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Abstracts

Administrative data on public shelter utilization among homeless adults from New York City (1987–1994) and Philadelphia (1991–1994) are analyzed to identify the relative proportion of shelter users by length of stay and rate of readmission, and to identify the characteristics that predict an exit from shelter. Survival analyses reveal that half of adult shelter users will stay fewer than 45 days over a two-year period (combined stays), and that approximately one half of men and one third of women will experience a readmission within two years of the first admission. Results also document the size and relative resource consumption of a long-term sheltered population, finding that 18.2 percent of New York shelter users stay 180 days or more in their first year, consuming 53.4 percent of the system days for first-time shelter users. Discrete-time logistic hazard regression analyses reveal that, in general, being older, of black race, having a substance abuse or mental health problem, or having a physical disability, significantly reduces the likelihood of exiting shelter. In both cities, people entering shelter in later years are staying longer, although individuals have shorter episodes on subsequent admissions. The implications of this study for the analysis and management of emergency shelter system utilization are discussed.

INTRODUCTION

Recent research has found significant turnover among the sheltered homeless population [Burt, 1994; Culhane et al., 1994, Link et al., 1994], revealing a much greater risk for homelessness than has been found by previous studies. This finding has raised questions for emergency housing administrators about the relative size and system resource consumption of subtypes of shelter users by pattern of shelter utilization. It has also raised questions as to what characteristics predict the likelihood of shelter exit, and how such factors might be reflected in the design of emergency housing policies and programs. This ar-

ticle uses the relatively unique capacity of New York City and Philadelphia to track public shelter utilization to examine the distribution of shelter stays among homeless adults without accompanying children ("single adults") and to identify the relative importance of characteristics that predict the probability of shelter exit, using event history analysis techniques.

LITERATURE REVIEW

For more than a decade, researchers have attempted to measure the magnitude of the homelessness problem and the characteristics of homeless people through studies based on samples obtained on a given day. Since 1988, research of this nature has generally found that homelessness affects between 0.1 percent and 0.5 percent of urban populations at a given point in time [Barrett, Anolik, and Abramson, 1992, Burt and Cohen, 1989], with a few exceptions (San Francisco, 0.57 percent; Atlanta, 0.62 percent; Washington, DC, 0.78 percent) [Barrett, Anolik, and Abramson, 1992]. Data such as these have served as the primary source of information for the planning of shelter capacity and shelter programs at the national and local levels. However, recent research measuring the period prevalence (prevalence over time) of homelessness has estimated rates of turnover in the population that raise questions about the utility of point prevalence data for the planning of emergency shelter, homelessness prevention, and housing relocation services.

For example, research based on administrative databases which record users of public shelters in New York City and Philadelphia has found that, while both cities had point prevalence rates of homelessness between 0.2 percent and 0.3 percent in 1992 (within the national range), approximately 1 percent of both cities' populations stayed in public shelters in 1992 [Culhane et al., 1994]. Unduplicating shelter users over multiple years, it was found that 2.8 percent of Philadelphia's population (N = 43,965) stayed in public shelters from 1990 to 1992 (three years) and that 3.2 percent of New York City's population (N = 239,425) stayed in public shelters from 1988 to 1992 (five years). Burt [1994] has reported that the annual rates of shelter use found in Philadelphia and New York City are in the middle of a range of rates for seven other jurisdictions which can also unduplicate users of homeless shelters over time. The Philadelphia and New York rates are also consistent with the results of a national household survey by Link et al. [1994] which found that 3.2 percent of a random sample of households with telephones reported a prior episode of "literal homelessness" (living in a shelter or in public spaces) in the previous five years. A household survey of New York City residents by Stegman [1992] similarly reported a 3 percent rate of homelessness in the previous five years.

Together, these findings have challenged the adequacy of point prevalence data for policy and program planning, and they have also left unanswered many questions regarding the more specific dynamics of shelter system utilization. For example, while the high rate of bed turnover suggests that a large proportion of people have shelter stays of short duration, the distribution of shelter users by length of stay is impossible to determine accurately based on either cross-sectional data or aggregate rates of shelter admission over time.[1]

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[1] The rates of shelter use identified in the period prevalence studies far exceed the estimates of persons living in street locations, so it is assumed that the vast majority of short-term shelter use is not explained by people leaving shelters for street locations, and who continue to be "homeless" for long periods. Moreover, as shown in this study, their characteristics are not consistent with those of the street homeless.

Thus, the research required to estimate the potential demand for prevention and crisis services (which are presumed to be most sufficient for short-term shelter users) has not previously been available. Correspondingly, the relative size and resource consumption of long-stay shelter residents have not been possible to estimate accurately with either cross-sectional data or aggregate rates of shelter admission. Such information is critical for justifying, planning, and targeting the provision of alternate long-term housing arrangements. Hence, research has not been conducted that would enable policy analysts and emergency housing system administrators to model the dynamics of shelter system utilization, and to plan accordingly for the capacity of prevention, recidivism reduction, or housing transfer programs.

In addition to descriptive longitudinal data, policy analysts and program administrators need to know the characteristics associated with shelter exits and returns, so as to enable the appropriate design and targeting of programs to the relevant population subgroups. The prior research most relevant to this issue has investigated the association between individual characteristics and the duration of homelessness episodes, based on self-reported duration data. For example, studies of single-day samples of the homeless have repeatedly found that people with mental illness and substance abuse problems report to have been homeless for longer periods than other homeless persons [Dennis et al., 1993; Koegel, Burnam, and Farr, 1988; Susser, Struening, and Conover, 1989]. However, as Piliavin et al. [1993] have observed:

Despite this repeated documentation [of high rates of behavioral health problems among homeless adults], research has not systematically investigated whether these conditions are causally related to the onset of homelessness and to the duration of homeless careers. Consequently, assertions as to the conditions contributing to homelessness are virtually without systematic empirical support. (p. 578)

Indeed, Robertson [1992] noted in a review of the literature on homelessness and mental disorders that "other studies show little or no difference in mental health status as a function of the duration of homelessness [Kahn et al., 1987], or show higher prevalence among more recently homeless people (Susser et al. 1989)" (p. 76). Similarly, preliminary evidence from recent longitudinal studies has suggested that this presumed association between homelessness duration and behavioral health status deserves further qualification [Culhane, Averyt, and Hadley, 1996; Fournier et al., 1994; Koegel and Burnam, 1994; Piliavin et al., 1993; Robertson, Zlotnick, and Westerfelt, 1994].

One possible explanation for inconsistencies in findings is that cross-sectional studies rely on retrospective self-report to measure homelessness duration. Dennis et al. [1993] have found that, compared to more detailed, self-reported, housing history information, people tend to overstate the length and continuity of their homelessness episodes. Moreover, in cross-sectional studies, persons cannot accurately ascertain the length of the current episode of homelessness, given that the episode is still occurring at the time of the study (thus, right-censored). Longitudinal studies based on tracking samples have the greatest potential for rectifying this shortcoming, although such study designs have also confronted limitations, including difficulty in identifying short-term or recently homeless persons for both initial and follow-up interviews [Fournier et al., 1994; Robertson, Zlotnick, and Westerfelt, 1994].

The administrative databases from New York City and Philadelphia that track public shelter utilization offer an important alternative source of infor-

mation for examining these issues. Because the databases track use of public shelters per client, they provide a direct measure of shelter utilization. The databases are not dependent on retrospective self-report to measure shelter use, and they can therefore capture short-term shelter use as well as long-term shelter use. Furthermore, both through integration with other data sources and within the databases themselves, information on client characteristics, including identified substance abuse and mental health problems, is available. However, the data are limited in that information on periods of homelessness outside the public shelter system is not available. Thus, while study results may be useful for understanding the dynamics of shelter utilization and the administration of shelter programs, they may have less utility for understanding the dynamics of residential instability and homelessness more broadly, particularly street homelessness.

