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Study of Stress, Housing Program Use, and Nursing Usage Among Homeless in Chicago

Henry Christian Cheung
Loyola University Chicago

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LOYOLA UNIVERSITY CHICAGO

STUDY OF STRESS, HOUSING PROGRAM USE, AND NURSING USAGE AMONG
HOMELESS IN CHICAGO

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

PROGRAM IN NURSING

BY

HENRY CHRISTIAN CHEUNG

CHICAGO, ILLINOIS

MAY 2011

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In memory of my mother Alice Marie Cheung and my grandmothers
Cheung Wong Yuen Jing and Velma Laura Ehlerding

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ABSTRACT

Homelessness places people at risk of stressors that translate into stress and subsequently affect their health. Using Neuman Systems Model as a framework to identify modalities for nursing intervention among stressors and health problems of homeless people, this study compared stress levels among homeless people from three different homeless housing program types, investigated variables that predict the presence of stress among homeless, identified the degree of self-reported contact homeless people had with nurses, and measured to what extent nurses are preferred as health care providers by homeless people. This was accomplished through a cross-sectional, secondary data analysis of data from the evaluation study for the Chicago Plan to End Homelessness. Instruments utilized included the Perceived Stress Scale (PSS) and BPTSD-6. The sample size was 398 participants aged 18 years or older who were English speaking and clients of a homeless housing program in Chicago. The data was analyzed using ANOVA, multiple regression, odds ratios, and chi-square tests. The results of the study suggested that there were no differences in stress between participants of housing program types, and the variables prompting further assessment of stress in homeless patients included living with an adult child, availability of family and friends, psychiatric problem perception and burden, and PTSD. The results of the study also suggested that nurses were second to physicians in being seen as well as preferred by homeless participants.

CHAPTER ONE

INTRODUCTION

Problem Background

With all of humanity's advances in technology and social contract, it is difficult to understand why we have been unable to keep all people consistently sheltered. At first glance, ending homelessness should be as simple as providing everyone with housing space, but as history has demonstrated, reversing the problem of homelessness is not that simple. Homelessness is a complex phenomenon with multiple causes and numerous effects. Even in those cases where housing is provided, the mere provision of housing does not solve the problems experienced by homeless people.

The complexity of a homeless person's experience can be described by their encounter with multiple physical, psychological, and emotional stressors. Being homeless puts people at risk for multiple stressors. The interactions with these stressors constitute the homeless person's experience of stress. From a health standpoint, stress takes a toll on the body and mind such that high levels of stress may hinder physical and mental wellbeing. Therefore, risk factors associated with homelessness become risk factors for stress. For example, if a person is healthy, has adequate income, is debt-free, and owns a home, his or her risk of homelessness remains small and unrealized; this limits his or her stress as it relates to housing. However, when the person is poor and cannot pay rent, he or she is often at risk for homelessness. If housing is provided for the

person, the risk of homelessness should decrease, and thus, the risk of stress should decrease. However, housing programs in Chicago, Illinois, have a range in the degree of services they provide. For example, emergency shelters provide basic sheltering services while permanent/supportive housing programs provide the most sheltering services plus supportive services. Intuitively, an inverse gradation in the risk of homelessness and stress is expected to correspond with the gradation in housing programs.

Health problems constitute one of the prominent risk factors for homelessness. An increase in health problems suggests an increase in the risk of homelessness and subsequently stress. Specifically, studies have reported prevalence of upper respiratory infections, seizure disorders, foot problems, hypertension, arthritis, COPD, PVD, GI issues, neurological problems, eye problems, ear problems, diminished oral health, TB, HIV and AIDS, hepatitis, trauma, skin problems, alcohol abuse, drug abuse, and multiple psychological disorders among the homeless population (Burt & Cohen, 1989; Hwang, 2001; Levinson & Ross, 2007; Urban Institute, 1999; Wright, Rubin, & Devine, 1998). Regarding the stress of homeless people that relates to the development or existence of health problems, nurses may intervene with patients early by identifying risk factors of homelessness. Given the relationship between homelessness and stress, it becomes prudent for nurses to recognize the stress of the homeless population and address their unique stressors. In order to further enable nurses to meet homeless people's needs regarding stress, this study seeks to (a) explore the stress levels of homeless people in three types of housing programs, (b) identify variables that predict stress in homeless people, (c) identify the likelihood of a homeless person self-reporting that he or she has

had contact with a nurse, and (d) identify to what extent nurses are preferred as health care providers by homeless people.

Significance of Problem

In 2005, the U.S. Department of Housing and Urban Development (HUD) reported that 754,000 people were homeless (2007, HUD No. 07-020). This is similar to the year 2000 estimate in which the estimate of daily homelessness in the United States ranged from 444,000 to 850,000 people; approximately 15,000 of this estimate were people living in Chicago, Illinois (Kasindorf, 2005; Morgan, 2002; Swanson, 2005). Each year, approximately 166,000 Chicago residents experience homelessness (University of Illinois at Chicago, 1999). Another census in 2005 estimated that 25% of homeless people were chronically homeless (Kasindorf, 2005). This number seems to be consistent with the 2006 HUD estimate of 155,623 chronically homeless people in the U.S. (HUD, 2007, HUD No. 07-167). Overall, the data suggests although the size of the size of the homeless population has not decreased, the growth of supportive housing has helped to decrease chronic homelessness. However, the risk factors, which increase the likelihood of becoming homeless and subsequently promoting stress, persist (Bassuk, 1993; Koegel & Burnam, 1987; Nyamathi, Stein, & Bayley, 2000).

There are several ways nurses can address the homeless problem in the United States. When a nurse manages the care of homeless patients, he or she has the opportunity to identify risk factors for homelessness experienced by the patient and suggest appropriate interventions. If nurses recognize the magnitude and types of stress inherent among homeless people, they can address the source of the stress, design

interventions that will subsequently decrease physical and psychological health problems, and decrease the likelihood that the patient will become or will remain homeless.

Furthermore, if nurses can identify the interventions specific to types of homeless programs and health services already in place that are successful then they will be able to make evidence-based recommendations for standards of practice in the treatment of the homeless or those at risk for homelessness. This may include designing programs, policies, services, and other interventions that identify risk factors of homelessness, lower stress, support compliance, allocate funding for nursing education at effective treatment locations, and enable nurses to be better advocates and health care providers of the homeless by identifying programs and locations where nurses have effective access to the population.

Purpose of Study

The purpose of the study is to compare stress levels among homeless people from three different types of housing programs for the homeless, investigate the variables that may predict the presence of stress in the homeless, identify the degree of self-reported contact homeless people have with nurses, and measure to what extent nurses are preferred as health care providers by homeless people.

Enumerated tabulation of research questions and hypotheses

1. What is the difference in stress levels among the homeless in three different types of housing programs: emergency shelters, interim/transitional housing, and permanent/supportive housing?

Hypotheses:

- Homeless people using permanent housing programs have less stress than homeless people using interim housing programs.
- Homeless people using interim housing programs have less stress than homeless people using emergency shelter programs.
- Homeless people using emergency programs have the highest levels of stress.

Sub-hypothesis:

- Homeless people using permanent housing programs have less stress than homeless people using interim housing programs or emergency programs.

2. What variables predict increased stress levels among the homeless?

Hypotheses:

- Homeless people with a chronic illness or diagnosed disability have greater stress than homeless people without a chronic illness or diagnosed disability.
- Homeless people with access to health care have less stress than homeless people with no access to health care.

