a reflection of regression to the mean over time. We are most intrigued, however, with explanations that can be related to the structure of the New York City homeless shelter system. This shelter system provides primary care and mental health services on-site in some of the shelters in the form of clinics staffed by nurse practitioners, internists, and psychiatrists. The availability of these services might explain the improvements in certain areas such as podiatric and dental problems. For many, this might have been the first time that they had ready access to primary care services outside of an emergency department, which is ill suited to address visual, dental, or podiatric complaints. It is not surprising that these complaints decreased so dramatically over the course of the study period, when the participants had access

to primary care services with the ability to address these problems.

The improvement in health status included a decrease in the self-reported rate of hypertension among those who had housing at 18 months. We did not query participants about whether there were concomitant changes in lifestyle or compliance with medication upon becoming homeless. However, it is possible that with increased access to care, the participants were better able to control their blood pressure in the 18 months after becoming homeless. Although the decrease did not reach the level of significance, a trend in the same direction was seen among those who remained homeless.

The shelter system also has case workers and benefits counselors who may have aided individuals in their attempts to gain Medicaid/health insurance or other social service benefits that might have an overall positive effect on their health. The increase in insurance rates was striking. Sadly, although the income of a majority of these individuals qualified them for Medicaid before they entered the homeless shelter system, they may not have had the knowledge or ability to attain it. Once they had the assistance of on-site benefits counselors, they were able to become insured in great numbers.

Although living in a homeless shelter renders an individual homeless by definition, the New York City shelter system ensures that a person placed into a particular shelter remains in that shelter until he or she leaves the shelter system. This might have provided sufficient residential stability to allow individuals to focus on more long-standing physical problems that they could not address while struggling with housing instability.

Surprisingly, despite some evident improvements in aspects of their physical health, the participants' subjective sense of their health status, as measured by the health survey of the Medical Outcomes Study, did not change. We can only hypothesize about the reason. Even at baseline, the participants' scores were no different from norms seen in the general population of similarly aged individuals. It is possible that the survey questions did not adequately address the health concerns of this population, and thus, no change in the scores was evident

when their health status improved. It is also possible that their homeless state prevented the participants from fully appreciating the physical health improvements they had achieved, and their health survey scores therefore failed to increase.

Limitations

This study had several limitations. The participants' medical status at all time points was assessed via self-report because the study interviewers did not have access to any form of medical records. The participants' complaints and reports of disease were not corroborated with a physical examination. Although this is a significant limitation, the rates were compared with the NHIS, which also relied on self-reporting. Also, the group lost to follow-up may not be represented by these findings because their gender makeup and baseline overall health status differed from those of the group for whom there was complete follow-up data. Finally, these findings specifically apply to individuals who were homeless for the first time and who entered into the New York City shelter system; they cannot necessarily be generalized to homeless individuals in shelters in other cities or to homeless individuals living on the street, who may not have access to the same level of medical and psychiatric care as that provided in the New York City shelter system.

Conclusions

Historically, policymakers have attempted to treat the medical or psychiatric problems of the homeless by bringing services to the shelters—whether in the form of primary care nurses on-site or tuberculosis treatment units or specialized mental health shelters for those with severe psychiatric illness.⁵¹ Clearly, these services play an important role in improving the overall health status of individuals using the shelter system and may explain the results of this study. However, many individuals who are newly homeless were quite ill before becoming homeless and might have benefited equally from receiving attention for their health issues before they entered the shelter system. People should not have to enter a homeless shelter to experience an

improvement in their health status and increased access to health insurance.

The individuals in our study represent a population struggling under the combined burdens of residential instability, poor social networks, and significant levels of physical and mental health disease. Over the past few years, a potential response to the health problems of this population has arisen in the form of innovative projects that focus on neighborhood interventions that promote prevention of disease among individuals who are most at risk of becoming homeless—before losing their housing.⁹ It is unclear whether additional primary care services in the community would have prevented homelessness or improved the health status of our respondents. However, if people living with poverty have available medical and social services in the community and are able to make use of them, they may be able to improve their health status and to avoid homelessness. ■

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Contributors

B. Schanzer drafted the article and conducted the primary data analysis. B. Dominguez and P.E. Shrout assisted in the data analysis. C.L.M. Caton originated and supervised all aspects of the study. All the authors participated in reviewing and drafting the article.

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Human Participant Protection

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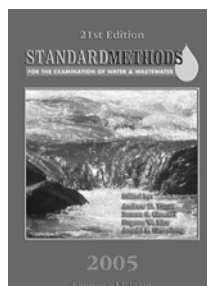
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