HYPOTHESES AND RESEARCH QUESTIONS

Based on the results of prior research, it is hypothesized that people with identified substance abuse and mental health problems will have longer episodes of shelter use (reduced probability of exit) than other persons, presumably because of their lesser employability, lower income, episodic hospitalization, and more depleted social support systems. Whether the probability of exit will vary as a function of the severity of mental disorder will be explored. It is predicted that older persons and persons with other medical conditions or disabilities will similarly be less likely to make a stable exit from homelessness. People with a prior homelessness episode are expected to have a lower probability of exit on subsequent episodes, given that readmission to a shelter may indicate that one's health status is declining or that one's social support system is further weakening. Black persons are expected to have a lower probability of exit due to restricted access to resources, as well as other barriers historically associated with black race. Whether the probability of exit varies as a function of veteran status, or year or season of shelter entry will be explored, although no specific hypotheses are offered for the predicted direction. Distributions of shelter stay lengths and patterns of readmission will be examined to inform the dynamics of public shelter use.

METHODS

Data Sources

The city of Philadelphia and the city of New York have standardized admission procedures for persons requesting services from city-funded or operated shelters. In 1992, *public* shelters accounted for 82 percent and 84 percent of the total shelter beds in New York City and Philadelphia, respectively. All persons who are admitted to the public shelter system must undergo an intake process that includes the registering of client name, race, date of birth, and gender [Culhane et al., 1994]. A computerized registry system for single adults became operational in New York in 1986, and in Philadelphia in 1990. Philadelphia did not mount a system for tracking shelter *days* until July 1, 1991. For this study, our coverage of the New York City database begins January 1, 1987 and continues through September 30, 1994, and includes records for 110,604 men and

26,053 women. The Philadelphia singles tracking data run from July 1, 1991 through July 31, 1994, and include records for 12,843 men and 3592 women. To control for left-censoring (missing shelter days accrued prior to the initiation of the registry system), only persons experiencing their first shelter admission and who have had no prior recorded shelter activity (at least 18 months prior to study start date in Philadelphia, and 12 months prior to study start date in New York) are included here. Shelter stays are computed based on the two-year period following date of first shelter admission. In order to give all persons an equal opportunity for accruing shelter stays, all cases entering within two years of the end of the databases are excluded from the analysis.

In both cities, persons entering the shelter system are assessed for presenting substance abuse and mental health problems, medical conditions, disabilities, and, in Philadelphia, veteran status. Health assessments are not based on standardized instruments, but on self-report, verified medical history, or interviewer observation. The one exception is that, in Philadelphia, single men may avoid the complete intake interview during which health assessments are made by accessing one site for single men "after hours" (after 5 P.M.), and by using shelter beds in that facility on a "one-night" basis (for up to 30 days). Previous research has found that 23 percent of adult shelter users avoid the intake interview in Philadelphia and use the after-hours shelter only [Culhane, Averyt, and Hadley, 1996]. Because stays in this facility are not recorded in the tracking file, analyses for single men in Philadelphia will undercount overall shelter days accrued. Cases lost because of this policy are most likely to be among the short-term shelter user population, and, in a previous study, were found to be less likely to have a behavioral health treatment history compared to people who completed an intake interview [Culhane, Averyt, and Hadley, 1996].

The Philadelphia data on identified substance abuse and mental health problems are supplemented by additional data obtained from a study integrating the shelter registry data with longitudinal databases on publicly reimbursed mental health and substance abuse treatment services in Philadelphia covering nine years, 1985–1993 [Culhane, Averyt, and Hadley, 1996]. This study included Medicaid, state hospital, and city-funded community mental health services, and produced diagnostic clusters by most frequently occurring diagnosis (serious mental illness, other mental illness, substance abuse), as well as an indictor for "ever" receiving treatment for substance abuse (as a primary or secondary diagnosis). The study also compared the shelter interview indicators with the treatment databases and identified an additional 20 percent of shelter users with untreated substance abuse problems that were flagged during the intake interview, and an additional 2 percent with untreated mental health problems, also identified through the intake interview. This information will be combined with results from the treatment databases to create variables identifying people with mental health and substance use disorders.

Analysis

Descriptive Statistics

The distributions of shelter stay lengths will be computed using survival analysis, by city and by gender. For computing descriptive statistics, a shelter exit will be defined as those shelter stays that end without a subsequent shelter admission within the next 30 days. The 30-day exit criterion has been used by

other researchers [i.e., Koegel and Burnam, 1994], and may more accurately identify people who have made an exit from homelessness than counting a single-day absence as an exit. Under the 30-day exit criterion, days of shelter use separated by less than 30 days are collapsed together. Progression ratios (rates of readmission) will also be generated to depict the relative frequency of readmission by city and by gender. Readmission rate calculations will also apply to the 30-day exit criterion. To examine the proportionate utilization of shelter days by subgroup, subjects will be identified by cumulative days in the system over a one-year period (from date of first shelter admission, collapsing across stays). Subgroups will be identified by total days used, and their proportionate use of system days among first-time shelter users calculated.

Regression Analysis

Discrete-time logistic hazards regression analysis will be employed to examine the characteristics that vary systematically with shelter exit [Allison, 1982]. In general, this model enables one to construct the hazard or probability of exiting the shelter on any given day. The model is developed by dividing a person's entire stay into day-level observations, assigning a zero to the dependent variable for the given day if the person remains in the shelter and a one if the person's current episode ends. All days are then pooled, and the odds of leaving the shelter on each day are transformed by the logistic function (so all observations are between zero and one) and regressed in terms of the explanatory variables, using maximum likelihood estimation.

For this analysis, the definition of an episode will be varied by 1- and 30-day exit criteria. It will be illustrative to compare the results of 1-day and 30-day exit models, particularly as they might identify people with prolonged dependence on shelter, but whose shelter use is highly intermittent. For example, if a standardized effect is observed that is significantly more negative (longer stays) for the 30-day model than for the 1-day model, or an effect is significantly positive in the 1-day model but insignificant or lower in the 30-day model, then this may be interpreted to mean that those who fit into the category in question tend to leave the shelter, but quickly return to the shelter.

Models will be generated separately by city and gender. Independent variables will include client-reported indicators of marital status (*MARRIED*), race (*WHITE*), U.S. citizenship (*CIT*), medical health status (*MEDICAL*), existence of physical handicaps (*HANDICAP*), and in Philadelphia only, veteran status (*VETERAN*). Indicators for drug abuse and mental health status will be based on self-report, verified medical history, or interviewer observation in New York (*DRUGS* and *MENTAL*), and on a combination of health records and self-reports in Philadelphia. In Philadelphia, *ANYDRUG* indicates the union of self-reported and a treatment-record-identified substance abuse problem; *SMI* indicates the union of serious mental illness as the most frequent diagnosis of a client treated in the public mental health system or a self-reported or indicated mental health problem upon shelter admission; and *OMH* indicates a treatment for any other mental disorder as the most frequent diagnosis. The demographic data also include age on current day in shelter, as calculated from client-reported date of birth (*AGE*). Time-related variables include stay order, or the *nth* stay for the shelter user, as determined under the different exit definitions (*ORDER*); indicators for current season (*SUMMER:* June, July, or August; *WINTER:* December, January, or February); indicators for current year

(C19XX), with the first year of the system (Philadelphia: 1991; New York: 1987) as the omitted category; and a control for time (*TIME*).

