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# Predictors Of Readmission In Shelters And Other Services Among Homeless Adults In Detroit

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# PREDICTORS OF READMISSION IN SHELTERS AND OTHER SERVICES AMONG HOMELESS ADULTS IN DETROIT

by

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## INTRODUCTION

Emergency shelters play a necessary role as the back end of the safety net in the institutional care for people who are homeless. There is a growing concern about the over-reliance on emergency shelters in the United States, and a realization that if emergency shelters are going to indeed act as a safety net, then it should be realized that this is a precarious safety net at best. Culhane & Metraux (2008) summarize this argument well when they state that the net of emergency shelters "hangs very low to the ground" (p. 11).

To date, the analysis of emergency shelter usage in Detroit has involved a solely descriptive interpretation (Homeless Action Network Detroit, 2014). Administrators have been left with questions about the patterns of usage and how those patterns might inform the practices of the emergency shelter agencies. Of particular concern is the issue of individuals who make use of emergency shelters in a chronic fashion. Research in other cities has shown that, for most individuals, emergency shelters act as a last resort, to be employed when all other options have been exhausted. For many individuals, their usage of emergency shelters is limited to one time period, and after that time period they have limited need for an emergency shelter (Culhane & Kuhn, 1998). For others, emergency shelters are used more frequently. This has left agency leaders, homeless advocates, and policy experts with a question: What is different about the people who continue to cycle in and out of emergency shelters from those who experience an episode of admission to an emergency shelter then no longer have need of the service? This project approaches this question by attempting to identify the characteristics that predict emergency shelter admissions, and to identify patterns of cycled use in and out of emergency shelters. This project is in partnership with the Homeless Action Network of Detroit (HAND) and it analyzes data collected over a five-year period on the use of emergency shelters throughout the Detroit Continuum of Care (CoC; includes the cities of Detroit, Highland Park,

and Hamtramck Michigan). We hope to examine trends in the utilization of emergency shelters that will inform agency leaders and help them design their programs to be most effective for the people that need them.

*History of Assessing Homelessness*

The history of conducting research on homelessness has progressed through various stages and schools of thought. In their review of the history of approaches to enumerating homeless people, (Culhane, Dejowski, Ibanez, Needham, & Macchia, 1994) explain that methods have improved from early approaches that simply extrapolated from surveys of key informants (Hombs, Snyder, & Non-violence, 1982) and using point-in-time (PIT) counts from the Department of Housing and Urban Development (Development, 1984). Throughout these early years, a dissatisfaction remained regarding the quality and validity of the prevalence data within the community of advocates, researchers, and agency officials (Culhane et al., 1994). An argument over the true prevalence of homelessness in the United States continued through the 1980s and 90s, with a large discrepancy existing between government agencies and others who produced counts, and the service providers' and advocates' intuition on what the actual number of homeless individuals might be (Toro & Warren, 1994). The PIT approach to counting homelessness continues today (HAND, 2014) though serious questions have been raised concerning its value (Culhane et al., 1994). It has been found that PIT estimates under-represent the percentage of urban populations staying in public shelters in New York City and Philadelphia (Culhane & Kuhn, 1998). The PIT methodology not only seems to under-report the number of homeless, but it also perpetuates a static analysis of homelessness.

*Homelessness Typologies*

Recent analysis of emergency shelter usage shows that homelessness is much more dynamic than has been assumed in earlier research. Kuhn and Culhane (1998) outlined three typologies of homeless individuals in an analysis of shelters in New York City and Philadelphia. Those three typologies were the *transitionally*, *episodically*, and *chronically* homeless. They found that transitionally homeless individuals, who had much shorter stays than most people in emergency shelters accounted for 80% of shelter users, were "younger, (and) less likely to have mental health, substance abuse, or medical problems" (Kuhn & Culhane, 1998, p. 207). This suggests that a clear majority of individuals who make use of shelters in New York City and Philadelphia are not the consistently homeless individuals we think of who are older, with mental health and substance abuse problems. Others have identified a similar three-group typology of homeless adults (e.g., Toro & Janisse, 2004, based on longitudinal data collected in Buffalo, NY).

*Impoverished vs. Homeless*

The findings by Kuhn and Culhane are similar to those found by Toro et al. (1995), in which comparisons among three groups were examined: (a) individuals who were economically impoverished and currently homeless, (b) those who were once-homeless (but not currently), and (c) very poor persons who had never been homeless. They found differences among the three groups. In particular, those who were currently homeless were more likely to have a substance use disorder, to have experienced domestic violence, and to express elevated levels of psychological distress compared to one or both of the other groups (Toro et al., 1995). The once-homeless category, similar to the transitionally homeless category of Kuhn and Culhane (1998), highlights important differences between individuals who are currently and chronically homeless

and those who have an episode, or brief episodes, of homelessness, and then recover and are no longer homeless.

*Economic Factors affecting Homelessness*

These findings fit with research conducted by Israel, Toro, and Ouelette (2010) who observed changes in the composition of homelessness based on macro-economic shifts. After a period of economic expansion, the composition of the homeless population was "older, spent more time living on the streets, had more health symptoms, and were more likely to have a diagnosis of schizophrenia" as compared to the general population (Israel, Toro, & Ouellette, 2010, p. 49). These studies set a context for the importance of a dynamic understanding of homelessness, one that understands that each individual who is experiencing homelessness is in motion, often moving in and out of homelessness, and that there are many factors which may influence the outcome of homelessness.

