Predictors of Homelessness Among Families in New York City: From Shelter Request to Housing Stability

ABSTRACT

Objectives. This study examined predictors of entry into shelter and subsequent housing stability for a cohort of families receiving public assistance in New York City.

Methods. Interviews were conducted with 266 families as they requested shelter and with a comparison sample of 298 families selected at random from the welfare caseload. Respondents were reinterviewed 5 years later. Families with prior history of shelter use were excluded from the follow-up study.

Results. Demographic characteristics and housing conditions were the most important risk factors for shelter entry; enduring poverty and disruptive social experiences also contributed. Five years later, four fifths of sheltered families had their own apartment. Receipt of subsidized housing was the primary predictor of housing stability among formerly homeless families (odds ratio [OR] = 20.6, 95% confidence interval [CI] = 9.9, 42.9).

Conclusions. Housing subsidies are critical to ending homelessness among families. (*Am J Public Health.* 1998;88:1651–1657).

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Converging evidence suggests that 3% of Americans have been literally homeless over the course of a 5-year period.[1,2] Far fewer are without homes on any given night, indicating that, for many, homelessness is a temporary state. Reducing or ending homelessness requires knowledge of why people become homeless and how most manage to return to conventional housing. Because many putative causes of homelessness cannot be manipulated, researchers typically infer causes of homelessness by comparing cross-sectional samples of homeless people with a comparison group. These studies confound the causes and consequences of homelessness. Furthermore, if exits from homelessness are not evenly distributed across all homeless people, cross-sectional designs confound positive correlates of entry with negative correlates of exit from homelessness. The present study, also correlational in nature, avoided these 2 biases. We examined predictors of seeking shelter among a sample of poor families in New York City with no prior shelter experience at the time of initial assessment and reinterviewed them 5 years later to determine predictors of residential stability. Families, this study's focus, make up about 40% of those who become homeless, although they represent fewer of those who are homeless on any given night.[3]

Explanations for Homelessness

Researchers have proposed that at least 4 classes of variables contribute to homelessness: persistent poverty, behavioral disorders, impoverished social networks, and loss of affordable housing.[4,5] We tested predictor variables from each of these domains. First, however, we describe the theoretical rationale and empirical evidence linking each to homelessness.

Persistent Poverty

Given that homeless people are poor, the increasing numbers of people in poverty and the depth of their impoverishment over the past 2 decades have increased the pool from which homeless individuals and families are drawn. Incomes for the poorest fifth of single mothers in the United States sank from 33% of the poverty line in 1973 to 25% of the poverty line in 1983 and stagnated there through 1994.[6] Homeless families have high rates of many characteristics associated with enduring poverty, such as single parenthood, poor education, and dependence on welfare,[3,7,8] but it is not clear that such characteristics distinguish homeless families from other poor families or that they affect families' ability to extricate themselves from homelessness. In the present study, income per se was not included as a predictor, because our entire sample had income constrained by welfare benefit levels. Rather, variables associated with enduring poverty were poor education and work history, lack of marriage, having a child as a teenager, and childhood poverty.[9]

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Behavioral Disorders

Assuming that disorders are central to homelessness, government and private foundations have invested heavily in programs to provide mental health, substance abuse, and case management services to homeless individuals and families.[10–12] Indeed, mental health and substance abuse problems,[13] as well as physical health problems,[14,15] are frequent among homeless individuals. Adults in homeless families have lower rates of both mental illness and substance abuse than homeless single individuals but higher rates than adults in other poor families; the most serious psychotic disorders remain rare.[3,7,16] In the present study, mental illness, substance abuse, health problems, and imprisonment (associated with substance abuse and mental illness for women[17]) were the indicators of disorders.