The dependent variable is dichotomous, representing whether, on a given day, a person continued to stay in a shelter (value = 0) on the following day (1-day model) or within the next 30 days (30-day model), or exited the shelter (value = 1) on the following day (1-day model) and without reentry within the next 30 days (30-day model). Samples of days were selected for the analysis because day-level observations for each shelter user for a two-year period produced a large, cumbersome data set for computational purposes. For New York, a probability sample of days was taken, randomly selecting 0.5 percent of the days without an exit, and 5 percent of days with an exit. For Philadelphia, different samples were taken for the 30-day gap model and the 1-day gap model, because the 30-day model has fewer exits. The sampling fractions are as follows: 30-day gap: 30 percent of exits; 10 percent of nonexits; 1-day gap: 10 percent of exits, 10 percent of nonexits. These fractions were selected to ensure sufficiently large samples for the analyses.

RESULTS

Descriptive Statistics

Figures 1 and 2 show the survival curves for episode lengths based on the 30-day exit criterion. In New York, the median episode length is 25 days for men and 20 days for women. In Philadelphia, the median episode length is 7 days for men, and 20 days for women (the same as for women in New York). The significantly shorter stays for men in Philadelphia are likely a result, at least in part, of uncounted days in the large one-night facility discussed earlier. In
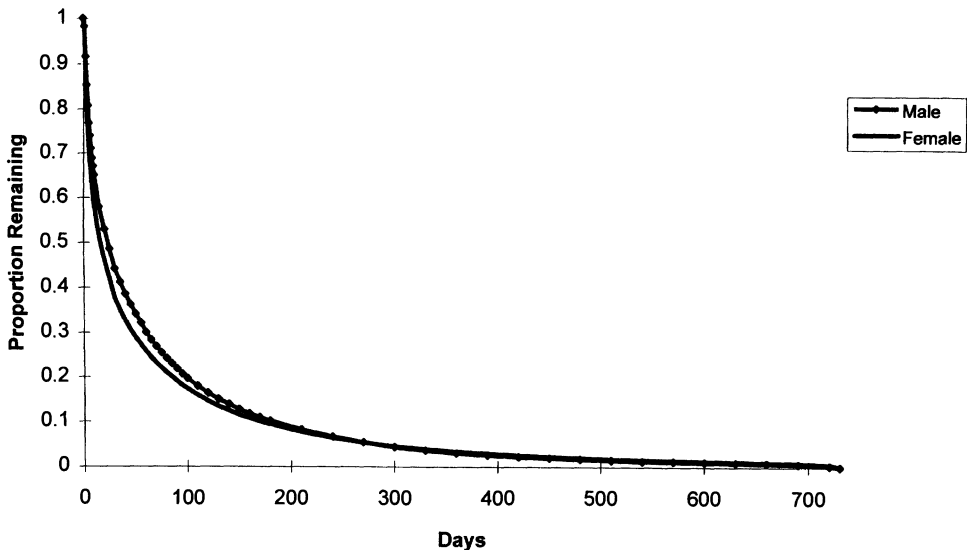

Figure 1. Survival curves for individual episodes: New York, episodes merged at 30-day gaps.
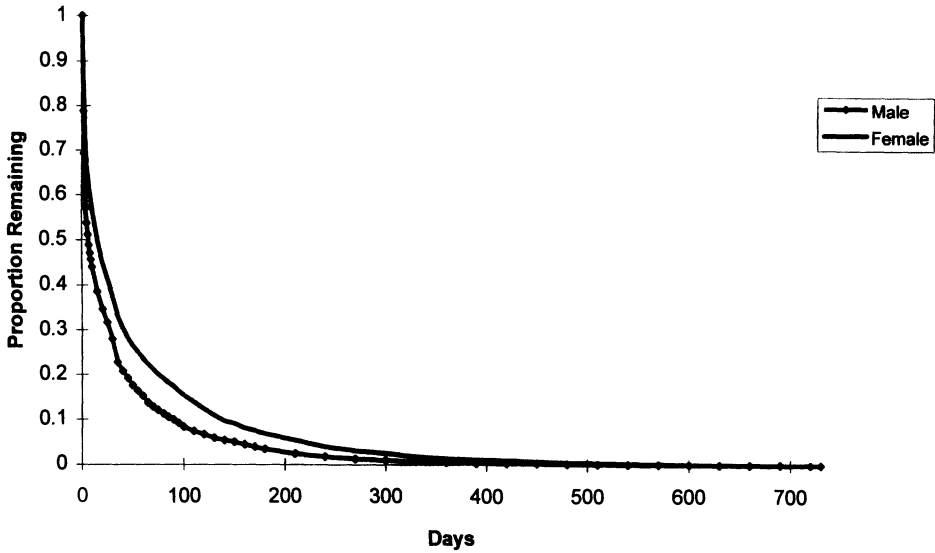
Figure 2. Survival curves for individual episodes: Philadelphia, episodes merged at 30-day gaps.

both cities, the significance of a long-stay population is also evident. In New York, approximately 10 percent of the episodes, for both women and men, will last for at least 180 days. Similarly, in Philadelphia, 10 percent of the episodes for men will continue for at least 90 days (3 months), and 10 percent of the episodes for women will continue for 120 days (4 months).

As shown in Figure 3, in New York, 43 percent of the men will experience a readmission within two years of their first shelter admission, as will 36 percent of the women. Of those men and women who return, 25 percent will do so within 50 days of exit, and 50 percent will do so within 100 days of exit. The proportion of persons readmitted in Philadelphia, shown in Figure 4, is nearly identical to the rates found in New York: 46 percent for men and 35 percent for women. Of those men who return to shelter in Philadelphia, 25 percent will do so within 50 days of exit, and 50 percent within 100 days of exit. Among women, 25 percent of shelter returns occur within 60 days of exit, and 50 percent within 140 days of exit. Approximately 8 percent of men and women will have at least four admissions in New York compared to 15 percent of men in Philadelphia.