3. How likely are the homeless to report seeing a nurse?

4. How likely are the homeless to trust and prefer nurses as health care providers?

CHAPTER TWO

LITERATURE REVIEW

Conceptual Framework: Neuman Systems Model

Appropriateness as framework

The Neuman systems model (NSM) (Neuman, 2002) serves as the framework for this investigation (See figure 1 on page 12). As Neuman suggests, nurses have the ability to identify patterns of homeless health behavior and predict how they will respond to stressors and interventions. This relationship between nursing skill and stressors provides a basis for understanding how stress may occur in homeless people, where nurses may intervene to decrease or prevent stress, and where research on homeless stress from a nursing perspective should focus.

Specifically, NSM depicts the person as a system that interacts with stressors and attempts to adapt to them. Stressors refer to “tension producing stimuli with the potential for causing system instability” (Neuman, 2002, p. 21). For example, the loss of employment places strain on income and the ability to pay rent. A physiological example would be the introduction of bacteria to the lungs resulting in pneumonia which places strain on the ability of the lungs to intake oxygen. Nurses identify the stressors that disrupt the stability of the system and attempt to limit the stressors’ further effect on the system by either removing the source of the stressors or helping the person adapt to them. According to Neuman, the goal of nursing is wellness, which is the obtainment of system

stability. In practice, the process to achieve wellness requires the identification of stressors by health care providers and patients. For example, when a nurse identifies that a patient is both homeless without social support and suffering from chronic arthritis, the nurse draws information from multiple dimensions of the patient's circumstances. This comprehensive understanding of the patient's problems delineates the areas of system instability and enables the nurse to direct interventions. Furthermore, wellness in NSM entails the combination of factors that enable the adaptation to stressors and support system stability. For example, in developing interventions for the homeless post-op patient, the nurse identifies not only the stressor of having no place to recover but also the circumstances of the stressor that enable adaptation. This may include the patient's eligibility for public aid, the availability of social support by a friend or family member with extra living space, or the limited amount of time needed to recover. These factors help to identify solutions for adapting to the stressor. Hence, it becomes important for nursing to identify those risk factors, or variables, that are primarily associated with increased or decreased stress in the homeless in order to efficiently support adaptation.

Variable classification

The NSM also provides a classification for variables. This includes both underlying characteristics and stressors. Neuman uses De Chardin's (1955) classification of characteristics to describe *underlying variables* that influence the organization or utilization of resources. The categories are physiological, sociocultural, psychological, developmental, and spiritual. These categories derive from Gestalt theory, which envisions a continuously changing field that surrounds the system and seeks stability

through adaptive adjustments. The underlying variables determine how well the system is able to make the adaptive adjustments. Within the NSM, each level of the field contains a conglomerate of variables that interact with each other and effect how the system responds to stressors. The underlying variables describe the probability of either adapting to stressors or having defenses broken by the stressors. Stressors are then events that test the defenses of the person.

The NSM categorizes stressors according to their proximity to the person. The stressor with the closest proximity is intrapersonal. Intrapersonal stressors are the internally derived forces of the person. They consist of the body's physical and psychological reactions to a situation, i.e. the fight or flight response, salivating at the smell of food, or becoming upset over a loss.

The other two types of stressors derive from external forces. Specifically, interpersonal stressors refer to the externally derived forces within close range of the person. They include direct social interactions and conflicts, i.e. communication issues, role development, and close relationship development. For the homeless, interpersonal stressors may include arguing with social service personnel, inquiring about shelters, failing to provide shelter for a family, or domestic disputes with family members regarding finances and cohabitation.

Extrapersonal stressors refer to the externally derived forces that are not within close range of the person. They include indirect social interactions and conflicts, i.e. society laws and finances. For the homeless, extrapersonal stressors might include such

things as ordinances on condemned buildings, laws prohibiting solicitation on public transit, and guidelines governing the distribution of public housing.

Guide for nursing intervention

In NSM, nursing interventions can support and strengthen the system's lines of defense and resistance against stressors through methods of prevention which may be classified into primary, secondary, and tertiary categories (Neuman, 2002; see figure 1 on page 12). Primary prevention focuses on applying knowledge of risk factors to identify those at risk and decrease the likelihood of encountering a stressor. When investigating the homeless population, nurses research the preemptive factors of homelessness, which are signs of a diminished line of defense. Nurses identify those at risk with these factors and intervene prior to the occurrence of a homeless episode by developing policies to eliminate risk factors, designing programs to reduce the effect of risk factors, and developing cost-effective nursing care services that decrease health care cost burdens. This includes the provision of care for those who are on the verge of becoming homeless because of an increase in risk factors, i.e. the presence of health problems that are depleting their financial resources and diminishing their ability to maintain housing.

Secondary prevention focuses on treating symptoms that arise from the response to stressors (Neuman, 2002). For homeless people, the start of a homeless episode means that their lines of defense are either being tested or have been penetrated. Nurses provide interventions to decrease the severity and duration of stressors; this decrease bolsters the defense lines and enables the lines of resistance to regain or maintain stabilization. Interventions include soup kitchens, housing subsidies, health clinics, and shelters.

Nurses also identify the health needs of the homeless and advocate for the funding of health services that target those needs.

Tertiary prevention provides support to maintain system recovery and adaptation (Neuman, 2002). Homeless people adapt by obtaining housing or embracing the homeless culture. In either case, the usual state of wellness fluctuates to adapt. The goal of tertiary prevention is to house homeless people permanently and independently. Interventions may include case management, substance abuse treatment, and psychiatric counseling.

Nursing's role in NSM requires the identification of stressors and their potential effects in order to help people adapt and regain system stabilization (Neuman, 2002). Nursing is the mediator of interrelationships between the parts of the system. Nurses serve as health care providers, case managers, health system developers, policy makers, and health program strategic planners for those at risk for homelessness and experiencing homelessness. They also participate in research on homelessness. Since nurses have the ability to identify patterns of homeless health behavior and predict how they will respond to stressors and interventions, nurses from multiple settings, i.e. community clinic, inpatient medical-surgical floor, operating room, etc., may speculate on the success of implementing an intervention with an individual homeless patient, potentially homeless patient, or group of homeless people.

Prior usage of NSM with the homeless population

Homelessness research includes mapping the trends of the homeless people's processes and observing problems, obstacles, subsequent solutions, and responses.

Extensive knowledge of each client's situation is necessary if the nurse is to diagnosis problems and set realistic goals for care. Therefore, from the standpoint of NSM, research instruments must be sensitive to the intricacies of the client's situation. Research instruments derived from NSM that have been utilized in the homeless population include the Telephone Interview Schedule, Health Interview Schedule, and Audit Tool (Bowdler & Barrell, 1987).