Social Ties

Social isolation is often proposed as an essential element of homelessness,[18] but studies are mixed in whether they find homeless people to have poor social networks. Some evidence suggests that people on the verge of homelessness obtain substantial assistance from families and friends but eventually wear out their welcomes.[5] Disruptions in social ties may also be important. Homeless adults often report having been abused or separated from their families during childhood.[3,16,19] Mothers in homeless families have often suffered domestic violence.[7,20,21] The present study included measures of current social ties, which should reduce risk for homelessness, and domestic violence and childhood disruptions, which should increase risk.

In the case of both behavioral disorders and poor social ties, bidirectional causation is plausible. That is, substance abuse or domestic violence may lead to homelessness, but homelessness may also exacerbate substance abuse, precipitate depression, or create estrangement from social networks.

Ties to the Housing Market

Both erosion of income and loss of inexpensive housing units have led to a severe shortage of housing for poor people.[22] The relationship between housing shortages and rates of homelessness is properly modeled at an aggregate level, but it also has implications at the individual level. If housing shortages are central to homelessness, then families without title to housing should be at risk. In this study, frequent moves, overcrowding, and poor building conditions

were markers of tenuous ties to the housing market; having one's own apartment, particularly if it was government subsidized, was indicative of firmer ties.

Demographics

Prior research documents that women in homeless families are younger and more likely to be from racial and ethnic minority groups than are women in housed, poor families.[3,7,8,23] Furthermore, homeless mothers are more likely to be currently pregnant or to have experienced a recent birth. Based on this empirical evidence, age, race, and pregnancy or recent birth were included as predictors.

Stability

Little is known about exit from homelessness. Some characteristics associated with heightened risk for shelter entry might also lower odds of subsequent residential stability, although current housing conditions, rather than those prior to shelter entry, would be expected to be important. In particular, if homelessness is centrally a housing problem, then provision of affordable housing should end it; to the extent that persistent poverty, behavioral disorders, or social ties are central, it is unlikely that the provision of housing would lead to long-term stability.

Methods

Sample

This article describes predictors of shelter requests and later housing stability for a cohort of New York City families initially interviewed in 1988 (time 1) and followed up an average of 4.85 years later (time 2). Shelter requesters represented a census of eligible families applying for shelter during the study period at 3 of New York's 4 emergency assistance units, the entry point for all family shelters except for a few small ones specializing in domestic violence; comparison families were selected at random from the public assistance caseload via multistage cluster sampling. Families were eligible at time 1 if they (1) had been on welfare within the previous 6 months (90% of the family shelter population in New York City), (2) had not been in a shelter in the previous 30 days, and (3) included children or a pregnant woman. Response rates were 72% for shelter seekers and 70% for the comparison group.[24] Additional eligibility criteria for the follow-up study included having a female respondent at time 1 (95% of the sample) who had

never used a shelter prior to the week of the initial interview, according to both shelter records and self-report. This latter criterion ensured that characteristics that might arise after shelter entry would not be considered as potential causes of shelter use. The longitudinal sample included 70% of eligible shelter requesters (final n = 266) and 69% of eligible comparison group members (final n = 298), for an overall retention rate of 70% (excluding 19 deceased mothers) and a total sample of 564.

Families interviewed at time 2 were quite representative of those eligible for follow-up. Of variables available at time 1 (described subsequently), no measure of poverty, behavioral disorders, or social ties predicted membership in the longitudinal sample. Respondents reinterviewed at time 2 were, however, more likely to be African American than Latina or of another ethnicity, and they reported more building problems at time 1. In addition, those reinterviewed were less likely to have spent the longest period in the year before the initial interview outside of New York City.

Measures

Predictors of shelter request and subsequent stability included demographic factors and variables from the domains of persistent poverty, behavioral disorders, social ties, and housing. Table 1 defines variables analyzed in the prediction of shelter request. All refer to the period prior to the initial shelter stay. With 3 exceptions, these variables were obtained from the time 1 interview. Substance abuse was determined by respondents having been patients in a detoxification or treatment center before time 1 or meeting lifetime diagnostic criteria for alcohol or substance dependence on a diagnostic interview[25] at time 2, with onset retrospectively dated as before time 1. Similarly, mental illness was determined by respondents' having been patients in a mental hospital before time 1 or meeting lifetime diagnostic criteria for major depression or schizophrenia[26] at time 2, with onset retrospectively dated as before time 1. Finally, because childhood disruptions had to have occurred before the first interview, reports of these experiences at either time 1 or time 2 were included.