Figures 5 and 6 show the effect of combining all stays over a two-year period, from the date of a person's first admission to shelter. Results show that, in New York, the median stay for men is 45 days, and the median for women is 28 days. In Philadelphia, the median combined stay length is 30 days, for both men and women. In New York, 21 percent of the men and 17 percent of the women will stay at least 180 days (6 months) in a two-year period, while half as many, or 8 percent of men and women in Philadelphia, stay 180 days in two years. Approximately 8 percent of men and 6 percent of women in New York will spend at least one year in shelter, as will 1 percent of men and women in Philadelphia. Again, these data indicate that, while most people have relatively brief periods of reliance on public shelters, even when collapsing stays over a
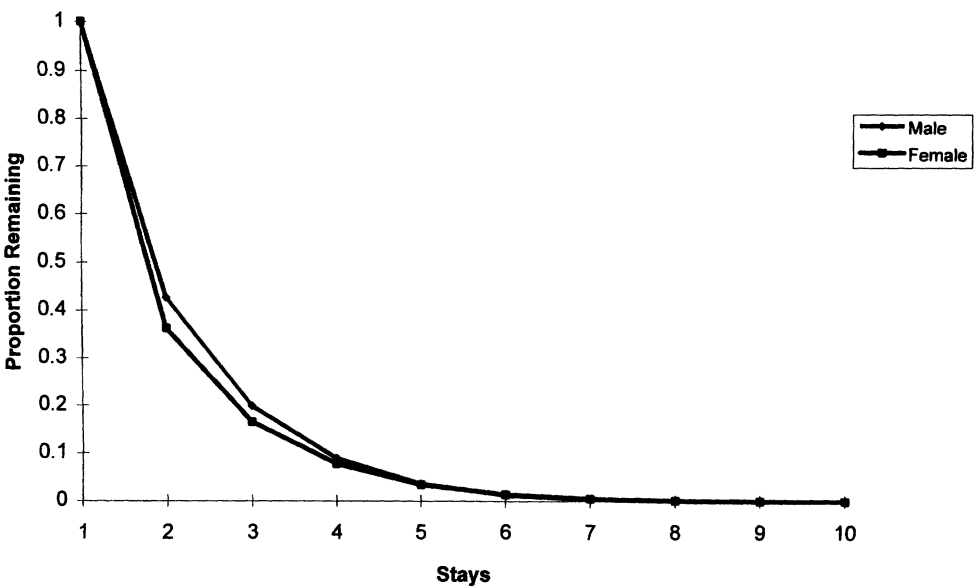
Figure 3. Shelter stay progression ratios: New York, episodes merged at 30-day gaps.
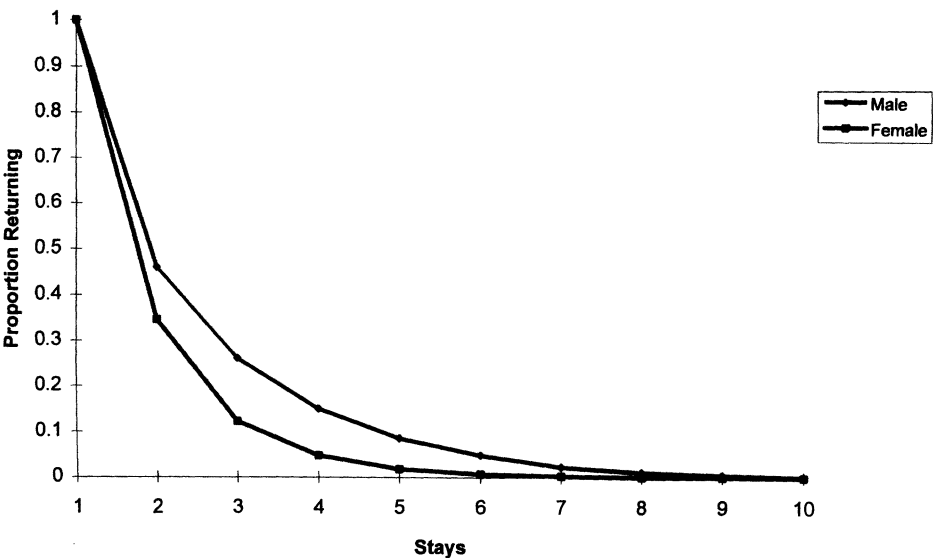
Figure 4. Shelter stay progression ratios: Philadelphia, episodes merged at 30-day gaps.

two-year period, a significant group of persons have long episodes of shelter use, particularly in New York City.

Table 1 shows the impact of long-stay shelter users on system utilization in terms of time spent in the shelter in the first year after entry into the system. In New York City, 18.2 percent of the shelter user population stayed 180 days
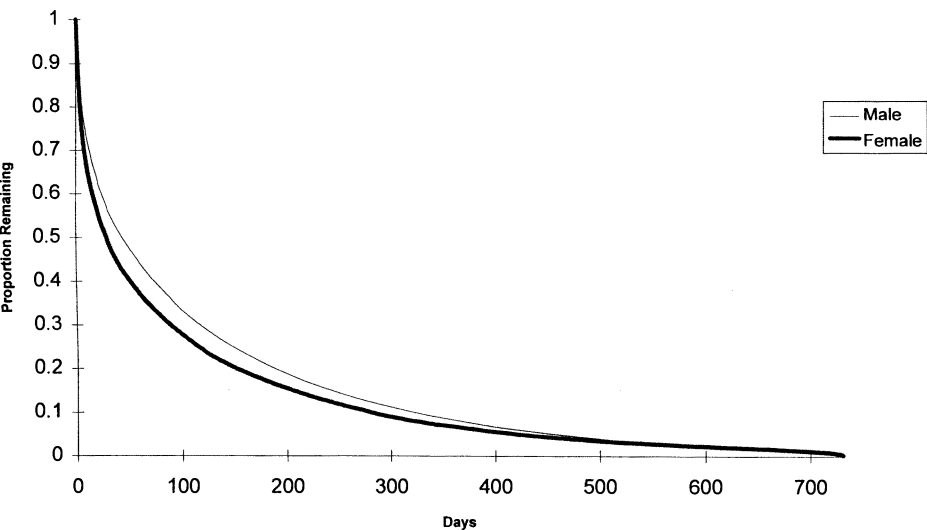
Figure 5. Ratio days: New York City, total days in shelter in first two years in system, survival curves.
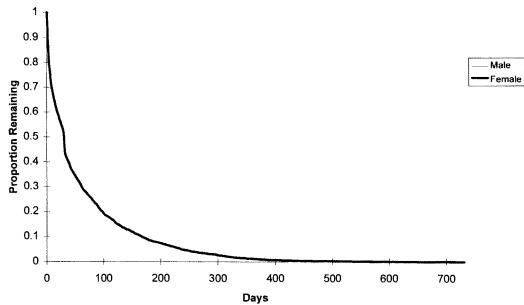
Figure 6. Ratio days: Philadelphia, total days in shelter in first two years in system, survival curves.

Table 1. Shelter utilization rates for long-stay clients (proportion of stays consumed and proportion of days consumed).

	New York		Philadelphia	
	Proportion of stayers (%)	Proportion of days (%)	Proportion of stayers (%)	Proportion of days (%)
180 days	18.2	53.4	10.3	34.6
90 days	43.6	78.4	30.9	63.7

in their first year in the system, accounting for 53 percent of the total days used by all people in their first year in the system. In Philadelphia, this tendency also holds, as 10.3 percent of the shelter population stayed 180 or more days, and used 34.6 percent of the shelter-person days. In both cities, persons staying more than 180 days consumed three times as many days as their proportionate representation in the population. Persons staying at least 90 days consumed roughly twice the proportion of days as they represent in the population.

Regression Analyses

The correlation coefficients between independent variables were examined for potential multicollinearity problems. Interaction terms were created for variables whose correlation was significant at the $p < 0.01$ level. Because gender is correlated with almost every variable included in the model, it was not deemed prudent to control for all of them with interaction terms. Moreover, differences in the survival curves by gender suggested that separate models should be tested by gender. This produces eight models: by city, by episode definition (1-day and 30-day gaps), and by gender.

New York

The model for New York City includes variables concerning demographic factors, health status, season, and time trend, with some important interactions concerning traits that are highly correlated: race/age, drug/stay order, mental health/stay order, medical health/age, handicap/age, drug/mental health, and medical/mental health. Regarding the time variable, this variable is included as a control, in order to assure that when examining time-varying covariates, results will not be spurious due to multicollinearity. This variable acts as a control because there are certain people in the model who are always less likely to leave the shelter, and these people have more observations than those who leave quickly. Without the control for time, the analysis would be violating the basic assumption of the logistic model, which is that all events are independent, and not autocorrelated. This control rectifies that problem and produces interpretable results.

The regression results show some consistent patterns (see Tables 2 and 3). First, age always tends to have a negative effect on exit hazards, no matter how exits are classified (1-day or 30-day). Older people tend to stay in the shelters longer. In fact, holding other variables constant, a 20-year increase in age of a male in the New York shelter would make a person 28.7 percent less likely to leave the shelter on a given day with a 30-day wait as the exit length classifier. The result is much the same for women in New York, at 27.8 percent.

Stay order (the given episode number for an individual) has a highly significant effect on exit hazard. Holding other variables constant, when one day out of the shelter is counted as an exit, a male is 1 percent more likely to leave on a stay of one higher level and a female is 1.9 percent more likely. Thus, persons' subsequent shelter stays are slightly shorter. Concerning the more stringent definition of an exit (30 days out), a stronger effect is observed. For women, an additional stay raises the likelihood of leaving shelter by 7 percent.