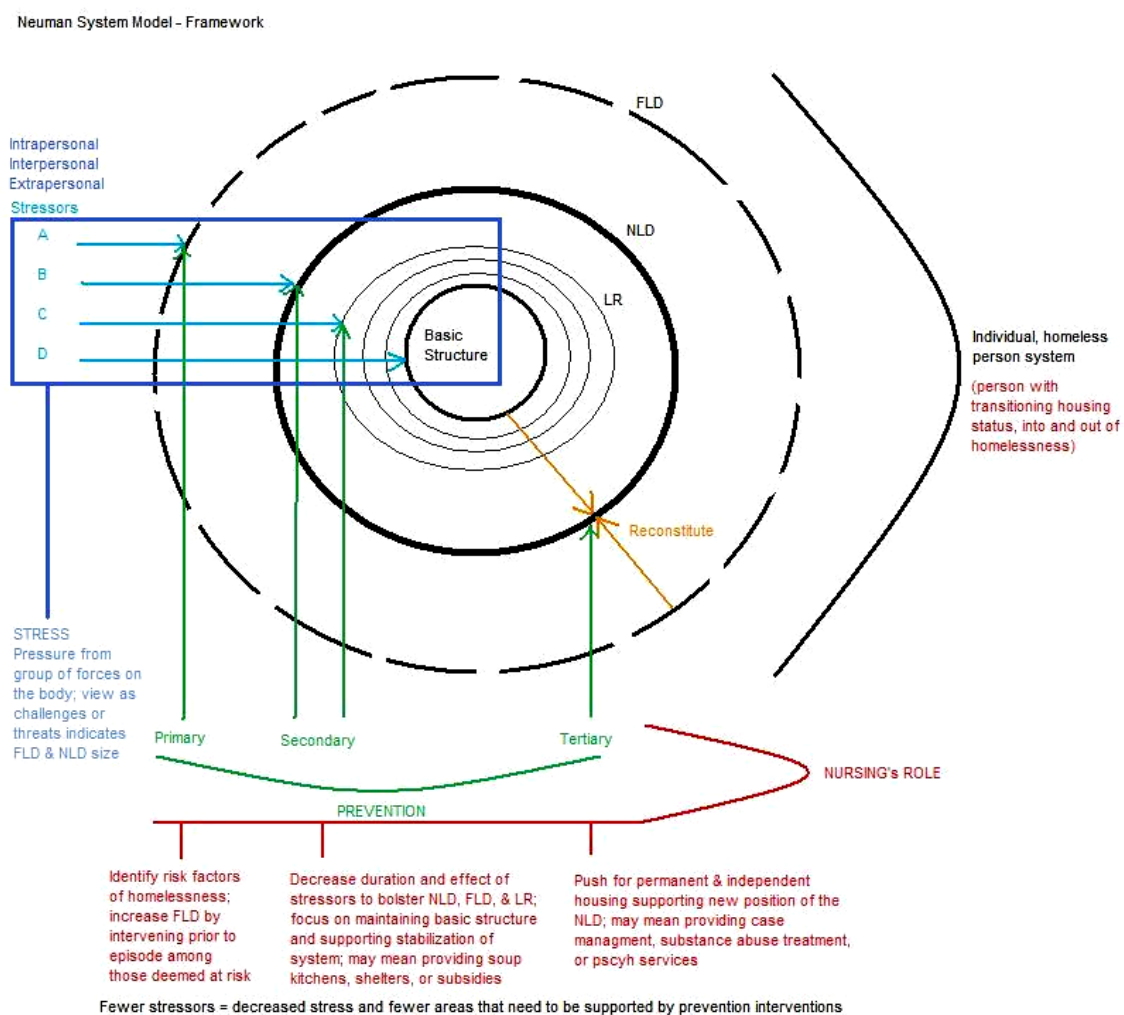
Although the NSM has also been widely used to discuss stress, it has not been well applied to the combination of homelessness and stress. An article by Skalski, DiGerolamo, and Gigliotti in 2006 reviewed the literature for the use of NSM and identified 5 populations for stressor research: parents, caregivers, care receivers, cancer survivors, and ICU patients. Their CINAHL search identified 87 related articles of which only 13 were classified as stress research. After conducting a new CINAHL search in July of 2009 for the years 2005 to 2009, 8 articles were found under the terms *Neuman* and *stress*. Two of the studies were not applicable to the topic. One was the aforementioned literature review. One referred to best nursing practices. Two discussed student stress. Another applied NSM to labor and delivery, and one discussed critical care nursing workplace stress. None referred to the homeless population. An Ovid search produced similar results.

The only researchers noted in the NSM literature addressing homelessness were Bowdler & Barrell (1987), Bowdler (1989), and Hemphill (2005). Bowdler & Barrell's (1987) article provided descriptive statistics of the homeless population for the development of interventions, i.e. health education programs, at a nursing clinic but did

not address stress specifically. Bowdler’s (1989) next article on homelessness addressed the same topic, but it also had no emphasis on the issue of stress. The dissertation by Hemphill (2005) discussed the empowerment of homeless, battered women and the barriers they must overcome but did not include stress as one of the barriers.

Diagram of NSM in homelessness

Figure 1. NSM & Homelessness Diagram



(Neuman, 1982, 2002)

Phenomenon: Stress in Homeless**Literature search**

Researchers have studied stress and homelessness. The literature search on stress and homelessness identified 17 articles, 3 dissertations, and 1 thesis. Sixteen of the 21 manuscripts discovered targeted adults, four targeted children, and one targeted families. Three manuscripts focused only on males, four targeted only mothers, and fourteen targeted both genders. Six manuscripts evaluated interventions directed at relieving stress or treating PTSD. Nine manuscripts discussed stressors, but only two related the stressors to the experience of stress. Eight manuscripts discussed the experience of stress; two specifically discussed distress. Four manuscripts discussed PTSD, and six specifically classified homelessness as a stressor. The synthesis of this literature is discussed in the following sections.

Stressors in homelessness

One fundamental nursing skill is using a holistic approach in assessing and developing a health management plan for the patient and coordinating care to coincide with underlying circumstances. However, people experiencing homelessness have complex circumstances that are not always understood based on a routine assessment. A homeless person's circumstances may not only effect the duration of homelessness but also his or her related stress. If a nurse is able to identify those who are homeless or potentially homeless, then he or she may be able to prevent or relieve strains on underlying defenses that help homeless people deal with stressors. However, there is a variety of circumstances, or risk factors of homelessness, experienced by homeless

people. Therefore, this study seeks to identify the risk factors, the components of people's circumstances, that predict stress in homeless people.

Disaffiliation/affiliation

In particular, there are multiple variables in the literature that have been identified as playing a role in homelessness or being a source of possible stress in people. The first variable to consider is disaffiliation. Disaffiliation refers to disruptions in a person's social network that limit the availability of resources; it is expressed as measurements of social support and service utilization (Zlotnick, Tam, & Robertson, 2003). The variable may also be referred positively as affiliation, the extent of social support and service usage available to a person.

Studies have reported high levels of disaffiliation in homeless people for many years. Early in the debate about disaffiliation, studies identified disaffiliation as both causes and effects of homelessness and remaining homeless (Goodman, Saxe, & Harvey, 1991; Grigsby, Baumann, Gregorich, & Roberts-Gray, 1990; Grunberg & Eagle, 1990; Lafuente & Lane, 1995). Morris (1998) observed from a sample of 196 unaccompanied homeless men and women that on average, they had contact with less than 40% of their close relatives. In contrast, Zlotnick, Tam, and Robertson (2003) identified that social support and service use increased exits from homelessness among non-substance abusing adults at odds ratios of 2.90 to 3.52. In either way disaffiliation is observed, it remains a risk factor of homelessness.