Stability at time 2 was defined as having one's own residence, typically an apartment, and having no moves in the previous 12 months. Only one variable was used to measure housing, namely having received 1 of 5 types of subsidized housing (New York City Housing Authority apartments, properties taken over by the city and rehabilitated, or apartments subsidized by a private land-

TABLE 1—Potential Predictors of Shelter Request: New York City

Domain and Variable	Content
Demographics	
Age	In years, at time of interview
Race/ethnicity	Latina (reference group), African American, or other
Pregnancy/birth	Respondent is pregnant or had baby within past year
Persistent poverty	
Education	Completing 12 years or receiving high school or general equivalency diploma
Work history	Working at least 20 hours per week for at least a year
Marriage	Currently married or living with a partner
Teen motherhood	Having had a baby before the age of 18 years
Childhood poverty	Respondent's parents received welfare while respondent was growing up
Behavioral disorders	
Mental illness	Having been a patient in a mental hospital or meeting diagnostic criteria for major depression or schizophrenia
Substance abuse	Having been a patient in a detoxification or treatment center or meeting diagnostic criteria for alcohol or substance dependence
Health problem	Self-report of problem serious enough to "affect your ability to do the things you have to do" for at least a month
Imprisonment	Having served time in a prison or jail
Social ties	
Current ties	Having a mother, other close relative, or close friend
Domestic violence	Being abused or threatened with violence by a man with whom the respondent is or was involved
Childhood disruption	Number of 6 types of family disruption that occurred before 18 years of age, including 4 types of separation from family (e.g., in foster care) and physical or sexual abuse
Housing	
Own apartment[a]	Own apartment or rented room
Subsidized housing[a]	Own apartment with rent subsidy
Crowding[a]	Number of people per bedroom
Mobility	Number of places the respondent had stayed in the past 3 years
Building problems	Number of 6 serious building problems experienced since becoming a family, including rats and lack of running water or heat in the winter for a week or more

Note. Unless otherwise noted, predictors were scored as 1 if present and 0 if not present.
[a]Refers to the place the respondent stayed for the longest time in the past year.

lord program, a federal Section 8 certificate, or a court-mandated rent supplement to avoid eviction). Housing subsidies were determined from city records as well as respondents' reports.

Results

Initial Shelter Request

Table 2 provides descriptive statistics for all variables and odds ratios (ORs) from the "best" log-additive model discriminating between the shelter requesters and the comparison group. This model included all variables associated with shelter request at $P < .05$, using backward elimination from the full log-additive model (all variables in Table 1).

Figure 1 presents relative operating characteristics (ROCs)[27,28] that depict discrimination accuracy for this best model and several others. The ROC for each model was based on predicted scores from the logistic regression equation involving the corresponding set of variables. The ROC plots the hit rate vs the false alarm rate for successive decision cutoffs on the predicted score. For example, the heavy dashed line (best model) attains a hit rate of 66% when the false alarm rate is 10%. This means that if one wanted to target members of the welfare caseload for services to prevent homelessness and could tolerate a false alarm rate of 10%, one could identify 66% of shelter requesters.

The importance of various groups of variables in discriminating the 2 groups can be seen by comparing the heights of the ROCs at corresponding false alarm rates. The left-most region of each curve, where false alarm rates are low, has the greatest policy relevance and (because the slope is highest) corresponds to the greatest relative risk of shelter entry.