The other consistent result from the New York data involves the mental illness indicator. Among women, there is a highly significant effect of the indicator, with a 32.4 percent lower likelihood of exit under the 1-day gap definition. With a 30-day definition, mental illness results in a 50.1 percent lower

Table 2. Logistic regression results, New York males.

Variable	One-day gaps					Thirty-day gaps				
	Estimate	Standard error	Wald chi-square	p-value	Odds ratio	Estimate	Standard error	Wald chi-square	p-value	Odds ratio
INTERCP	−0.1943	0.039	24.8752	0.0001	0.823	−0.9561	0.0579	273.0796	0.0001	0.384
MARRIED	−0.0138	0.0335	0.1692	0.6809	0.986	−0.0137	0.0503	0.0737	0.7861	0.986
WHITE	0.00139	0.0825	0.0003	0.9865	1.001	−0.0191	0.1165	0.0268	0.8699	0.981
CIT	0.036	0.0206	3.0689	0.0798	1.037	0.0389	0.0304	1.6317	0.2015	1.04
AGE	−0.0114	0.000819	192.418	0.0001	1.989	−0.0169	0.00124	184.7283	0.0001	0.983
ORDER	0.00999	0.000717	194.4533	0.0001	1.01	0.0139	0.00708	3.8576	0.0495	1.014
WINTER	−0.0388	0.015	6.738	0.0094	0.962	−0.0296	0.0225	1.729	0.1885	0.971
SUMMER	−0.0604	0.0179	1.3403	0.0008	0.941	0.00139	0.0266	0.0027	0.9583	1.001
DRUGS	−0.136	0.0193	49.7935	0.0001	0.873	−0.2275	0.0351	41.8837	0.0001	0.797
HANDICA	−0.0773	0.0929	0.6913	0.4057	0.926	−0.4527	0.1491	9.2144	0.0024	0.636
MENTAL	−0.1576	0.0436	13.0934	0.0003	0.854	−0.3294	0.0797	17.0765	0.0001	0.719
MEDICAL	−0.0606	0.0729	0.6906	0.406	0.941	0.000709	0.1133	0	0.995	1.001
C1988	0.1711	0.024	50.6451	0.0001	1.187	0.0326	0.0344	0.9002	0.3427	1.033
C1989	0.2523	0.0239	111.5379	0.0001	1.287	−0.0325	0.0354	0.8457	0.3578	0.968
C1990	−0.00681	0.0261	0.0679	0.7944	0.993	−0.1415	0.0384	13.5433	0.0002	0.868
C1991	0.00851	0.0272	0.0981	0.7542	1.009	−0.1351	0.0403	11.2534	0.0008	0.874
C1992	−0.0512	0.0284	3.2451	0.0716	0.95	−0.0946	0.0415	5.1836	0.0228	0.91
C1993	0.1275	0.0286	19.8117	0.0001	1.136	−0.0054	0.0422	0.0164	0.8982	0.995
C1994	0.3011	0.0359	70.2039	0.0001	1.351	0.177	0.0523	11.4419	0.0007	1.194
WHITEAG	7.65E-06	0.00189	0	0.9968	1	0.00439	0.00273	2.5845	0.1079	1.004
DRUGOR	0.00313	0.00117	7.0923	0.0077	1.003	0.044	0.0106	17.0906	0.0001	1.045
MENTOR	−0.00181	0.0017	1.1315	0.2875	0.998	0.00958	0.0179	0.2862	0.5927	1.01
MEDAGE	−0.00119	0.0017	0.4928	0.4827	0.999	−0.00411	0.00288	2.3473	0.1255	0.996
HANDAG	0.00147	0.00212	0.484	0.4866	1.001	0.00872	0.00342	6.5095	0.0107	1.009
DRUGME	0.0503	0.0505	0.9893	0.3199	1.052	0.046	0.0819	0.3156	0.5743	1.047
MEDMEN	0.2012	0.0531	14.3748	0.0001	1.223	0.2465	0.0862	8.1729	0.0043	1.28
TIME	−0.0109	0.000167	4284.805	0.0001	0.989	−0.00822	0.000231	1266.825	0.0001	0.992
Events	33961					11772				
Observations	88899					90281				
−log likelihood	11459.3					3699.554				
df	26					26				

chance of exit. The difference between the two models also means that many of those mentally ill women who leave the shelter under a 1-day exit classifier tend to return quickly (within 30 days). Among men with a mental illness indicator, the effects are similar qualitatively, although not as strong, with reductions in the probability of exiting shelter of 14.6 percent and 28.1 percent under the different definitions (1-day and 30-day respectively). Thus, a mental illness indicator results in a significant reduction in the likelihood of a person exiting shelter, regardless of gender, particularly under the 30-day exit length classifier.

Regarding the substance abuse indicator, a slightly different result is observed. For men, a 12.7 percent lower likelihood of leaving is found under the 1-day definition and a 20.3 percent lower likelihood of exit is found under the 30-day definition, in both cases indicating that people with identified substance abuse problems stay in shelter longer. For women, results under the two-episode definitions are inconsistent, showing that under a 1-day gap, women with substance abuse problems are 16.1 percent *more* likely to exit on a given day. This effect, however, becomes insignificant when exits are defined by 30 days, suggesting that, while women with substance abuse problems do leave shelter more quickly than others, they are returning to the shelter more quickly as well.

The results are not so conclusive for physical disabilities. Women show no significant results regarding the effects of physical disabilities. For men, how-

Table 3. Logistic regression results, New York females.

Variable	One-day gaps					Thirty-day gaps				
	Estimate	Standard error	Wald chi-square	*p*-value	Odds ratio	Estimate	Standard error	Wald chi-square	*p*-value	Odds ratio
INTERCP	0.2725	0.0901	9.1469	0.0025	1.313	−0.6978	0.1279	29.7443	0.0001	0.498
MARRIED	−0.0267	0.0707	0.1431	0.7052	0.974	0.177	0.0961	3.389	0.0656	1.194
WHITE	−0.2091	0.1771	1.3941	0.2377	0.811	−0.0629	0.2549	0.061	0.805	0.939
CIT	−0.0209	0.0486	0.1844	0.6676	0.979	−0.0657	0.0684	0.9226	0.3368	0.936
AGE	−0.0214	0.00196	119.2651	0.0001	0.979	−0.0163	0.00282	33.6642	0.0001	0.984
ORDER	0.0184	0.00216	72.5301	0.0001	1.019	0.0676	0.0177	14.6093	0.0001	1.07
WINTER	−0.0592	0.0345	2.9514	0.0858	0.943	−0.00602	0.0518	0.0135	0.9076	0.994
SUMMER	0.00488	0.0388	0.0158	0.9001	1.005	0.00724	0.0588	0.0151	0.9021	1.007
DRUGS	0.149	0.0428	12.1387	0.0005	1.161	−0.0592	0.0761	0.6049	0.4367	0.943
HANDICA	0.1815	0.1881	0.9304	0.3348	1.199	−0.2064	0.3051	0.4575	0.4988	0.814
MENTAL	−0.4002	0.0602	44.1709	0.0001	0.67	−0.6953	0.1124	38.2737	0.0001	0.499
MEDICAL	0.0391	0.1204	0.1053	0.7455	1.04	0.0253	0.1872	0.0182	0.8926	1.026
C1988	0.1456	0.0567	6.6016	0.0102	1.157	0.00427	0.0784	0.003	0.9566	1.004
C1989	0.192	0.0553	12.0749	0.0005	1.212	−0.0853	0.0797	1.146	0.2844	0.918
C1990	0.0635	0.0577	1.2088	0.2716	1.066	−0.3247	0.0865	14.0992	0.0002	0.723
C1991	0.0325	0.0594	0.3006	0.5835	1.033	−0.2625	0.0877	8.9621	0.0028	0.769
C1992	−0.033	0.0614	0.2998	0.584	0.967	−0.265	0.09	8.6645	0.0032	0.767
C1993	−0.2143	0.0846	11.0073	0.0009	0.807	−0.3044	0.0937	10.5649	0.0012	0.738
C1994	−0.195	0.0849	5.2776	0.0216	0.823	−0.3394	0.1274	7.102	0.0077	0.712
WHITEAG	0.00513	0.00398	1.6627	0.1972	1.005	0.00142	0.0059	0.0576	0.8104	1.001
DRUGOR	−0.00784	0.00231	11.5378	0.0007	0.992	−0.00312	0.0225	0.0193	0.8896	0.997
MENTOR	0.00231	0.00208	1.236	0.2662	1.002	0.0344	0.0247	1.9476	0.1628	1.035
MEDAGE	−0.00272	0.00322	0.7132	0.3984	0.997	−0.00625	0.00609	1.5057	0.2198	0.994
HANDAG	−0.00308	0.00464	0.4393	0.5075	0.997	0.00175	0.0076	0.0532	0.8177	1.002
DRUGME	0.1823	0.0729	6.2554	0.0124	1.2	0.1587	0.1199	1.7525	0.1856	1.172
MEDMEN	0.0665	0.0751	0.7847	0.3757	1.069	0.1653	0.1261	1.7198	0.1897	1.18
TIME	−0.0108	0.000374	830.8742	0.0001	0.989	−0.01	0.000583	296.691	0.0001	0.99
Events	7209					2348				
Observations	16930					17380				
−2 log likelihood	3399.928					1183.848				
df	26					26				