*Prediction of Recidivism in Prison settings*

Little research has analyzed re-admission in the context of homeless shelters. Work by Culhane and colleagues (Culhane, 1993; Culhane et al., 1994; Culhane & Kuhn, 1998) in cities in the northeastern United States comprises a majority of research on trends in emergency shelter utilization. For this reason a brief review of the related literature on re-admissions in prisons (termed recidivism) is presented, with important similarities and differences to re-admission in emergency shelters. The word recidivism was first employed in the criminal justice setting and has typically been defined in the context of criminal behavior. Merriam Webster defines recidivism as "a tendency to relapse into a previous condition or mode of behavior, *especially*: relapse into criminal behavior" (Merriam-Webster's online dictionary, n.d.). Imprisonment is a historical and cultural practice designed to deter people from committing crimes in the future and

to punish those who have already committed crimes. There is a great deal of disagreement over the effectiveness of imprisonment, with three main perspectives on its' impact (Meade, Steiner, Makarios, & Travis, 2012): (1) prison as a punitive measure which deters future offending, (2) prison as criminogenic, ultimately increasing offending [an argument similar to that found in research on public shelters in 1990 as well (Grunberg & Eagle, 1990)], and (3) prison having little to no impact on future offending (for a review see Meade et al., 2012). There are compelling arguments within each of these perspectives, but research so far has been mixed as to which is most accurate (Meade et al., 2012). What we do know is that the rate of recidivism in prisons, in the United States in particular, is very high. In 2005, the Bureau of Justice Statistics found that "an estimated 68% of 405,000 prisoners released in their 30 state sample were arrested for a new crime within three years of release from prison" (Statistics, 2014).

Of particular interest for the present study are the correlates of recidivism in prison populations. Meade et al. (2012) conducted a study of adult offenders in Ohio between December 2003 and October 2005. They sought to evaluate whether there was a relationship between time served in prison and recidivism. In the process, they discovered factors that were significantly related to the outcome of recidivism. Age, time served, being female, and having at least a high school diploma were negatively and significantly related to recidivism. Furthermore being a high risk or medium risk offender (measured with an additive static risk assessment comprised of indicators of offenders' criminal history, gang membership, and designation as a sex offender) or being sentenced for a property offense, were positively and significantly related to later recidivism (Meade et al., 2012). Meade and colleagues considered the mechanisms that might underlie these results. In this context they asked if the mechanism is deterrence or just

incapacitation and maturation; that is, individuals getting older and being in prison during the peak crime committing age.

This line of research on reoffending after imprisonment has important parallels to present research on homelessness and emergency shelter usage. There are obvious yet important differences between the outcomes of imprisonment and admission to an emergency shelter. Of particular importance is the distinction of morality; individuals may choose to enter an emergency shelter of their own volition and not as an imposed consequence for illegal or unsanctioned behavior. People are also free to leave an emergency shelter whenever they choose, and maintain their autonomy throughout their stay no matter its length. Along with these important differences there are also important similarities which can help us better understand both emergency shelter admissions, and imprisonment.

Meade and colleagues (2012) note that imprisonment reflects a consequence to a behavior chosen in a context of limited choices. They cite research by (Wooldredge, Griffin, & Rauschenberg, 2005) which uncovered a link between offenders' level of education and sentence severity, noting that offenders with higher levels of education may have more social capital. We would expect similar results in comparing the education level of individuals who are homeless. Individuals with more opportunity due to characteristics such as a high school diploma or further education, are theorized to have more choices and opportunities, and thus, ultimately will be less likely to be homeless in the future. We also expect less homelessness for individuals with better social ties and family support. The same variables which predict recidivism in a prison setting could predict re-admission in the context of emergency shelters. Some evidence of this has been found by Dennis Culhane in Philadelphia, New York City, and Washington, DC (Culhane &

Kuhn, 1998; Culhane & Lee, 1997; Kuhn & Culhane, 1998). This has important implications for a goal that prisons and emergency shelters share: i.e., to reduce repeated use of their services.

There is a healthy debate on the merits of factors such as sentence length on recidivism (e.g., Meade et al., 2012; (Snodgrass, Blokland, Haviland, Nieuwbeerta, & Nagin, 2011) and on ways to decrease recidivism happening in the criminal justice system. Baillargeon and colleagues (2010) provide an extensive review of the failure of the criminal justice system to meet the needs of the severely mentally ill (SMI) and the history of mental health services in prisons that led to the present condition. They also review criminal recidivism within the SMI population. Research they conducted in 2009 within the State of Texas prison system found that inmates with any of four major types of SMI (Major Depression Disorder, Bipolar Disorder, Schizophrenia, or a Non-Schizophrenic Psychotic Disorder) were far more likely to have a history of previous incarcerations than inmates without SMI (Baillargeon, Hoge, & Penn, 2010).

Researchers have begun to address important questions in the field of homelessness and emergency shelter usage. For example: Among the population of individuals using emergency shelters, who is at particular risk for re-admission in the future? What sorts of intervention and prevention approaches might be effective in reducing that risk and ultimately reducing the reliance on emergency shelters? The current study aims to add to this debate while focusing on emergency shelter utilization in Detroit Michigan.