Demographic characteristics and housing factors were most important: the ROC based on these 2 groups of variables discriminated nearly as well as the best model (65% hit rate at a 10% false alarm rate). Race was an important demographic factor (Table 2): African American families were at greater risk for homelessness than others with similar risk profiles. Although homeless mothers were younger, age lost importance as a predictor when housing variables were included. Mothers requesting shelter were more likely to be pregnant or to have given birth in the past year, although their family sizes (data not shown) were no larger. Crowding and frequent moves added risk, while having one's own apartment and having subsidized housing were protective. Table 2 shows that 59% of those who requested shelter were doubled up for the longest period in the year prior to shelter entry; 46% (data not shown) had never had an apartment of their own for as long as a year.

The ROCs show that a model including all variables except housing is distinctly inferior (51% hit rate at a 10% false alarm rate). Rates of high school completion and work experience were low, and rates of motherhood in the teen years high, for both groups; these characteristics did not differentiate between groups in the best model. Contrary to the prediction of poverty theory, marriage or living with a partner increased the risk for shelter request. Positive social ties were not predictive, but early disruptive experiences and adult domestic violence were clear risk factors. No measure of disorder made a significant contribution to the model.

Although the curves in Figure 1 seem well separated, it is important to gauge the extent to which this result could be sensitive to sample composition and random error. When shelter request was predicted for all families eligible for the longitudinal study (regardless of whether they were reinterviewed at time 2), using variables available at time 1, the best model included exactly the same variables, and the odds ratios were similar. When families were divided according to actual shelter use between time 1 and time 2 rather than shelter request, one additional variable—substance abuse—was significant (OR = 2.2, 95% confidence interval [CI] = 1.1, 4.4). The bias and sampling error in the ROC were evaluated at low false alarm rates (2%, 5%, and 20%, spanning the region of greatest policy importance). The entire ROC estimation procedure (including smoothing) was repeated for 240 bootstrap samples.[29] The upward bias in the ROCs (due to capitalizing on chance in estimating the "best" coefficients) was less than 2% in this region (about 3% for the model based on all nonhousing variables, which had the greatest risk of capitalizing on chance), and

the standard errors of differences in hit rate, at a fixed false alarm rate, were about 5%.

Postshelter Stability

At the time of the follow-up interview, 79% of the 256 families who used a shelter were housed in their own residence, typically a rented apartment. Only 4% were in a shelter. Most others were doubled up with relatives or friends.

Postshelter stability was examined only for the 244 families who initially entered a shelter at least 3 years prior to the follow-up interview to allow enough time post-shelter to assess stability. Among these families, 80% were in their own apartment, and 61% were deemed stable; that is, they had been there for at least 12 months and an average of 35 months at time 2.

Receipt of subsidized housing between time 1 and time 2 was the primary predictor of stability at time 2 (see Table 3). Indeed, the best model arrived at by the same procedure as for Table 2 included only age and receipt of subsidized housing.

The odds of stability were 20.6 times greater for those who received subsidized housing than for those who did not. Among families who received subsidized housing, 97% were in their own apartment, and 80% were stable at time 2, figures comparable to those in the comparison group (92% in their own apartment, 80% stable). Of those who did not receive subsidized housing, only 38% were in their own apartment, and 18% were stable. The contribution of age was comparatively trivial. A 10-year increase in the age of the mother was associated with a 79% increase in the odds of stability ($1.06^{10} = 1.79$). An alternative analysis, using measures from time 2 rather than time 1, yielded the same 2-variable model.

Figure 2 shows the extent to which different models discriminated between families who were and were not stable at time 2. The best model, combining subsidized housing and age, was substantially better than any linear combination of variables that excluded subsidized housing.

If homeless families had been randomly assigned to receive subsidized housing in a controlled experiment, we could now conclude that receipt of subsidized housing, rather than individual characteristics, was key to their long-term stability. Because experimental controls were not in place, we examined whether individual characteristics in any way influenced assignment to subsidized housing.