ever, while disability is not significant in the 1-day model, physically handicapped men are 36.4 percent less likely to leave the shelter under the 30-day exit episode criterion.

Considering time as a covariate of exit hazard, among women, there is a definite trend. Under both definitions of exit, there is a general time trend over the last five years toward longer stays when one examines the current year of the shelter stay. Under a 30-day episode definition, a woman in the shelter in 1994 is 28.8 percent less likely to leave than the same person in 1987–1988. The result for 1994 is similar for the 1-day definition, and the trend in this regard has been toward longer stays. Among men, there is no definite trend, although the likelihood of leaving does seem to be higher in 1994 for men, the opposite of that found for women.

Philadelphia

Similar models were tested for Philadelphia homeless shelter users (see Tables 4 and 5). These models, however, include more accurate data on mental illness and substance abuse, as matched from local behavioral health care databases. These variables include diagnostic clusters for most frequently occurring diagnoses of a "serious mental illness" or "other mental illness" and for the presence *ever* of a "substance abuse" primary or secondary diagnosis [see Culhane, Averyt, and Hadley, 1996].

Table 4. Logistic regression results, Philadelphia males.

Variable	One-day gaps					Thirty-day gaps				
	Estimate	Standard error	Wald chi-square	p-value	Odds ratio	Estimate	Standard error	Wald chi-square	p-value	Odds ratio
INTERCP	−1.2233	0.0794	237.5554	0.0001	0.294	−1.5556	0.0798	380.1246	0.0001	0.211
MARRIED	−0.7671	0.2606	8.6615	0.0032	0.464	−0.1776	0.1937	0.8405	0.3593	0.837
WHITE	0.501	0.2617	3.6643	0.0556	1.65	0.9035	0.2262	15.9576	0.0001	2.468
AGE	−0.00115	0.00178	0.4197	0.5171	0.999	0.00023	0.00168	0.0197	0.8884	1
VETERAN	0.015	0.1756	0.0073	0.9321	1.015	−0.0288	0.1742	0.0273	0.8687	0.972
ORDER	0.0134	0.00171	61.7296	0.0001	1.014	0.0723	0.0259	7.7788	0.0053	1.075
WINTER	0.423	0.0312	184.0501	0.0001	1.527	0.1139	0.031	13.538	0.0002	1.121
SUMMER	−0.1967	0.0431	20.7876	0.0001	0.821	0.06	0.0389	2.3854	0.1225	1.062
C1992	0.0611	0.0415	2.1678	0.1409	1.063	0.1302	0.0417	9.7222	0.0018	1.139
C1993	−0.4146	0.0443	87.694	0.0001	0.661	−0.1358	0.0441	9.479	0.0021	0.873
C1994	−0.7719	0.0581	176.5642	0.0001	0.462	0.0114	0.0533	0.0456	0.8308	1.011
HANDICA	−1.2899	0.8361	2.3801	0.1229	0.276	1.3356	0.8231	2.6334	0.1046	3.802
MEDICAL	−0.1081	0.1555	0.4834	0.4869	0.898	−0.0402	0.149	0.073	0.7871	0.961
ANYDRU	−0.379	0.0368	106.0632	0.0001	0.685	−0.6814	0.0509	179.2654	0.0001	0.506
SM1	0.0358	0.0859	0.1737	0.6768	1.036	−0.1627	0.0934	3.0314	0.0817	0.85
OMH	−0.2512	0.06	17.5213	0.0001	0.778	−0.3397	0.0585	33.6797	0.0001	0.712
WHITEAG	−0.0157	0.00861	5.616	0.0178	0.984	−0.0222	0.00581	14.5248	0.0001	0.978
DRUGOR	0.0113	0.00208	29.5811	0.0001	1.011	0.0331	0.0275	1.4487	0.2287	1.034
MENTOR	0.00617	0.00338	3.3417	0.0675	1.006	0.0579	0.0362	2.5549	0.11	1.06
MEDAGE	−0.0008	0.00389	0.042	0.8376	0.999	0.00216	0.00369	0.3436	0.5577	0.998
HANDAG	0.0303	0.0196	2.3836	0.1226	1.031	−0.0385	0.0205	3.5463	0.0597	0.962
DRUGME	−0.0466	0.105	0.1972	0.657	0.954	0.1321	0.1027	1.6553	0.1982	1.141
MEDMEN	−0.1657	0.1242	1.7791	0.1823	0.847	−0.2139	0.1222	3.0646	0.08	0.807
VETAGE	−0.00447	0.0044	1.0285	0.3105	0.996	0.00599	0.00436	1.8875	0.1695	0.994
TIME	−0.0384	0.00106	1318.598	0.0001	0.962	−0.0171	0.000601	808.9237	0.0001	0.983
Events	5931					6082				
Observation	57784					61815				
−2 log likelihood	5130.129					2565.303				
df	24					24				

For men with a severe mental illness diagnosis, no effect of diagnosis is observed on the shelter stay pattern, yet those with "other" mental health diagnoses tend to stay in the shelter longer, with a 28.8 percent lower hazard under the 30-day model. Substance abuse problems had the predicted effect of reducing the likelihood of exiting shelter either in the 1- or 30-day gap episode definition. In the 30-day model, men with a substance abuse indicator either from the matched records or from self-report are 49.4 percent less likely to leave the shelter as other persons.

For women, mental health appears to be a more important factor. On the 1-day model, women with a serious mental illness are in fact more likely to leave the shelter, but this effect is no longer significant under the 30-day model. This indicates that women with a serious mental illness are most likely leaving the shelter quickly, only to often return to the shelter. The "other mental illness" indicator affects shelter patterns in a similar way. The result is not significant for episodes broken by one day, but for episodes defined by the 30-day gap, women with less serious mental illnesses stay longer. Once again, this means that those women with less serious mental illnesses who do leave the shelter are more often returning before the end of 30 days than other women. A similar effect is observed when comparing the 1-day and 30-day results for medical problems. Under the 1-day definition, women are 82.5 percent more likely to leave on a given day, yet this variable is not significant for the 30-day definition.