## RESEARCH QUESTIONS AND HYPOTHESES

Through a thorough analysis of emergency shelter usage in the Detroit CoC, the proposed study hopes to help agency leaders, policy experts, academics, and others better understand the issue of homelessness and emergency shelter utilization. One question in particular is aimed at identifying characteristics that predict repeated admissions to an emergency shelter. Research in

other cities has indicated that individuals who are more chronically homeless are "older, non-white, and have higher levels of mental health, substance abuse, and medical problems" when compared to individuals who are only homeless for a short while (Kuhn & Culhane, 1998, p. 207). Do findings from a five-year period in Detroit follow the same trend? We predict that they will. More specifically, we hypothesize that the following will be associated with more admissions; being Male, Black or African American, disabled, having a negative reason for leaving a shelter, exiting to a less constructive living situation, being older, coming from a neighborhood with a lower median income, and coming from a neighborhood with a lower education attainment rate. We hope that our analysis will help us to better understand who is making use of emergency shelters in Detroit, for how long, and in what way. We hope that the findings of this study will inform the kinds of programs offered by emergency shelter agencies in Detroit with an eye towards matching the needs of the people of Detroit who are homeless or at risk of becoming so with services.

## METHOD

### *Data Sources*

Data for this study were retrieved from the Homeless Management Information System of Michigan (HMISM), which collects and maintains the records of all service providers in the state of Michigan that receive funding from the U.S. Department of Housing and Urban Development (HUD). Records from agencies specific to the Detroit CoC were isolated during the period of time starting January 2008 and ending December 2012. This time period begins at the outset of the severe economic recession induced by the national housing-crisis and continued for several years during the aftermath of the recession. All records pertain to admission information gathered when individuals entered an emergency shelter and information gathered when individuals left that shelter. At entry, pertinent demographic information was gathered, including an individual's age, gender, and primary race, as well as various components of their current life situation (e.g., disability status). Information entered when the individual exited a shelter included an individual's reason for leaving and their intended destination upon leaving.

In total 32,279 unique client identification numbers (IDs) were included in the initial database. Those individuals produced 63,806 admissions to emergency shelters to 21 agency entry points in the Detroit CoC from January 1st, 2008 through December 31st, 2012. Data were all collected at emergency shelter entry points across the Detroit CoC and analyzed retroactively and anonymously (i.e., without attached names or other identifying information).

### *Data Analysis*

Data were screened for missing values for each participant at every admission. A problem among HMISM data exists in that information is often incomplete. Some key decisions were made in order to account for this problem in the analysis. First, cases with missing data on the

variables of Age, Gender, and Race were not included in the sample. This decision was made with the idea that these individuals are not part of the sample of interest. We hope to find out information about the individuals who have accurate data entered into the HMISM system. This brought the number of cases from 32,279 to 28,976. The remaining missing data is considered important for the research question at hand, differences in readmission outcomes amongst individuals with missing data compared to those with no missing data may provide information for HMISM administrators who advise intake specialists at agencies. In the regression analysis we treated all additional missing values as a special category. In our analysis when we created categories this category was left out of the analysis to avoid multicollinearity. For continuous variables such as Age and those based on zip codes (i.e.; Median Income and Education Attainment), missing cases were dropped. This brought the number of cases from 28,976 to 25,073. The variable of interest being predicted in this analysis was the number of admissions for each individual to emergency shelters in the Detroit CoC within a five year period (2008-2012). Because this variable is skewed with large numbers of zeroes and/or low admission counts and few high values, the analysis was conducted using the Poisson Distribution (Gagnon, Doron-LaMarca, Bell, O'Farrell, & Taft, 2008).

*Variables*

All variables in the dataset were entered by intake specialists at emergency shelters in the Detroit CoC during the identified time period (2008-2012). Intake specialists follow a standard interview process developed by the Homeless Action Network of Detroit and enter information into the HMISM system directly. All of this information is based on individual's self report or intake specialists report on an individual's status (e.g.; did someone have a positive reason for leaving a shelter). The following are variables included in the analysis.

Time in System (TIS): This variable is a calculation of the number of days between each person's first entry in the dataset and the end time point of the dataset (January 1 2013). There was no missing data on this variable.

Age: This variable is a calculation of each person's age at their first entry into the dataset (i.e.; date of first entry minus date of birth). Individuals missing Age, Gender, and Race were not included in the sample as described above. After removal of these cases the number of missing cases dropped dramatically and there was not a significant difference in outcomes on the dependent variable for missing and non-missing cases. Any remaining missing cases were dropped to maintain the suitability of the analysis.

Gender: This variable includes 'Male' and 'Female'. After removal of cases missing Age, Gender, and Race the number of missing cases for Gender dropped to 281 (1.1%). The remaining missing cases of Gender were treated as a category in the regression analysis.

Race: This variable originally included nine different primary race classifications but was consolidated into three categories because of the small percentage in most categories. The three remaining categories were 'Black or African American', 'White or Other', and 'Missing'.

Disability: This variable was classified into four categories; 'Disability', 'NoDisability', 'Refused', and 'Missing'.

Median Income (MedInc): This variable describes the median income of the zip code that individuals report as their last known address. Each zip code in the dataset was matched to the 2012 Census: American Community Survey (US Census Bureau, 2012) to identify the median income for that zip code.

Education Attainment (EduAtt): This variable describes the education attainment of people in the zip code that individuals reported as their last known address. Each zip code was matched to the 2012 Census: American Community Survey (US Census Bureau, 2012).

Reason Leaving (ReLeav): This variable is categorized to describe whether an individual's reason for leaving an emergency shelter was positive or negative. Examples of positive reasons for leaving include; 'Achieved objectives' or 'Completed program', negative examples include; 'Criminal activity / violence', 'Non-Compliance with Program', or 'Termination through non participation / no shows'. Missing data was considered a category in the analysis.