Environment

The second variable to consider is environment. Homeless people may not have a residence, but they do sleep in neighborhoods and frequent places that provide resources like soup kitchens, shelters, or other programs. Unfortunately, some neighborhoods are dangerous. Some studies have identified that living in dangerous neighborhoods is related to stress (Aneshensel & Sucoff, 1996; Hill, Ross, & Angel, 2005; Latkin & Curry, 2003). In particular, Ross and Mirowsky (2009) found in a sample of 2,482 people living in Illinois that neighborhood disorder attributed to 92% of participants' anxiety and 100% of participants' depression. It is reasonable to suggest that the neighborhoods homeless people occupy may affect their levels of stress.

Economic factors

The third variable to consider regarding stress in the homeless is economic factors. As suggested previously, not having the finances to maintain housing puts people at risk of becoming homeless. Similarly, not having the resources for living may place a strain on a person. For example, Chilton and Rose (2009) commented that food insecurity, the inability to obtain enough food, leads to depression and anxiety. If there are not enough financial resources to obtain quality food, there may not be enough financial resources for other necessities like clothing, health care, or communication. Furthermore, the lack of finances may be due to lack of employment or difficulties in maintaining or seeking employment. The sum of these needs reflect economic issues that homeless people may encounter and subsequently affect their stress levels.

Medical/physical illness

The fourth variable to consider regarding homelessness is medical/physical illness. The effect of health problems on homeless people is evident by mortality rates and reported health problems. It was previously mentioned that there is a prevalence of diseases observed in the homeless population. A recent study comparing homeless mortality to the general population calculated a 4.4 hazard ratio; this equated to 7.2% of 6,323 person homeless sample and 1.7% of a 12,451 person general population sample (Morrison, 2009). Although this mortality study included deaths not caused by disease, the fact that some were due to health problems remains relevant. Another study by Schanzer, Dominguez, Shrout, and Caton (2007) reinforced the literature reporting the presence of disease in the homeless population and further identified from a sample of 351 homeless adults, that 60% had one or more medical problems. This coupled with 35% of the participants reporting major depression. Medical problems remain a prominent issue and risk factor in the homeless population.

Mental illness

The fifth variable to consider is mental illness. The link between homelessness and mental illness has long been reported, and investigations have noted the prevalence of mental illness in the population (Breakey et al., 1989; Muir-Cochrane, Fereday, Jureidini, Drummond, & Darbyshire, 2006). As was noted in the prior section, mental illness occurs in more than a third of homeless people (Schanzer, Dominguez, Shrout, & Caton, 2007). Of particular interest to this proposed study, Davis (1999) observed from a sample of 54 sheltered homeless adults that 60% had symptoms of PTSD.

Alcohol and substance abuse

The sixth and seventh variables to consider are alcohol abuse and substance abuse. The presence of alcohol abuse and substance abuse in the homeless population has also long been reported (Bassuk et al., 1996; Riley et al., 2007; Wenzel et al., 2004). Of particular interest to this proposed study, Munoz, Panadero, Santos, and Quiroga (2005) compared three groups of homeless people with varying degrees of stressful life events. Their findings indicate that the group with alcohol problems that correspond with death of parents or health problems had the longest average duration of homelessness, 75.23 months. Over 65% of those participants in the group with stressful life events that began in childhood abused alcohol. Also, 44% of the same group reported abusing drugs.

Victimization

The eighth variable to consider regarding homelessness is victimization. Victimization refers to forms of violence and exploitation. This includes being robbed, assaulted, raped, having to engage in prostitution, or being the victim of domestic violence. Studies have recognized the occurrence of these problems in the homeless population. For instance, Kidder, Wolitski, Pals, and Campsmith (2008) compared homeless and housed HIV infected adults regarding the prevalence of prostitution. While 21.2% of the housed group reported being paid money for sex during their lifetime, 45.6% of the homeless group reported the same. The difference was statistically significant at $p < .001$. Another study by Lee and Schreck (2005) reviewed data from the National Survey of Homeless Assistance Providers and Clients (NSHAPC) and identified the prevalence of robbery, assault, and rape in a sample of 2,401 homeless adults. While

54% of the sample reported some form of victimization, 21.3% reported being assaulted, 11.4% reported being raped, and 49.5% reported having something stolen from them. Lee and Schreck noted that the victimization of homeless people is greater than the victimization observed in the general population. They compared the NSHAPC results to the National Crime Victimization Survey, which found only 27% of people reporting crime related to the loss of property and only 4% experiencing some form of violent crime.

Veteran status

The ninth variable to consider regarding homelessness is veteran status. Studies have long identified homeless veterans as a unique and concerning subgroup in the homeless population. First of all, homeless veterans constitute more than 23% of the homeless population (Murphy, 2000). Second, more than 35% of veterans experience homelessness during their lifetime (Rosenheck & Seibyl, 1997); this suggests that being a veteran places one at risk for homelessness. Third, when veterans become homeless, they tend to remain homeless longer than nonveterans (Murphy, 2000). Homeless veterans also tend to have a greater prevalence of mental illness and substance abuse problems, approximately 50% and 70% respectively (American Psychiatric Association, 2001; O'Toole, Gibbon, Hanusa, & Fine, 1999). Despite these percentages, only 51.7% of homeless veterans use Veterans Health Administration facilities and programs (Gordon, Haas, Luther, Hilton, & Goldstein, 2010). The characteristics of the homeless veteran subgroup makes veteran status an important homeless risk factor to consider.

Convict status

The tenth variable to consider regarding homelessness is convict status. Some social programs focus on meeting the needs of ex-offenders by providing housing and supporting the development of employment opportunities (Petersilia, 2005). The concern is that the exit from the prison system places ex-offenders on the street with limited employment possibilities due to having a criminal record (Metraux & Culhane, 2004). This was demonstrated in a study by Metraux and Culhane (2006), which reviewed the release of 48,424 offenders from the New York prison system; 11% went to homeless shelters. However, having a criminal record does not suggest that housing will not be eventually obtained. Malone (2009) observed 332 homeless adults using a supportive housing program; of the 52% with a criminal history, 70% maintained housing for two years. This compared to 74% of those without a criminal history. Malone's analysis determined that criminal history did not predict housing failure. Nonetheless, the concern about the effect of criminal history on homelessness following initial release from a correctional institution remains.

Instruments to measure stress in homelessness

The instruments measuring stress among the literature search results include the Perceived Stress Scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983; De Vincente, Munoz, Perez-Santos, & Santos-Olmo, 2004; Waldrop-Valverde & Valverde, 2005; see Appendix B for copy of the PSS), the Center for Epidemiologic Studies – Depression Scale (Littrell, 2001; Wong, 2002; Wong & Piliavin, 2001), the Psychological State of Stress Measure (Farrell, 2000), the African-American Women's Stress Scale (Banyard &

Graham-Bermann, 1998), the Parenting Daily Hassles Scale (Meadows-Oliver, Sadler, Swartz, & Ryan-Krause, 2007), and the Traumatic Stress Index (Williams, 2007).