Families in a shelter waited for subsidized housing on a queue that varied substantially in length over the course of the

study as a result of changing city policies. Families who left the shelter for a continuous period of at least 30 days lost their place on the queue and had to start over. Thus, we examined receipt of subsidized housing at the end of the first shelter episode, defined by a break of at least 30 days. (The majority of families had no later episodes.) Predictors were the usual measures of demographic characteristics, persistent poverty, behavioral disorders, and social ties. Two characteristics of the shelter stay were also included: length of stay and whether the family was assigned, for the longest time, to a nonprofit "tier 2" shelter with additional services and more extensive efforts to secure housing for residents. Families had no control over the process by which they were assigned to and moved among the different types of shelter.[30] Analyses included the 233 families in Table 3 for whom we had complete information about the first shelter episode.

Table 4 shows predictors of receipt of subsidized housing at the end of the first shelter episode. As expected, shelter type and months in a shelter were strong predictors. (Note that duration of shelter stay was positively associated with subsequent stability

because of the queue for permanent housing.) Among individual characteristics, only domestic violence was associated with reduced odds of receiving subsidized housing. No other individual characteristic had any zero-order relationship with receipt of subsidized housing, type of shelter, or length of shelter stay. Thus, the strong relationship between receipt of subsidized housing and stability was essentially unconfounded with individual characteristics.

Discussion

Homelessness was a stage families passed through, and not a permanent state: four fifths of families who entered shelter had their own apartments 5 years later, and three fifths were stably housed, having been in their own residence at least 1 year and an average of nearly 3 years. Individual characteristics associated with shelter entry did not prevent most families from becoming rehoused. Of note, families had access to income supports, primarily Aid to Families with Dependent Children, and nearly half received some form of subsidized housing;
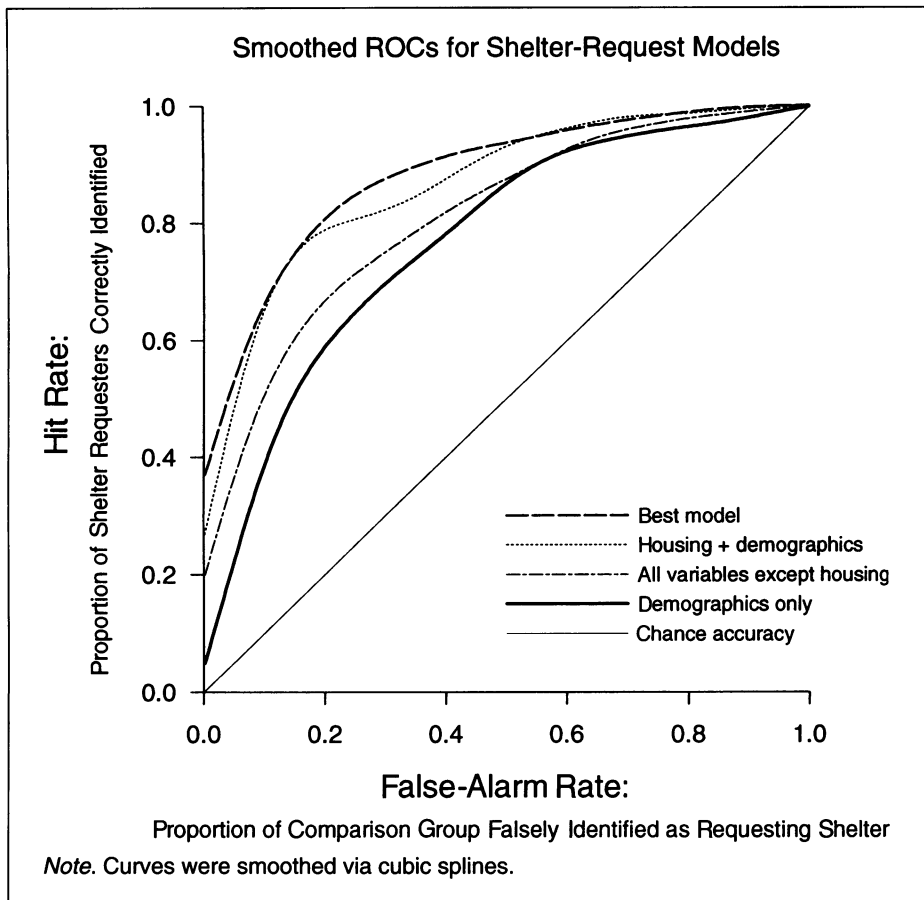
TABLE 2—Predictors of Shelter Request Along With Odds Ratios for Best Logistic Regression Model: New York City