Positive Placement (PosPla): This variable is categorized to describe whether an individual's exit destination from an emergency shelter is positive or negative. Examples of positive placements include; 'Rental by client (with or without subsidy)', 'Transitional housing for homeless persons', or 'Permanent supportive housing'. Negative placements include; 'Jail, prison, or juvenile detention', 'Place not meant for habitation', or 'Emergency shelter'. Missing data for this variable was also considered a category in the analysis.

## RESULTS

### *Descriptive Data*

Tables 1 and 2 provide basic descriptive characteristics of clients included in the five-year HMISM dataset used (N = 25,073 unique clients). As expected the overall picture of the population is predominately Male (64.1%) and Black or African American (89.1%). The average number of admissions during the five year time period of interest (2008-2013) was 2.54 (SD = 4.68). A clear majority of individuals had only one admission (61.5%). The variable 'admissions' had a sharp positive skew with an increasingly smaller percentage of individuals having two admission (17.7%) and even less having three (7%). In order to maintain the stability of the dependent variable the data was truncated as shown in Table 1. Individuals with five or six admissions were combined as were individuals with seven, eight, and nine admissions. This pattern was used with progressively larger categories while maintaining the shape of the Poisson distribution (as seen in Figure 1). The final category contained individuals with 41 or more admissions, this category contained 0.3% of the individuals (n = 74). The average age of individuals in the sample was 35.23 (SD = 17.53). The large standard deviation reflects the pattern of data for age shown in Figure 2. Three spikes are noticeable in the histogram reflecting children, young adults, and older adults. A quick look at the breakdown for males and females (Figures 3 and 4) reveals females making up more of the peaks for young adults and children and less of the peak for older adults which is predominately males. Other categorical data includes an individuals' reason for leaving the emergency shelter 'Reason Leaving' which is defined as either positive or negative, 46% of cases were designated with a positive reason for leaving, 53.5% were designated as negative. Another variable includes whether an individual is moving on to a positive housing placement, 54.7% were designated as moving on to a positive housing

placement, 45.1% were designated as moving to a negative placement. A final demographic variable is whether an individual has a disability, this is categorized as ‘yes’, ‘no’, or ‘don't’ know’. 68.9% of individuals responded ‘no’, 23.7% said ‘yes’, and 6.2% said ‘don’t know’.

*Census Matched Data*

At intake to emergency shelters in the Detroit Continuum of Care individuals are asked to provide their last known address. This information is entered into the HMIS database as the zip code of the address. For this sample zip code information was matched to the 2012 American Community Survey Economic Statistics (US Census Bureau, 2012). In particular the median income of the zip code an individual listed as their previous address at their first admission to an emergency shelter in our designated time frame was matched, as well as the percent unemployment and educational attainment of the zip code. The average median income for the sample was $27,212 (*SD* = 11,822) and the average percent of high school attainment was 78.5% (*SD* = 9.96).

*Days in System*

Finally, by considering the first entry individuals had to an emergency shelter during the designated time frame we were able to calculate the number of days of opportunity they had for admissions. This is important for our analysis because within our designated time frame of 2008 to 2012 there is likely variability in years of opportunity for admissions. For example, an individual who first experienced homelessness in 2008 will have more years of opportunity to rack up admissions to emergency shelters than an individual who first experienced homelessness in 2011. The average number of ‘days in system’ was 967.22 (*SD* = 591.73). This variable was used primarily as a covariate in analysis to ensure that any effects were above and beyond having more days opportunity for admissions.

*Hierarchical Regression*

Hierarchical Regression was conducted with the dependent variable 'admissions' truncated as seen in Table 1. Results can also be found in Table 3. There were $N$ = 25,073 individuals in the sample after removal of cases as outlined in Figure 4. Time in system (TIS) was used as a covariate in order to control for the effect of variability in the amount of time individuals could have been admitted to an emergency shelter. The analysis indicates a significant model ($p < .001$) with 'TIS' positively predicting admissions (b = .001). This effect is very small with an exponential $b$ of 1.000, yet it is positive and significant at $p < .001$. Next 'age' was added to the model, that model was significant at $p < .001$ with ($b = .011$, $p < .001$). This indicates age positively and significantly predicts admissions above and beyond the time in system individuals have. Next 'gender' was added to the model, the model was again significant at $p < .001$ with Gender 1 (male) not significantly predicting admissions ($b = .153$, $p = .123$) but Gender 2 (female) negatively predicting admissions ($b = -.259$, $p = .009$). 'Race' was next added to the model, this model was significant at $p < .001$ with Race 2 (white and other race) negatively predicting admissions ($b = -.179$, $p < .001$) and Race 1 (black or African American) not predicting admissions ($b = .036$, $p = .216$). 'Disability' was added producing a significant model at $p < .001$, where Disability 1 (disabled) positively predicted admissions ($b = .124$, $p = .007$), as did Disability 3 (don't know) ($b = .245$, $p < .001$). Disability 2 (not disabled) was not significant ($b = .018$, $p = .687$). Next 'Median Income' was added to the model. This produced a significant model at $p < .001$ where the effect of median income was very small, yet negative and significant ($b = -4.89E-6$, $p < .001$). Education attainment ('per_HS') was added next with a significant model at $p < .001$ with a non-significant effect ($b = .000$, $p = .796$). 'Reason Leaving' was added next to produce a significant model at $p < .001$, where a positive reason for leaving (Reason

Leaving 1) was not significant ($b$ = -0.57, $p$ = .436) but a negative reason for leaving (Reason Leaving 2) was significant and in the positive direction ($b$ = .285, $p$ < .001). Positive reasons for leaving a shelter as determined for this sample include; 'achieved objectives', 'client terminated by choice', and 'left for housing opportunity'. Negative reasons for leaving include; 'criminal activity / violence', 'disagreement with rules / persons', and 'termination through non participation / no shows'. Finally 'Type of Placement' was added to produce a significant model at $p$ < .001, where both a positive placement (PosPlacement 1) and a negative placement (PosPlacement 2) were found to be not significant ($b$ = -.070, $p$ = .670) and ($b$ = .170, $p$ = .302) respectively.