Regarding higher order stays in the shelter, women are subject to a different dynamic than in the New York regressions. Under the 1-day definition, women

Table 5. Logistic regression results, Philadelphia females.

Variable	One-day gaps					Thirty-day gaps				
	Estimate	Standard error	Wald chi-square	*p*-value	Odds ratio	Estimate	Standard error	Wald chi-square	*p*-value	Odds ratio
INTERCP	−2.341	0.1999	137.1283	0.0001	0.096	−1.8546	0.1758	111.3246	0.0001	0.157
MARRIED	−0.0476	0.2801	0.0289	0.865	0.954	0.3425	0.1947	3.0941	0.0786	1.409
WHITE	−0.4289	0.636	0.4547	0.5	0.651	0.3041	0.4272	0.5069	0.4765	1.355
AGE	0.000464	0.00474	0.0096	0.9219	1	−0.0164	0.00398	14.9901	0.0001	0.985
VETERAN	−1.085	0.9434	1.3227	0.2501	0.338	0.1841	0.7236	0.0647	0.7991	1.202
ORDER	−0.0341	0.0212	2.5824	0.1081	0.966	0.1972	0.0692	8.1238	0.0044	1.218
WINTER	0.4145	0.0806	26.4448	0.0001	1.514	0.1937	0.0648	8.9223	0.0028	1.214
SUMMER	0.1018	0.0966	1.112	0.2916	1.107	0.0191	0.0752	0.0646	0.7994	1.019
C1992	−0.1938	0.1067	3.3013	0.0692	0.824	−0.0569	0.0823	0.4789	0.4889	0.945
C1993	0.0527	0.1018	0.2686	0.6042	1.054	−0.1148	0.0831	1.9078	0.1672	0.892
C1994	0.2741	0.1205	5.1734	0.0229	1.315	0.2521	0.0974	6.6976	0.0097	1.287
HANDICA	0.8795	1.8234	0.2327	0.6296	2.41	−2.0336	2.5204	0.651	0.4198	0.131
MEDICAL	0.6013	0.2947	4.1631	0.0413	1.825	−0.1914	0.2325	0.6778	0.4103	0.826
ANYDRU	−0.4285	0.1051	16.6081	0.0001	0.652	−0.063	0.1208	0.1927	0.6607	0.948
SMI	0.2963	0.1572	3.5536	0.0694	1.345	0.0648	0.1628	0.1585	0.6905	1.067
OMH	0.0425	0.1047	0.1648	0.8848	1.043	−0.187	0.0868	4.6409	0.0312	0.829
WHITEAG	−0.00297	0.0149	0.04	0.8416	0.997	−0.00866	0.0107	0.635	0.4255	0.991
DRUGOR	0.568	0.232	5.973	0.0146	1.058	−0.1871	0.079	5.6093	0.0179	0.829
MENTOR	−0.0103	0.0233	0.1954	0.6585	0.99	0.082	0.0869	0.8903	0.3454	1.085
MEDAGE	−0.0229	0.00832	7.5512	0.006	0.977	0.00483	0.0065	0.5512	0.4578	1.005
HANDAG	−0.0186	0.0402	0.2148	0.643	0.982	0.0207	0.049	0.1789	0.6724	1.021
DRUGME	0.0555	0.2023	0.0754	0.7837	1.057	0.3761	0.1613	5.4333	0.0198	1.457
MEDMEN	−0.0948	0.2122	0.1994	0.6662	0.91	−0.6682	0.1758	14.4403	0.0001	0.513
VETAGE	0.0336	0.0225	2.2331	0.1361	1.034	−0.00061	0.0192	0.0007	0.9879	0.999
TIME	−0.0196	0.00126	244.6411	0.0001	0.981	−0.0106	0.000682	241.8845	0.0001	0.989
Events	865					1395				
Observations	21945					22487				
−2 log likelihood	656.312					568.277				
df	24					24				

are 3.4 percent *less likely* to leave with additional stays, yet under the 30-day definition, they are 21.8 percent more likely to leave (again, subsequent stays are shorter). Men also show a positive association between exit hazard and stay order under both definitions, meaning that men's subsequent shelter stays are shorter, regardless of episode definition.

The result of greatest magnitude from these regressions is the effect of the race variable. Most noticeably, under a 30-day exit definition, white males are 2.5 times more likely to leave the shelter than are nonwhites. Regarding veteran status, while initial models indicated that veterans stay in the shelters for a longer time, this effect becomes insignificant when we include an interaction term between veteran status and age. Under both definitions of an exit, veterans only stay longer because veterans tend to be older.

The time trend for men indicates that men are increasingly less likely to leave shelter. Under the 1-day definition, men are half as likely to leave in 1994 as they were in 1991. The result, however, is not as significant for the 30-day model, indicating that men are leaving less often, but when they do leave, their exits are more continuous.

Another important time-related result found in Philadelphia involves season. It was observed that there is a strong tendency for both men and women to leave the shelter more quickly during the winter. Women are 51.4 percent more likely to leave the shelter for at least one day in the winter, while men are 52.7 percent more likely. Both of these effects are diminished by the tightened restriction of the 30-day model, although they are still significant.

DISCUSSION

The descriptive statistics reported here document more precisely the dynamic and intermittent nature of shelter use suggested by previous analyses of shelter admission rates. Most single adults who use the shelter system do so on a short-term basis, including a significant proportion (roughly 55 percent of men and 65 percent of women) who have a single episode over a two-year period. Even when all episodes of shelter use are combined over a two-year period, half of adult shelter users accrue fewer than 45 days total.

Nevertheless, a significant group of people are repeat and long-stay clients in both cities. For example, based on six years of admission data in New York, 8410 men and 1646 women had four or more admissions to shelter within two years of their first shelter admission; likewise, 8895 men and 1717 women in New York accrued at least 365 days of shelter use in a two-year period. Both of these populations would outnumber the current single-day census of the New York City single-adult shelter system. Repeat and long-term shelter users have a significant impact on systemwide utilization, with the heaviest users (more than 180 days in the first year of admission) consuming triple the days for their proportionate representation in the population in both cities. Such persons would appear to be in need of additional assistance to enable them to exit shelter earlier. Alternatively, some shelters may be expected to operate as long-term care facilities, where there is little expectation that consumers will leave in the short term. Regardless, efforts designed to facilitate the more expeditious resettlement of long-term shelter users could yield significant savings in shelter resources, recognizing that such efforts would undoubtedly shift costs to other housing and support systems.

Long-stay shelter users are an important subpopulation, not only because of their disproportionate consumption of system resources, but because of their distinguishing characteristics. The regression analyses confirm that, in general, older people and people with mental health problems, substance abuse problems, and, in some cases, medical conditions, have a tougher time exiting the shelters than others. People with serious mental disorders in Philadelphia appear the exception to this pattern, a result which could be attributed to a greater likelihood of being homeless in nonshelter locations, and to higher rates of hospitalization among homeless people with serious mental disorders [Culhane, Averty, and Hadley, 1996]. A comparatively more enriched community mental health system in Philadelphia might also help to explain this result. The lower likelihood of exit among the "other mental disorder" group in Philadelphia could also suggest that such persons are not sufficiently ill to warrant hospitalization or to be deemed eligible for specialized services (including housing) by the local mental health authority, but that their condition nonetheless lengthens their homelessness spells. The disaggregation of these groups in Philadelphia, and the different findings by category of disorder, may explain some of the contradictory results in the literature, if by combining those groups previous studies have obscured the different dynamics for the two subpopulations.