Predictor	Welfare Caseload (n = 298)	Shelter Requester (n = 266)	Odds Ratio	95% Confidence Interval
Demographics				
Age, y, mean (SD)	34.2 (9.9)	27.6 (7.6)	. . .	. . .
Race/ethnicity, %				
Latina	60	39	Reference	. . .
Black	35	56	1.7	1.1, 2.5
Other	6	5	0.8	0.4, 1.4
Pregnancy/birth, %	17	53	3.4	2.1, 5.5
Persistent poverty, %				
Education	42	43	. . .	. . .
Work history	49	38	. . .	. . .
Marriage	6	17	3.7	1.7, 8.0
Teen motherhood	21	36	. . .	. . .
Childhood poverty	29	53	1.7	1.1, 2.8
Disorder, %				
Mental illness	8	9	. . .	. . .
Substance abuse	8	18	. . .	. . .
Health problem	21	15	. . .	. . .
Imprisonment	1	3	. . .	. . .
Social ties				
Current ties, %	86	96	. . .	. . .
Domestic violence, %	16	25	2.1	1.2, 3.8
Childhood disruptions, mean (SD)	0.5 (1.0)	1.2 (1.5)	1.4	1.1, 1.6
Housing				
Own apartment, %	87	41	0.3	0.2, 0.5
Subsidized housing, %	31	9	0.5	0.2, 0.8
Crowding, mean (SD)	1.9 (0.9)	2.6 (1.4)	1.5	1.2, 1.8
Mobility, mean (SD)	1.4 (0.8)	2.4 (1.4)	1.9	1.5, 2.4
Building problems, mean (SD)	1.4 (1.4)	1.6 (1.6)	. . .	. . .

Note. Each predictor, except for education and mental illness, had a statistically reliable ($P < .05$) zero-order correlation with group (shelter request vs comparison).

Smoothed ROCs for Shelter-Request Models

FIGURE 1—Smoothed relative operating characteristics (ROCs) (hit rates vs false alarm rates) for shelter request models.

TABLE 3—Predictors of Stability (Defined as 12 or More Months at One's Own Residence at Time 2), Along With Odds Ratios for Predictors in Best Logistic Regression Model (n = 244): New York City

Predictor	Not Stable (n = 93)	Stable (n = 151)	Odds Ratio	95% Confidence Interval
Demographics				
Age, y, mean (SD)	26.4 (5.1)	27.5 (7.7)	1.1	1.0, 1.1
Housing				
Subsidized housing, %	37	91	20.6	9.9, 42.9

Note. No other variable tested (all variables from the first 4 categories of Table 2) was a significant predictor of stability when added to the best model. Two variables had zero-order correlations with stability: women with social ties and with substance abuse before shelter entry were less likely to be stable at time 2.

with new time limits on welfare and fewer new subsidized units available, later cohorts of homeless families may not fare as well.

Subsidized housing was virtually the only predictor of residential stability after shelter. Receipt of subsidized housing was not associated with any individual characteristics other than domestic violence. Rather, it depended primarily on being assigned to a nonprofit shelter that provided relatively extensive housing services, along with staying in the shelter long enough to come to the top of the housing queue.

Receipt of subsidized housing was not equivalent to an increase in fungible income. Subsidies were typically tied to particular housing units. Indeed, in many cases the non-subsidized portion of rent was paid directly by the public assistance agency, ensuring that whatever other needs of families went unmet, rent would be paid.