*Post-Hoc Analysis*

In order to fully explore the predictors identified in the hierarchical regression a *post-hoc* analysis was conducted examining variables further. First the number of admissions in the dataset was placed in context. For all cases ($N$ = 25073) the mean number of admissions is 2.54 ($SD$ = 4.68, Median = 1), 61.5% of those have one admission, 13.8% have four or more, and 10.1% have five or more. Next, if we begin to select for variables from the regression that we find predict more admissions we see these figures change. Of those who are male and Black or African American ($n$ = 14156) the mean number of admissions is 3.27 ($SD$ = 5.8, Median = 1), 53.9% have one admission. When we also select those who are older (Age > 40) ($n$ = 7918) the mean number of admissions jumps to 3.88 ($SD$ = 6.59, Median = 2) and 46.8% have one admission, as we continue to add filters for variables we found predict more admissions, we end up with individuals who are Black, older than 40, had a negative reason for leaving, and came from a zip code with a median income below 20,707 (the 25$^{th}$ percentile of our sample). This sample ($n$ = 2001) has a mean number of admissions of 5.57 ($SD$ = 8.68) a meaningful jump

from the 2.54 average found in the entire sample. Of this ‘high risk’ group 34% have one admission as opposed to 61.5% in the whole sample, and 30.5% have five or more admissions (compared to 10.1% in the whole sample).

## DISCUSSION

The examination of data for this project afforded another opportunity to think critically about the collection of information pertaining to homelessness. As is often the case historically when people were attempting to understand something, in this case 'homelessness', they started by trying to measure it, (i.e. how many people are homeless). This effort has progressed through various stages of sophistication, from what amounts to good guesses (key informants) to surveys and point-in-time counts. In today's world the effort has shifted to new technology and the realm of 'big data'. The hope of large scale systems for measuring homelessness is that with big data will come inspired solutions and efficiencies policy leaders, government officials, and on the ground advocates have not come up with yet (or perhaps that this new effort will confirm what people think works best). In the midst of this effort it is important to consider underlying assumptions that we bring to the large amounts of data. Large amounts of data used incorrectly or not carefully have a risk of leading to very robust and very wrong conclusions. With that in mind the following are presented as lessons learned through examining this large dataset.

*A strong majority of people make use of an emergency shelter just once*

As has been shown in other studies (Culhane & Kuhn, 1998; Culhane, Lee, & Wachter, 1996), the perception that homeless individuals are mostly chronically homeless people who continually make use of shelters is not supported by a review of this dataset. The number of admissions individuals rack up even over a five year time frame is mostly just one. Most people make use of an emergency shelter once and never again. Why is this? It is hypothesized that admission to an emergency shelter represents a string of failed attempts to avoid becoming homeless, an absolute last resort after all other options have been exhausted. Most people are able to avoid prolonged periods of homelessness.

*Those who have more than one admission accumulate a majority of the admissions*

Individuals with two or more admissions accounted for 76% of the sum of admissions in the five year time span (*n* = 48,398). People with one or more admissions produced 15,408 admissions in the five year time span (24% of the sum). So while *most people* just have one admission, all of the admissions from people with more than one far outweigh the admissions from people with just one (15,408 vs. 48,398). This may be behind the prevailing notion that most people who are in emergency shelters are 'chronically homeless' and make use of shelters routinely. People who work or volunteer at an emergency shelter continuously are likely to see the repeat users time and time again and paint a picture as the 'average homeless person' as someone who is chronically homeless. They miss the one time user of an emergency shelter because, of course, they were only there once. Obviously if we take each admission to an emergency shelter as an outcome we are trying to prevent, people in the two or more category account for most of those admissions. But if we consider each *individual* and whether they experience homelessness or not, a majority have only one admission to an emergency shelter. This distinction is important for policy makers and agency leaders alike.

*People who have more admissions to emergency shelter*

Because most people make use of an emergency shelter once there is a natural curiosity about people who make use of an emergency shelter more than once, or much more than once. We set out to better understand who these people are and try to answer the question; 'what makes them different?'. In many ways we had solid predictions about what we would find, that individuals who use shelters more are older, Black or African American, disabled, come from places with lower economic opportunity and lower education attainment, and have worse exit experiences with emergency shelters. We went about analyzing this question through a

hierarchical regression using a poisson distribution. The results indicate that being younger, female, and white or another race other than black predicts less admissions. Having a disability or a negative reason for leaving an emergency shelter (excused for violent behavior, time ran out, etc.) predicts more admissions. Coming from a place with a higher median income is associated with less admissions. These predicting factors are important in that they help us understand who may be at risk to become a chronic user of emergency shelters, but of course they are not perfect predictions. We should not use this information alone to identify who *may become* chronically homeless. There are likely too many random variables in people's lives (e.g.; a car accident, getting laid off of work) that push people into chronic homelessness for us to predict outcomes with certainty just based on these demographic factors. However, when we look at our data in a different way using our predictors we see how these variables reflect higher risk. A *post-hoc* analysis revealed surprising results. We expected that people we designated as 'high risk' based on the regression we analyzed would still be more likely to have just one admission. However, individuals designated as 'high risk' were found to have an average of 5.57 admissions ($SD$ = 8.68) compared to the average of 2.54 ($SD$ = 4.68) for the entire sample, and to be more likely to have two or more admissions than just one. This secondary analysis taken together with the main analysis described above indicates that at intake, individuals who are male, black, older, and come from a neighborhood with less economic opportunity are more likely to experience continued use of emergency shelters. When we try to look at what our regression analysis indicates would be people who are *least likely* to experience more than one admission, we find that first of all there are not many of these people out there. People who are female, a race other than black, younger than 40, come from a zip code with a median income greater than 20,707, and had positive exit experience from shelter add up to $n$ = 201, which is .008% of the sample.