The Perceived Stress Scale consists of ten 5-point scale items that recall the experience of stress during the previous month; the tool has good reliability ($\alpha = .78$; Cohen, Kamarck, & Mermelstein, 1983; Remor & Carrobles, 2001). The Center for Epidemiologic Studies – Depression Scale consists of twenty 3-point scale items measuring symptom frequency; studies have demonstrated high internal consistency (Radloff, 1977), some test-retest reliability (Ensel, 1986), high predictive validity (Boyd, Weissman, Thompson, & Myers, 1982; Myers & Weissman, 1980; Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977), and reliability in homeless samples ($\alpha = .89$; La Gory, Ritchey, & Mullis, 1990). The Psychological State of Stress Measure consists of twenty-five 8-point scale items that review the previous 5 days; a study of dental students has demonstrated concomitant, convergent, and discriminant validity. It also has demonstrated good internal reliability ($\alpha = .90$) and test-retest reliability ($r = .69$; Lemyre & Tessier, 1988). The African-American Women’s Stress Scale and Parenting Daily Hassles Scale also have demonstrated high reliability but have been designed for specific use with women and parents, respectively (East & Felice, 1996; Watts-Jones, 1991). Similarly, the Traumatic Stress Index has been designed to measure stress in PTSD patients. While these instruments demonstrate reliability among the homeless, they are tools for measuring stress in multiple populations. This proposed study will use the Perceived Stress Scale to measure stress.

Summary of Gaps in Knowledge and How Study Will Fill Gaps

Much of the literature generally regards homelessness as a source of stress and focuses on subpopulations, i.e. adult, child, family, or gender. However, there exist research gaps. The research on homeless males and stress addresses PTSD and stressors associated with trauma and depression (Kim & Ford, 2006); for example, Kim and Arnold (2004) found that stressful life events and mental illness predict the exacerbation of trauma symptoms. However, the research does not describe the homeless male experience of stress. Similarly, the literature discusses homeless mothers (Banyard & Graham-Bermann, 1998; Kissman, 1999; Meadows-Oliver, Sadler, Swartz, & Ryan-Krause, 2007; Wagner & Menke, 1991; Williams, 2007) but does not specifically address the perspective of homeless women without children. For example, Banyard and Graham-Bermann (1998) observed that stress predicted depression in homeless mothers (Beta = 0.36, $p < .001$) but not in housed mothers (Beta = 0.25, $p > .05$); the study did not discuss women without children. Kissman (1999) evaluated the effect of an outdoor camp for homeless mothers and qualitatively observed parental satisfaction and relaxation. Meadows-Oliver, Sadler, Swartz, and Ryan-Krause (2007) noted that homeless teen mothers had more negative life events ($t = 237$, $p = .022$) and more depression symptoms ($t = 2.11$, $p = .041$) than housed teen mothers. Wagner and Menke (1991) observed that homeless mothers had a mean life events score of 16.85 compared to that of housed mothers at 12.65 and 10.29; ($p < .001$); the focus again was on mothers. Williams (2007) found that 66% of a sample of homeless mothers had experienced

PTSD. Further research of the subgroups, homeless males and homeless women without children, is necessary for the development of gender specific interventions.

The effect of service programs on stress has also not been well addressed. Despite the development of supportive housing and cities with multiple types of housing programs, no research has explored the difference in stress between homeless people using these different types of programs. Studies have evaluated interventions for stress among homeless people, i.e. stress relief camps, group therapy, and intense symptom management (Davey & Neff, 2001; De Vincente, Munoz, Perez-Santos, & Santos-Olmo, 2004; Kim & Ford, 2006; Kissman, 1999; Lester, et al., 2007; Toro, Tulloch, & Ouellette, 2008), but comparisons between stress interventions for homeless people were not in the literature.

However, an association between stress and housing has been established such that studies have reported perceptions of housing as both stressors and stress relief (Banyard & Graham-Bermann, 1998; Huang, 2001; Menke, 2000). For example, some homeless people perceive a shelter environment as a stressor while some perceive the obtainment of living space as stress relief. Banyard and Graham-Bermann (1998) observed that homeless mothers had a greater amount of depression ($F(1,109) = 19.6, p < .001$) and stress ($F(1,109) = 9.69, p = .002$) than poor, housed mothers. Similarly, Menke (2000) noted that 68% of a sample of homeless children reported having stressors related to homelessness, and they differed from housed children by a Chi-square of 25.94 at $p = .001$. On the other hand, Huang (2001) observed from a sample of 90 homeless mothers

and children that the shelter supported 235 stressors and was the second greatest source of stressors.

Nursing approach

Although stress in homelessness is a problem which can be addressed by nursing, the solution is not as clear. From the perspective of NSM, nurses may address stress in the homeless at three levels of prevention, (a) primary, (b) secondary, and (c) tertiary. In theory, at the primary level, nurses within any patient care setting may recognize the risk factors for becoming homeless among their patients and increase their patient's flexible line of defense by eliminating those factors and implementing stress reduction measures. However, recognition of the risk factors and stress is the key to this intervention strategy, and although there is a consensus that homeless people have stress, it is not yet known whether health care services and housing programs affect the stress level experienced by the homeless. The proposed study clarifies any differences in stress between programs.

At the secondary level of prevention, community nurses treat the health issues of homeless people in shelters or free clinics. However, the degree of stress associated with specific health conditions among the homeless has not been clarified. The effect on stress by health care services treating those health conditions in the homeless has also not been clarified. Therefore, community nurses may not be fully aware of their patients' stress and their inability to comply with health regimens. This study addresses the relationships between medical and psychological variables, health care utilization, and stress.

At the tertiary level of prevention, which focuses on case management, substance abuse treatment, mental health programs, and permanent housing programs, successful treatment relies on compliance to maintain the new system stability that the person has assumed following the homeless episode. However, unresolved stressors may disable compliance, disrupt the new stability, and initiate another episode of homelessness. Studies on homeless HIV patients observed lower viral loads among those with stable housing compared to those without stable housing (Buchanan, Kee, Sadowski, & Garcia, 2009; Sadowski, Kee, VanderWeele, & Buchanan, 2009). It was suggested that the better health outcome was due to the resolution of compliance issues. Tertiary methods require the recognition and resolution of homelessness risk factors of stress in order to be effective. Since this study seeks to clarify the associations of stress to a homeless person's circumstances, i.e. medical condition, health care service usage, housing program usage, etc., study results give nurses evidence to support the development of specific programs and services that lower stress, support compliance, and encourage homeless people to successfully progress into permanent housing. Furthermore, this study makes available to nurses evidence to design more effective policies, risk assessment instruments, health care services, housing programs, and protocols for identifying underlying stressors.

CHAPTER THREE

RESEARCH METHODOLOGY

Review of Study Purpose, Research Questions, & Hypotheses

The purpose of the study was to compare stress levels of persons participating in three different types of housing programs, investigate variables that may be associated with increased stress in homeless persons, identify interactions between nurses and homeless people, and measure the preferences of homeless people for nurses or other types of health care providers. A sample of homeless people who were using housing programs was used in this study. The three different types of housing programs included emergency shelters, interim/transitional housing, and permanent/supportive housing. Specifically, the proposed study hypothesized that (a) homeless people using emergency programs have the highest levels of stress, (b) homeless people using interim housing programs have less stress than homeless people using emergency shelter programs, and (c) homeless people using permanent housing programs have less stress than homeless people using interim housing programs. Since there was also a possibility that interim and emergency programs may be similar, the study also hypothesized that homeless people using permanent housing programs have less stress than those using interim housing programs or emergency shelter programs. The proposed study also sought to determine what variables may predict increased stress levels among

the homeless, how likely homeless people are to report seeing a nurse, and how homeless people rate nurses in terms of trust and health care provider preference.