As predicted, the substance abuse indicators are also strongly associated with reduced probability of exiting shelter, by city and gender, under the 1-day gap episode length classifier. Substance abuse is the most important factor leading to a reduced likelihood of exit among men and women in Philadelphia, under the 1-day gap criterion, and accounts for a 50 percent reduction in the prob-

ability of exit among men under the 30-day gap definition. The data on sub-stance abuse are more complete in Philadelphia than in New York, and thus may more accurately estimate the impact of substance abuse on exit hazard, although significant effects are observed in both cities. The unanticipated result that women with substance abuse problems have an *increased* probability of exiting shelter under the 1-day gap episode definition in New York may be related to provider-related factors, such as women's facilities being less tolerant of drug abuse than men's facilities (perhaps because women's facilities also tend to be smaller). This area deserves further study.

The effects of timing and stay histories on exit probabilities reveal that people who have had more stays in the system will leave the shelter more quickly on each subsequent stay. This effect is especially strong under the 30-day exit def-inition, under which exits are less frequent, and are thus more momentous events. This result, contrary to our hypothesis, may be viewed in two ways. This could mean that shelters are doing their job, that people who return to the shelter again have less need for a long stay, and that they have developed more social capital for escaping homelessness. On the other hand, this result could also simply mean that people with more stays are chronically homeless and use the shelter more strategically, staying for shorter periods with greater frequency. The increased significance of these results under the 30-day defini-tion, however, suggests that the former hypothesis is more likely, because much of the effect of homeless shelter recidivism is avoided due to the stricter defi-nition of exit. Further research is needed in this area.

The issue of time provides a less hopeful conclusion, however. In both sys-tems in the aggregate, there is a tendency toward longer stays for people en-tering shelter in the later years. Reduced rates of exit may be attributed to reductions in permanent housing placements for shelter discharges, to the de-clining value or restricted eligibility for general assistance benefits, or to im-proved access to treatment and employment programs in shelters that require continuous residence for participation. There is evidence to support each of these interpretations, but further study is needed to disentangle possible ef-fects. To further assess such effects, tests of time-series models are planned. A time-series model of shelter incidence, prevalence, and measures of average stay length will be undertaken to clarify findings regarding season and time trend, and to identify policy changes that might coincide with shifts in utili-zation patterns.

Perhaps the most significant difference between the two cities is that average stays (accrued and episode-specific) are shorter in Philadelphia than New York, which is likely attributable to two factors: (a) the undercounting of total days sheltered in Philadelphia due to untracked stays in the entry facility for men; and (b) more stringent behavioral protocols in the Philadelphia system. Unlike New York City, adult shelter residents in Philadelphia must declare all income sources, contribute 15 percent of their income to defray shelter costs, save 60 percent of their income in city-supervised savings accounts, adhere to clean and sober standards of behavior, and submit to random urine screens to test for adherence to clean and sober policies [see Culhane, 1992]. Each of these conditions is likely to introduce disincentives for continued shelter stays in Philadelphia relative to New York City, as well increase the probability of in-voluntary discharges for noncompliance in Philadelphia.

The issue of race should also be noted. Given the social and economic bar-riers historically associated with race, it was not surprising that nonwhite cli-

ents would stay longer than white clients, although a 2.5-times-higher likelihood of exit for white males than nonwhite males in the Philadelphia system was not anticipated. Further research, possibly qualitative in nature, should be undertaken in order to discern whether this result is due to fewer opportunities for nonwhites to leave the shelter, or to a trend toward racial homogeneity in shelters.

Season also appears to be an important issue. In the Philadelphia regressions, people leave much more quickly in the winter. This is likely due to two causes: (a) in winter, people may be more likely to need temporary shelter due to cold weather and related utility shutoffs; and (b) people may be more likely to find temporary shelter with family and friends during the winter holiday season. In related research, Culhane, Wachter, and Metraux [1996] have documented a significant effect of increased shelter admissions in the winter among single adults in New York City across a nine-year period. This would seem to support the former hypothesis, that cold weather prompts an increase in admissions among people without proper utilities. But it also suggests another possibility, that shelter admissions and short shelter stays spike in the winter because people who would otherwise remain homeless in street locations enter shelters for a temporary escape from extreme weather in the winter. The issue of seasonality in shelter use may be used to direct policy and programs. For example, winter may be an appropriate time to mount shelter-based programs that target traditionally hard-to-serve, street homeless populations. On the other hand, people with long shelter stays are overrepresented in shelters in the summer months, so this may make the summer a more appropriate time to identify such persons for recruitment into alternate housing.

The primary limitation of this study is that the shelter data do not account for experiences of homelessness outside the public shelter system. Such information could identify groups whose time homeless in public spaces is significant, and were such data available for this analysis, could well have required further qualification of the study results. Client- and encounter-specific data on street outreach contacts in Philadelphia may help to fill some of this knowledge gap, and will be used to supplement the shelter stay information in future research. However, it should be noted that, given the volume of shelter users identified in this research, it is unlikely that most shelter users have street homelessness experiences of long duration, otherwise steady increases in the level of street homelessness would have been observed in the two cities. Nevertheless, while the present study addresses shelter utilization patterns, further research is needed before these patterns are applied to the broader experience of homelessness.

From a policy perspective, the findings from the present study could be used to target programs designed to prevent shelter admission or shelter episodes of unnecessarily long duration. The results regarding the characteristics of long-stay shelter users suggest that programs to reduce long shelter stays should be targeted to older people, and people with substance abuse and mental health problems, particularly those with prior homelessness episodes or long current homeless episodes. For such persons, the more timely provision of either transitional housing or permanent housing with support services would likely reduce their risk for continued utilization of emergency shelter (and the associated costs). Correspondingly, persons with short shelter stays, who are less likely to have such disabilities and to be younger (and who represent a much larger subpopulation, proportionately), would not seem to be

the appropriate priority population for transitional and supported housing programs, given their apparently independent capacity for longer community tenure. Such persons might benefit sufficiently from more time-limited interventions designed to resolve temporary crises and to enhance their access to community resources. One could also argue that, at least for this group, shelter is fulfilling its intended function of providing *emergency* housing. However, it also raises questions about why traditional "safety net" programs are not sufficient to prevent such persons from needing public shelter.

CONCLUSION

These analyses have given a basic overview of the utility of administrative, longitudinal data on shelter utilization, and of their uses for homelessness research. With such data one can learn much about homeless shelter stays; the relative risk of continued shelter use associated with demographic characteristics, the possibility of time trends in shelter utilization; seasonality in shelter-stay patterns; and the influence of health, mental health, and substance abuse problems on shelter stays. In particular, older people and people with mental illness and substance abuse problems tend to behave differently regarding shelter use, depending on the severity of their condition. The generally consistent finding is that people with health problems have a lower likelihood of exiting shelter and tend to return to the shelter quickly when they do exit. Researchers in other fields where utilization of services is measured by continuous units of time could likewise apply the methods employed here to study the characteristics of persons and the timing of admissions related to service utilization and termination.

Future research on homelessness should further refine the identification of subgroups of homeless persons by shelter utilization pattern. It is clear from studying these data that there exist classes of clients by shelter stay pattern, which can be hypothesized as: (a) the chronically homeless, characterized by very few episodes, but which may last as long as several years; (b) the episodically homeless, characterized by multiple stays over a long period of time, with increasingly shorter stays; and (c) the transitionally homeless, who have one or two stays within a relatively brief period of time, and for a short duration [for further discussion of related typologies of homelessness see Fischer and Breakey, 1986; Hopper, 1989; Jahiel, 1992; Koegel, 1987; Morse, 1986; Rossi, 1989; Snow and Anderson, 1987]. The relative size and characteristics of these groups need further exploration [see Kuhn and Culhane, 1998], and the present study has provided a starting point for that work.

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