Individual characteristics were more important in predicting shelter requests than later stability, but no conceptual group of variables predominated. Although our "housing" variables could reflect individual prob-

lems that lead toward homelessness, we believe that the insignificance of individual characteristics in predicting later stability, once subsidized housing is considered, suggests that "individual" characteristics that predict shelter use may sometimes reflect the housing market. For example, the zero-order relationship of age to shelter requests was fully mediated by ties to housing. Many of the young mothers in the shelter requester group had never been able to break into New York's tight housing market; in 1987, fewer than 1% of nondilapidated apartments with rents below $300 were vacant.[31] African Americans were more likely to request shelter, perhaps because of ongoing discrimination in housing[32]; they were no less likely to become stably housed. Pregnancy and childbirth may have rendered crowded or deficient housing even less adequate or made families less welcome guests in others' homes, as well as increasing financial needs or disrupting mothers' ability to manage. Education and work experience, no doubt related to families' need for public assistance, did not predict requesting shelter or later residential stability among families on public assistance.

Where ties to the housing market are fragile, disruptions may precipitate crises. Abuse and separation from the family of origin in childhood and domestic violence in adulthood were also important predictors of shelter seeking. Domestic violence was the only family characteristic associated with failure to receive subsidized housing, perhaps because batterers pursued women in shelters or because women returned to live with their abusers.

Positive social ties were less predictive, perhaps because they were nearly universal. Although not shown, almost all of the families stayed with family or friends prior to shelter. Surprisingly, marital status was positively associated with shelter requests. This finding may be an artifact: women in the comparison group, interviewed at the time of recertification for welfare, may have been motivated to hide their relationships (despite confidential interviewing). The fact that domestic violence and pregnancy or childbirth were also predictors of seeking shelter, however, suggests that some men with whom our respondents were involved were destabilizing forces in their families.

Mental or physical health problems did not appreciably cause family homelessness or impede later stability. Substance abuse at time 1 had a small association with shelter entry, and both substance abuse and imprisonment had zero-order relationships with stability that did not hold up in the context of subsidized housing. Consistent with other research, levels
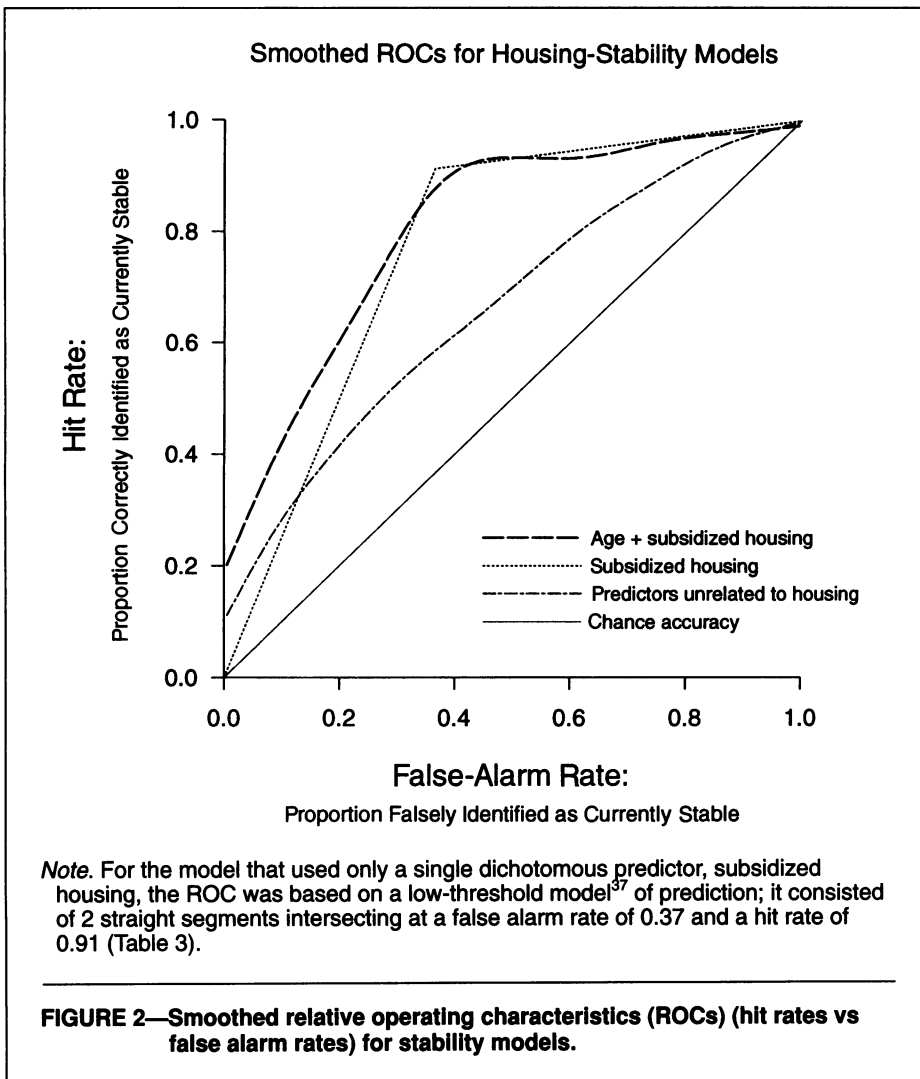
Smoothed ROCs for Housing-Stability Models