Study Design

Description

This study was a cross-sectional data analysis using selected secondary data generated by the Chicago Plan to End Homelessness (CPEH) evaluation project. The CPEH project was a longitudinal study with three waves of data collection. The current study used related data from the first and second wave. However, only fixed variables were used from the first wave of data collection so that the current study would be a cross-sectional study and would not show any change in variables over time.

In action since 2003, CPEH is an effort to decrease homelessness in Chicago and make the system more effective in meeting homeless people's needs. This plan included a policy to reallocate funding from emergency shelter programs and shift the money to interim and permanent housing programs. The underlying theory of the plan is that there were better outcomes for homeless people if they transitioned into permanent housing quickly such that the increase in funding would result in a greater availability of permanent, affordable living space to accommodate those having difficulty maintaining stable housing. The CPEH evaluation project began in October of 2009 through the efforts of a research team from Loyola University's Center for Urban Research and Learning (CURL). As collaboration between the Chicago Alliance to End Homelessness, the University of Chicago, and Loyola University Chicago, the purpose of the CPEH evaluation project was to identify the effective and ineffective components of programs

related to the Chicago Plan, clarify the characteristics of people using the programs, and identify the service needs of Chicago's homeless people. It should be noted that the Chicago Alliance to End Homelessness is funded through private, local donations and the City of Chicago.

The CPEH evaluation project consisted of interviews with housing program clients at baseline, 5 months post-baseline, and 11 months post-baseline. Participants were selected randomly from three types of housing programs observed in the Chicago metropolitan area. Interviewers from the research team met face to face with the participants and conducted a structured interview using tools designed for the evaluation. The survey contained the questions and research instruments that were to be completed during the interview. The duration of the first wave of data collection occurred from October, 2009, through March, 2010. The second wave started March, 2010, and continued through August, 2010. There existed some overlap in data collection between the first and second wave, but collection from each individual participant was separated by approximately 5 months.

As a member of the research team, items were added to the second wave in order to help answer research questions. The items were two questions about healthcare utilization, one question about preference, and a stress measuring instrument. These measures became part of this current study's cross-sectional, secondary data analysis as they related to other data collected during the interviews. Specifically, the stress instrument provided the measurement of stress among homeless people that was compared with other variables of this study, i.e. housing program type and homeless risk

factors. The second wave data from questions about health care utilization and preference were analyzed to answer the questions regarding likelihood of self-reported contact with nurses by homeless people and homeless people's preference for type of health care provider.

Rationale of method

By comparing measurements of stress, provider preference, provider usage, and program utilization, the purpose of the study was to identify point prevalence of stress among persons in the different housing programs. It also provided some self reported evidence of health care service usage and provider preferences among a sample of homeless people in Chicago. However, data from this Chicago sample could not be easily generalized to the national homeless population because the participants of this sample received a housing program service that was influenced by the Chicago Plan to End Homelessness. Homeless people in other cities had not necessarily received the same treatment. However, there were a number of plans to end homelessness in the U.S. with Chicago having the furthest progress. Some of the data could have been generalized to the homeless in these other programs, but since these other plans varied in structure, caution would have needed to be exercised in making generalizations.

Integrating this study into the ongoing CPEH evaluation project was the chosen method of data collection. Given the transient nature of the population and the large presence of mental illness and substance abuse, the use of written surveys was unlikely to be an effective method of data collection (Cohen & Burt, 1990). The performance of interviews by trained interviewers using a written interview questionnaire/survey assured

consistency and permitted researchers to identify and overcome difficulties that participants would have had in answering survey questions if they had otherwise been unassisted.

Study Sites

Although interviews were conducted at locations that were convenient for the participant, i.e. his or her apartment, an office at his or her shelter program, or conference room at CURL, there were three types of sites where participants were initially found during the first wave of the CPEH evaluation project: (a) emergency shelters, (b) interim/transitional housing, and (c) permanent/supportive housing. In Chicago, there were 274 programs that provided housing for the homeless (Davis, 2009). Of these, 67 programs were randomly selected to represent the types of programs from which participants would be selected. Specifically, seven emergency shelter programs, 33 interim/transitional housing programs, and 27 permanent/supportive housing programs were selected. The number of programs selected in each stratum was based on the targeted sample size, 185 participants, for each stratum. Selection of programs continued until the expected availability of participants exceeded the targeted sample size. Over-sampling was used to insure desired sample size from the effect of participant refusals.

The three types of housing programs differed characteristically. Emergency shelters in Chicago provided nightly protection from the elements. They included or excluded meal service or other support services, but generally, they included some form of bed and facilities for daily hygiene. Emergency shelters were not intended for long term use. Each emergency shelter had its own regulations for entry, but typically, space

was on a first-come-first-serve basis with clients queuing for spots at specified times daily. Also, people were not typically allowed to stay at the shelter during the day. In Chicago, there were 19 emergency shelter programs that as of August 2009 provided 1,498 single beds and 86 family units (Davis, 2009).

The second type of housing program was interim/transitional housing. In Chicago, there were 78 interim/transitional housing programs that as of August 2009 provided 861 single beds and 625 family units (Davis, 2009). This type of housing program was designed to house clients for short term durations but longer than emergency housing. Tenure was generally expected to be no more than 120 days, although it was possible to be housed longer. Also, people were typically allowed to stay at the interim housing site during the day. Within the scheme of the system, interim/transitional housing was intended to be a progressive step from being homeless on the street or in an emergency shelter to obtaining permanent or supportive housing.

The third type of housing program was permanent/supportive housing. In Chicago, there were 177 permanent/supportive housing programs that as of August 2009 provided 6,347 units of housing (Davis, 2009). A unit of housing refers to an apartment, house, or room that was allocated as living space for a single individual or family. Permanent housing programs consisted of sites intended for long term use like houses, apartments, and single resident occupancy (SRO) buildings. They typically included some form of case management that helped clients transition into the permanent housing environment with the purpose of ensuring that clients maintained residence. The term supportive housing referred to a form of permanent housing that also included supportive

services like addiction counseling, employment services, help with benefits and access to government programs, and outpatient mental health services. These supportive services, i.e. twelve step program, job training and career assessment, and psychiatric therapy, helped clients with their specific problems that otherwise could disrupt continuous housing.

Sample

This study used a convenience sample from a group previously selected by random from a homeless population involved in 3 different types of housing programs.

Sampling technique

Participants were initially selected using a multistage, random sampling technique. A database of programs serving homeless people in the Chicago area was created prior to the first wave of data collection for the CPEH project, and it categorized programs as one of three categories: emergency shelter, interim/transitional housing, and permanent/supportive housing. As mentioned previously, programs were randomly selected within each category in order to obtain a representative sample for each stratum. The sample size for each stratum was divided among the selected programs based on the number of beds or units they contributed to the stratum and organized as interview slots that needed to be completed for the first wave of data collection. Each selected program provided a list of their clients that fit the eligibility criteria. Researchers randomly selected participants from the lists using random number tables or computer generated random numbering in order to obtain enough participants to match the previously allocated number of needed interview slots. If a previously selected participant refused to

consent to participate or withdrew from the study prior to completing the survey, a new participant was randomly selected to fill the slot. Also, if an interviewer deemed that a participant did not fit the eligibility criteria during the course of the interview, the interview was ended, and a new participant was randomly selected.

The second wave of data collection followed up with the same participants that completed interviews in the first wave of data collection. Extra participants were not added to the sample in the second wave of data collection even if participants withdrew or refused to continue participation. Since the second wave sample relied on the return of participants, the sample for this current study was convenient. This current study could not be generalized.