However, of these 201 people, 83.1% have one admission and the highest number of admissions is four. There are clear limitations to this data as will be outlined in the next section, but it seems clear that these variables really do predict the outcome of admissions to emergency shelters.

*Limitations*

This project began with inherent limitations based on the challenging task of measuring homelessness. The Homeless Management Information System in Detroit is managed by a small dedicated staff who work tirelessly to educate agencies about best practices for data entry and management. There is a reality that this system relies on the entry of data at 21 entry points across the cities of Detroit, Hamtramck, and Highland Park Michigan. While data quality has improved over the years through the combined efforts of staff at HAND and agencies the data can ultimately be described as 'sloppy'. In the initial stages of combing through the HMIS dataset problems of missing data were abundant in variables that could have been of particular interest to the research. We had to make careful decisions around balancing the fidelity of the data and our desire to examine patterns of shelter use for people with relatively complete data. There is far too much noise amongst the 21 entry points and thousands of caseworkers entering that data to make predictions about why data is missing. There is also the limitation of relatively small effects for some of the predicted variables. With a healthy sample size of $N$ = 25025 significant findings were not hard to come by, but effect sizes for multiple variables were essentially null (e.g.; an exponential *b* of 1.000).

*Future Directions*

Underlying this research study was an assumption that people who make use of shelters in a chronic fashion are a key problem to be solved in the effort to end homelessness. For service providers, advocates, and policy experts individuals who are 'chronically homeless' seem to be a

tough nut to crack. These individuals seem to have the worst circumstances and be the most disadvantaged even in a population of people who are homeless. There continued use reflects a costly expense for taxpayers, and above all the human suffering of being homeless for a prolonged period of time, sometimes decades, is heartbreaking. This analysis highlights the importance of transitionally homeless and episodically homeless individuals also. If we think about reducing emergency shelter admissions there is an important distinction of the *sum* of admissions and the number of people with an admission. Our analysis revealed that 15,048 people had one admission whereas 9,977 people had more than one admission. However there exists a kind of power rule in that the number of *admissions* to emergency shelters is disproportionately made up of a small portion of people. The rule is roughly 5:50, meaning that five percent of the sample accounts for 50 percent of the admissions. To be exact, people with more than five admissions make up eight percent of the population in our time frame and account for 47.82% of the admissions in that time frame. More careful analysis like this needs to be conducted in the particulars of this data to inform tough decisions community leaders need to make in the context of their limited resources. It is hoped that this research and research like it will be used to maximize resources and efforts in order to produce the greatest possible reduction in homelessness in the quickest possible time frame.

Table 1.

| Subject Characteristic | % (n) |
|---|---|
| Gender | |
| Female | 35.7 (8949) |
| Male | 64.1 (16076) |
| Race | |
| American Indian | 0.4 (106) |
| Asian | 0.4 (105) |
| Black or African American | 89.1 (22349) |
| Don't Know | 0.2 (52) |
| Native Hawaiian | 0.2 (38) |
| Other | 0.9 (216) |
| Other Multi-Racial | 0.2 (54) |
| Refused | 0.1 (20) |
| White | 8.4 (2112) |
| Disability | |
| No | 68.9 (17279) |
| Yes | 23.7 (5940) |
| Don't Know | 6.2 (1554) |
| Reason Leaving Shelter | |
| Positive | 53.5 (13426) |
| Negative | 46.0 (11529) |
| Positive Housing Placement | |
| Yes | 54.7 (13724) |
| No | 45.1 (11317) |
| Admissions | |
| 1 | 61.5 (15408) |
| 2 | 17.7 (4434) |
| 3 | 7.0 (1766) |
| 4 | 3.7 (930) |
| 5-6 | 3.5 (878) |
| 7-9 | 2.5 (627) |
| 10-15 | 2.0 (498) |
| 16-25 | 1.2 (298) |
| 26-40 | 0.6 (160) |
| 41+ | 0.3 (74) |

[a]*May not sum to 100% due to missing data*

1) Includes institutions such as adult foster care, foster care group home, psychiatric hospital, or substance abuse treatment facility

Table 2

| Subject Characteristic | *M* (*SD*) |
|---|---|
| Age | 35.23 (17.53) |
| Days in System | 967.22 (591.73) |
| [1]Median Income | 27212 (11822) |
| [2]Percent High School Completion | 78.5 (9.96) |
| Admissions | 2.54 (4.68) |

1) Pertains to the median income of the zip code subjects identify as last known address, data gathered from 2012 American Community Survey, US Census.

2) Pertains to the percent unemployed of the zip code subjects identify as last known address, data gathered from 2012 American Community Survey, US Census.