Note. For the model that used only a single dichotomous predictor, subsidized housing, the ROC was based on a low-threshold model[37] of prediction; it consisted of 2 straight segments intersecting at a false alarm rate of 0.37 and a hit rate of 0.91 (Table 3).

FIGURE 2—Smoothed relative operating characteristics (ROCs) (hit rates vs false alarm rates) for stability models.

TABLE 4—Predictors of Receipt of Subsidized Housing at End of First Shelter Episode, Along With Odds Ratios for Predictors in Best Logistic Regression Model (n = 233): New York City

	Did Not Receive Housing (n = 119)	Received Housing (n = 114)	Odds Ratio	95% Confidence Interval
Social ties				
Domestic violence, %	31	18	0.4	0.2, 0.7
Shelter characteristics				
Shelter type, %	8	33	3.8	1.7, 8.7
Months in shelter, mean (SD)	5 (8)	13 (9)	1.1	1.1, 1.2

Note. No other variable tested (all variables in the first 4 groups in Table 2) had a significant zero-order relationship to receipt of subsidized housing or to either shelter characteristic, and no other variable was a predictor within its domain or when added to the best model.

of mental illness and substance abuse were lower than among single homeless individuals. Levels of substance abuse, in particular, were higher after shelter than before. Substance abuse, like domestic violence, may disrupt families' lives. We make no claim that housing solved any of these problems among poor families, but the problems contributed little to residential instability.

The importance of subsidized housing to stability among homeless families may well generalize beyond New York. In 6 cities, 88% of families who received Section 8 housing and case management services remained in permanent housing during an 18-month follow-up period.[12] Of note, these families had experienced long-term patterns of recurrent homelessness and needed a variety of health and support services. Generalization to adults with serious mental illnesses is less clear; a San Diego study[33] found housing more important than intensive services to stability, while a New York study found timely, specialized services critical in a group with varied housing options.[34]

A final disturbing finding is that the housing characteristics that predicted homelessness were widespread in the welfare caseload. Thirteen percent of families on the welfare caseload in New York in 1988 did not have an apartment of their own but were doubled up with others. Almost half lived in crowded conditions, with more than 2 people per bedroom. Only 31% lived in subsidized housing.

National data also suggest a large pool of ill-housed, poor people. Rates of young adults between 25 and 35 years of age who headed independent households declined 7.1% in the 1980s,[35] and rates of doubling up reached levels not seen since the aftermath of World War II.[36] Relatively few poor households (26% of those with incomes below the area median in 1993) receive federal housing subsidies.[22] Under these conditions, our results suggest, family homelessness will endure. □

Acknowledgments

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