Size of sample

Originally, the sample size for which CPEH investigators strived was 555 participants, a number determined by a power analysis conducted by the primary investigators of the evaluation study. At the completion of the first wave of data collection, the total sample consisted of 554 homeless adults. The emergency shelter stratum contained 185 participants. The interim/transitional housing program stratum contained 192 participants. The permanent/supportive housing program stratum contained 177 participants. Over-sampling occurred in order for investigators to perform analyses that reflect the differences in the quantities of available housing programs and address direct comparison between housing program types.

The second wave's sample was projected to be smaller than the 554 participants since a portion of the sample was expected to refuse continued participation or be

unreachable for the second interview. The projected decrease based on the experience and expertise of the evaluation study's primary investigators was approximately 20%, which placed the expected sample size for the second wave at approximately 443 participants. The actual sample size for the second wave was 398 participants.

Eligibility criteria

During the first wave of data collection, participants were required to be in the housing program from which they were selected and be available for interview. Participants from permanent/supportive housing programs must have entered their program after August of 2002. Participants were also required to be 18 years old or greater and English speaking. The duration of a participant's homelessness was neither an inclusion or exclusion criteria. The presence of mental health issues did not exclude a selected participant from being in the study.

However, for data reliability in first and second wave data collection, interviewers indicated if mental health issues were reported or suspected of distorting responses, i.e. inconsistencies with reported dates and times or inconsistencies related to reported service usage in different portions of the survey. Interviewers also rescheduled interviews if a participant was deemed unable to complete a survey on the previously scheduled day. This included instances of reported illness, i.e. colds or flu, apparently being under the influence of a substance, i.e. alcohol or cocaine, and other life needs, i.e. doctors appointments, issues with childcare, or job interviews.

Previously identified sample characteristics

The demographic proportions of the sample have been reported in the results section of this paper. The only comments that could be made regarding the sample characteristics prior to the data analysis referred to the origin of the sample and the characteristics determined by housing program eligibility criteria and priorities. For example, the sample was derived from a population using housing programs for the homeless within the Chicago metropolitan area. The goals of each housing program determined the eligibility criteria required for program entry. For example, some programs were designed to house families instead of single adults. This meant that in order to receive housing from such a program, the applicant must have been a family seeking shelter as opposed to a single adult seeking shelter. The CEPH project did not sample for characteristics beyond family/individual and emergency/interim/permanent housing program use. However, due to the diversity of goals and eligibility among housing programs, this study and CPEH project would likely observe a sample that includes single adults, women with children, families, and veterans. Each would also likely find a sample of those dealing with substance abuse, alcoholism, mental illness, status as a convict/ex-offender, victimization through violence or abuse, and economic factors like job loss and reductions in affordable housing.

Sample methodology for current study

Initially participants were grouped by the housing program type that they were using. Researchers did not have the ability to reassign participants to any other group. However, the second wave of data collection found some participants to be in the same

housing programs they were using during the first wave of data collection and others to not be in the same housing programs. Since the stress measuring instrument was used during the second wave of data collection, participants were sorted according to the type of housing program or location that each participant was using during the second wave of data collection. This meant, however, that the sample size would be smaller than the first wave of data collection since there was an expected drop off in participation and not all participants would likely still be using a housing program.

Power analysis

In order to determine the feasibility of this study, a power analysis was performed to estimate the sample size needed to identify a difference in stress between participants of different housing programs. Since the actual number of participants available from the second wave was initially unknown, the calculation of power for sample size was at the time a mute point. Nonetheless, the following was a power analysis for the purpose of having an idea of how many participants would be needed in order to observe differences between housing program groups.

The first question of this proposed study asked if there was a difference in stress between homeless users of three different types of housing programs. The 10-item Perceived Stress Scale (PSS) instrument measured the level of stress a person has from their life's situations (Cohen, Kamarck, & Mermelstein, 1983; see Appendix B for copy of the PSS). A prior study using the PSS identified the normal level of stress among people in the United States (Cohen & Williamson, 1988). The average score of the 2,387 person sample was 13.02 with a standard deviation of 6.35; the scores of this sample

ranged from 0 to 34. When comparing differences in health care usage among the sample, the mean difference between groups of 0.8 was statistically significant at $p < .01$. Another study that compared homeless and non-homeless HIV positive, injection drug users observed a statistically significant PSS score difference of 6.37 with homeless and non-homeless PSS score means being 29.75 and 23.38, respectively (Waldrop-Valverde & Valverde, 2005). It was not unexpected that the sample of HIV positive, injection drug users from this study had higher PSS scores than the national average obtained from the Cohen and Williamson (1988) study. This suggested that HIV positive, injection drug users had higher levels of stress than the national average that was derived from a sample including people without the stressors of being under the influence of drugs and having a life-threatening infection. Likewise, given the greater number of stressors that homeless people encountered as compared to the general U.S. population, I expected the PSS scores of the evaluation study sample to be elevated above the national average.

Regarding the question about differences in stress between homeless people using different housing program types, a power calculation was prudent to determine the sample size needed for observing a difference between the three groups using ANOVA. Using a conservative mean difference of 1.6, previously observed standard deviation of 6.35, α of .05, and a desired power of .95, the calculation of sample size was as follows: Sample size was determined from the calculation of Φ where Φ' = effect size, n = group sample size, k = number of treatment groups or housing program types.

$$\Phi = \Phi'(\sqrt{n}) \rightarrow n = (\Phi^2)/(\Phi'^2) \text{ where}$$

$$\Phi' = (\text{mean difference})/(\text{standard deviation}) = (1.6)/(6.35) = 0.25$$

Using a noncentral F distribution critical values table (Howell, 2007), Φ was determined by calculating the related degrees of freedom and β .

Power of .95 = β of 0.05

$df_{total} = n - 1$

$df_{treat} = k - 1 = 3 - 1 = 2$

$df_{error} = df_{total} - df_{treat} = (n - 1) - 2 = n - 3$

Since the first wave sample size was approximately 185 participants per group, the expected sample size for the second wave equaled 148 assuming a 20% drop off. The estimate for df_{error} then calculated as $n - 3 = 148 - 3 = 145$. Therefore, I arbitrarily selected $df_{error} = 30$ because it was the closest df_{error} available on the noncentral F distribution critical values table (Howell, 2007). Also, I estimated the df_{error} down because the maximum expected group sample size was 148 and limited df_{error} to being less than that.

The Φ on the noncentral F distribution critical values table that corresponded to $df_{treat} = 2$, $df_{error} = 30$, $\beta = 0.05$, and $\alpha = .05$ was approximately 2.5.

Therefore, with $\Phi = 2.5$ and effect size $\Phi' = 0.25$, group sample size n was calculated using $n = (\Phi^2)/(\Phi'^2)$.

$$n = (\Phi^2)/(\Phi'^2) = (2.5)^2/(0.25)^2 = (6.25)/(0.06) = 104.17$$

Therefore, each stratum of housing program type required a sample size of 104 participants. The overall sample size needed was then 312 participants, which was less than the expected sample size for the second wave of data collection. At the time, no further power analysis had been completed for the other proposed statistical tests since

the effect sizes related to observed standard deviations among the means of health care utilization and preference had yet to be determined.