Table 3

| Subject Characteristic | b | Std. Error | Exp(B) |
|---|---|---|---|
| TIS | .000*** | .0000075 | 1.000 |
| Age | .011*** | .0003 | 1.011 |
| Gender1 (male) | .153 | .0993 | 1.165 |
| Gender2 (female) | -.259** | .0995 | .772 |
| Race1 (black or AA) | .036 | .0293 | 1.037 |
| Race2 (white or other) | -.179*** | .0335 | .836 |
| Disability1 (disabled) | .124** | .0455 | 1.132 |
| Disability2 (not disabled) | .018 | .0450 | 1.018 |
| Disability3 (refused / don't know) | .245*** | .0472 | 1.278 |
| Median Income | -.00005*** | .0000004 | 1.000 |
| Percent Completed High School | .000 | .0005 | 1.000 |
| Reason Leaving1 (positive) | -.057 | .0728 | .945 |
| Reason Leaving2 (negative) | .285*** | .0726 | 1.330 |
| Positive Placement1 (positive) | -.070 | .1651 | .932 |
| Positive Placement2 (negative) | .171 | .1648 | 1.186 |

* p< .05

** p< .01

*** p<.001

Figure 1

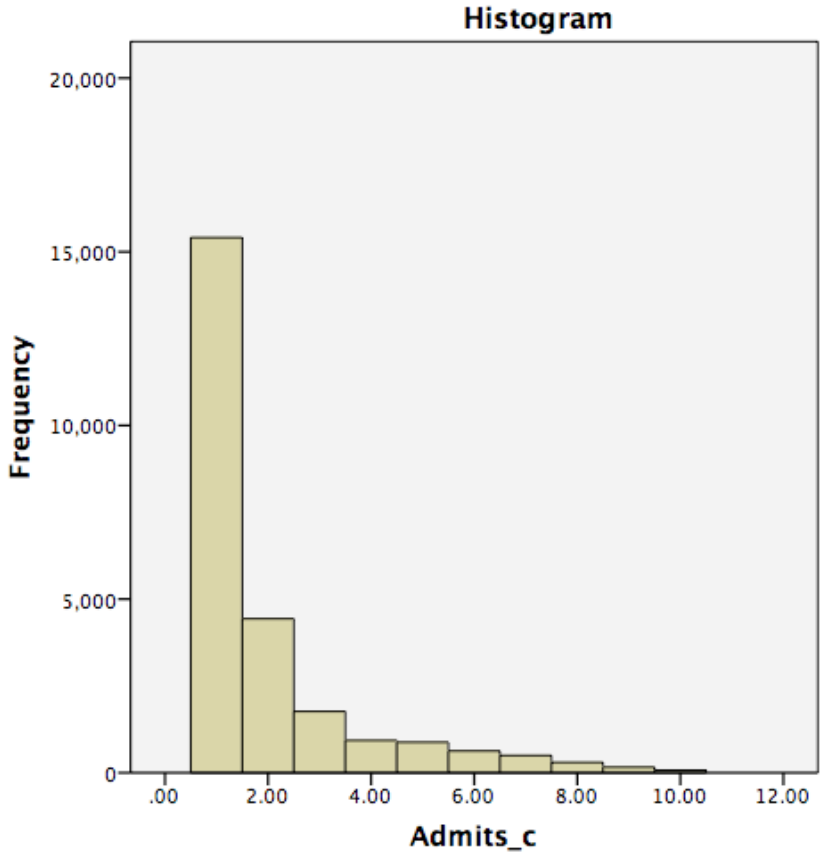

Histogram
Frequency
20,000
15,000
10,000
5,000
0
.00
2.00
4.00
6.00
8.00
10.00
12.00
Admits_c

Figure 2 – Age, all participants

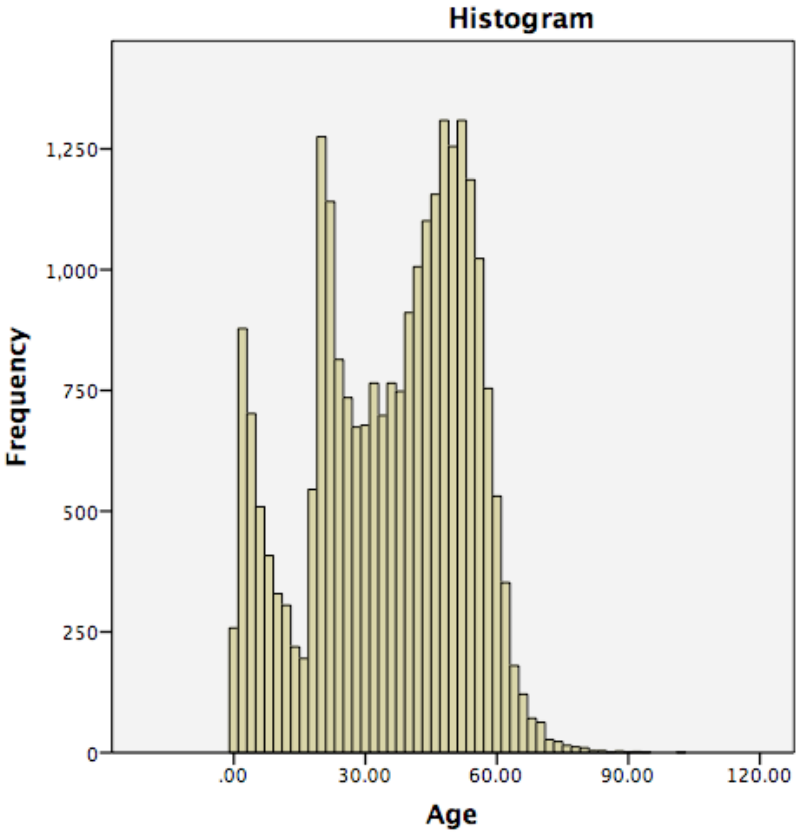


Figure 3 – Age, male participants

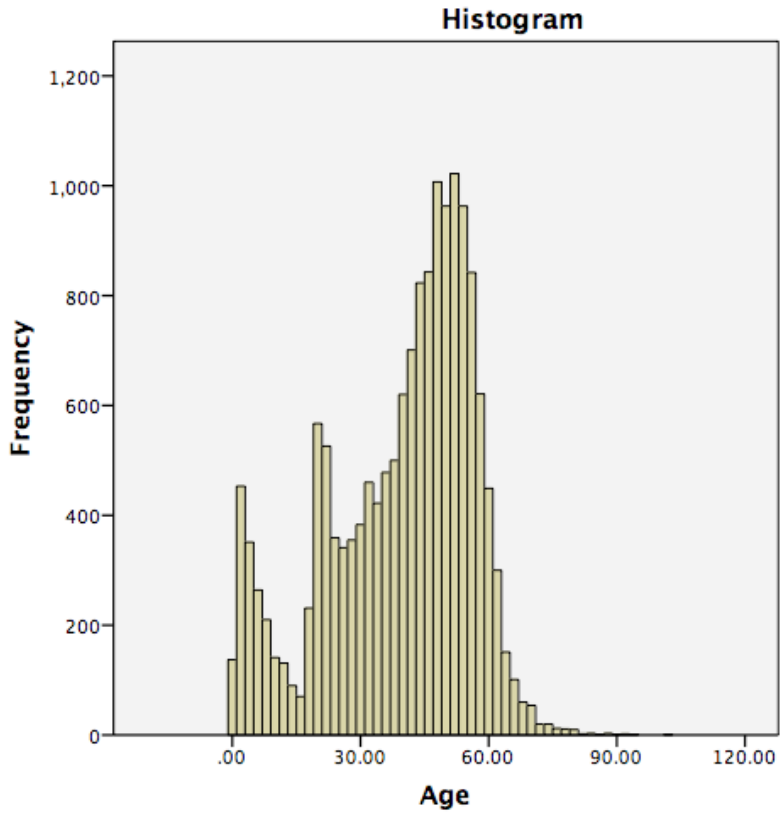
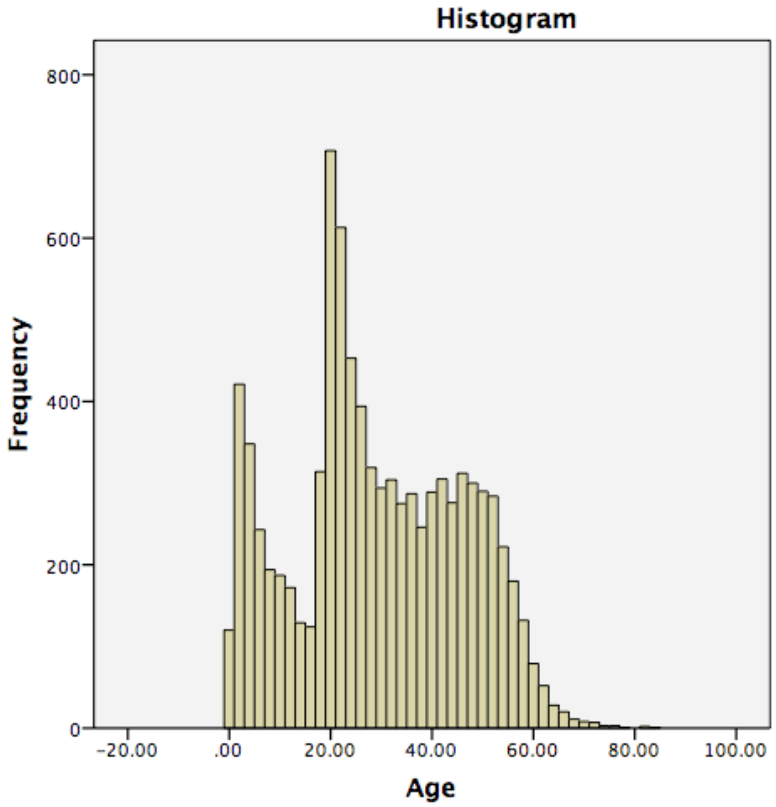


Figure 4 – (breakdown age, females)



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# ABSTRACT


**PREDICTORS OF READMISSION IN SHELTERS AND OTHER SERVICES AMONG HOMELESS ADULTS IN DETROIT**

by

**DEVIN HANSON**

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**Advisor:** Dr. Paul Toro

**Major:** Psychology (Clinical)

**Degree:** Master of Arts

Admission to an emergency shelter reflects an important outcome in a person's life, and many admissions to an emergency shelter reflects a human and financial cost. This article discusses the evolution of the measurement and understanding of homelessness. It looks at characteristics of people who make use of shelter in a chronic fashion to better understand what might predict risk for future continued use. This includes an analysis of a large dataset of emergency shelter utilization in Detroit Michigan collected between 2008 and 2012. Analysis reveals that fundamental demographic information, individual's interactions with the shelter system (good or bad), and affluence and education attainment meaningfully predict readmissions to emergency shelters.

## AUTOBIOGRAPHICAL STATEMENT

Devin Hanson is a third-year doctoral student in the Clinical Psychology program at Wayne State University. Devin received his Bachelors of Science from North Dakota State University, and before beginning graduate school worked as a caseworker in homeless social service agency in Detroit. At present, his clinical work involves psychotherapy with people who are severely mentally ill and housed in supportive housing programs at a community mental health agency in Detroit, Michigan.