Variables of Current Study

The primary variables under investigation included stress, housing program type, health care program utilization, health care provider utilization, preference for health care provider, medical/physical illness, mental illness, affiliation, environment, economic factors, alcohol abuse, substance abuse, victimization, veteran status, and convict status. The following discussion described the variables and their operation. Specific connections between survey items and the variables were available on the study map in Appendix A.

The variable *stress* conceptually meant an experience of pressure, tension, or change produced by the process of stressor appraisal and subsequent adaptation through the use or exhaustion of coping mechanisms. For the study, stress was measured by the score from the PSS (Cohen, Kamarck, & Mermelstein, 1983) that was collected during the second wave of data collection. The range of scores on the PSS was 0 to 40. Each of the ten questions was rated on a 5-point rating scale of 0, never, to 4, very often. Compared to the normal level of stress score of 13 established by Cohen and Williamson (1988), a score of 19 suggested a moderately high level of stress, and a score of 25 suggested a high level of stress. Likewise, a score of 7 suggested a low level of stress.

The second variable *housing program type* conceptually referred to any form of design or plan that provided shelter or covering from the elements. Operationally, housing program type referred to one of three categories of housing programs available to

homeless people through established organizations in Chicago. The three categories were emergency shelters, interim/transitional housing, and permanent/supportive housing. In the first wave of data collection, participants were selected from programs within these categories. In the second wave of data collection, participants indicated where they were currently residing, i.e. on the street, permanent/supportive housing, interim/transitional housing, etc.

The third variable *health care program utilization* conceptually referred to the use of any design or plan intended for the provision of health care. Operationally, health care program utilization referred to the facilities that participants reported as having visited for health care over the past six months. Prompted options included emergency department, hospital with admission, outpatient clinic, shelter based clinic, community clinic, occupational health clinic, clinic associated with jail or prison, doctor's office, and other. The variable was expressed as the combination of programs used.

The fourth variable *health care provider utilization* conceptually referred to the receipt of products and services from workers in the health care field. Operationally, health care provider utilization referred to the health care workers that participants reported as having visited or come in contact with while receiving or seeking health care services over the past six months. Prompted options included nurse practitioner, nurse, physician, physician assistant, podiatrist, psychologist/psychiatrist, and other. The variable was expressed as the combination of providers used.

The fifth variable *preferred provider* conceptually referred to the health care worker from whom a patient wanted as his or her primary source for health care.

Operationally, the preference for health care provider variable referred to the type of health care worker that participants reported as trusting or preferring the most to manage their health care. Prompted options included nurse, nurse practitioner, physician, physician assistant, podiatrist, psychologist/psychiatrist, and other. The variable was expressed as one type of health care provider.

The sixth variable *medical/physical illness* conceptually described the physical health problems that a person had and the difficulty associated with physical health problems. Operationally, the medical/physical illness variable was the participant's report of a chronic medical problem or diagnosed disability and his or her rating of how bothered he or she was by medical problems in the last 30 days. One component of the variable was expressed dichotomously as either yes there is a medical diagnosis or no there is not a medical diagnosis. A second component of the variable was measured on a 5-point rating scale ranging from 1, not at all, to 5, extremely. A third component of the variable was measured as the number of days in which the participant had medical problems.

The seventh variable *mental illness* conceptually described the mental health problems that a person had. Operationally, the mental illness variable was a combination of the participant's report of the number of days experiencing psychological or emotional problems, the participant's rating of how bothered he or she was by psychological problems in the last 30 days, and the six-item brief post-traumatic stress disorder (BPTSD-6) instrument score (Fullerton et al., 2000). Respectively, the first component of the variable was expressed as a number of days. The second component of the

variable was measured on a 5-point rating scale ranging from 1, not at all, to 5, extremely. The third component of the variable, the BPTSD-6, asked how bothered a person was by PTSD symptoms during the past week (see Appendix C for copy of BPTSD-6). Each question of the instrument was on a 5-point scale that ranged from 0, not at all, to 4, extremely. The summation of the six items provided a score describing the severity of PTSD. With a range of 0 to 24, Fullerton et al. (2000) identified that characterizing a score of 6 or greater as an indicator of PTSD accurately diagnosed 85% of the time.

The eighth variable *affiliation* conceptually described the associations and relationships that a person had in his or her life. Operationally, the affiliation variable corresponded to assessed social support, the people with whom the participant is living, and perceptions about social relationships. The variable included nominal and ordinal components including measurement on a 5-point rating scale ranging from 1, definitely not, to 5, definitely yes, and on another 5-point rating scale ranging from 1, not at all, to 5, extremely.

The ninth variable *environment* conceptually described the place that a person inhabited. Operationally, the environment variable referred to a participant's satisfaction with his or her neighborhood, the quality of the neighborhood with regards to safety and cleanliness, and occurrence of residential problems like broken windows or vermin. The variable included nominal and ordinal components including measurement on a 5-point rating scale ranging from 1, completely dissatisfied, to 5, completely satisfied and on a 4-point rating scale ranging from 1, strongly disagree, to 4, strongly agree.

The tenth variable *economic factors* conceptually described the financial limitations of a person. Operationally, the economic factors variable corresponds to the amount of money a participant had received in the last 30 days and a combination of perceptions regarding employment problems and the fulfillment of personal needs. This variable included a question on the affordability of health care. Unfortunately, data related to the use of Medicaid, Medicare, and insurance was not directly asked of the participants and required inference through a review of administrative data. This was a limitation to this variable in this study. The variable included nominal, ordinal, and continuous responses including a measurement on a 5-point rating scale ranging from 1, not at all, to 5, extremely.

The eleventh variable *alcohol abuse* conceptually described the overuse of alcohol. Operationally, the alcohol abuse variable corresponded to the perceptions regarding the number of days experiencing alcohol problems and how much a participant had been bothered by alcohol problems. The first component of the variable was expressed as a number of days. The second component was expressed as a measurement on a 5-point rating scale ranging from 1, not at all, to 5, extremely.

The twelfth variable *substance abuse* conceptually described the overuse of drugs. Operationally, the alcohol abuse variable corresponded to the perceptions regarding the number of days experiencing drug problems and how much a participant had been bothered by drug problems. The first component of the variable was expressed as a number of days. The second component was expressed as a measurement on a 5-point rating scale ranging from 1, not at all, to 5, extremely.

The thirteenth variable *victim of violence* conceptually described the exposure someone had to violent actions or events. Operationally, the victim of violence variable corresponded with a combination of possible experiences that were reported by each participant. The experiences included robbery, assault, rape, domestic violence, and prostitution. Each type of experience was expressed as the number of times that it had occurred.

The fourteenth variable *veteran status* conceptually described the experience of having served in the military. Operationally, the veteran status variable referred to a history of having served in any of the branches of the military, i.e. army, navy, marines, etc, and the eligibility for veterans benefits. The variable was expressed as dichotomous yes or no responses.

The fifteenth variable *convict status* conceptually described the experience of having a criminal record with at least one conviction. Operationally, the convict status variable referred to a history of being convicted of a crime. The variable was expressed as dichotomous yes or no responses.

Instruments

The evaluation study utilized questions from multiple instruments. Table 1 describes these instruments.

Table 1. Study Instruments

Name	Author	Date	Construct Measured	Number of Items	Range of Scores
Addiction Severity Index	McLellan, Luborksy, Woody, & O'Brien	1980	Alcohol use, drug use, & related functionality	180	0-1 for composite scales; higher score suggests severe use and diminished function
BPTSD-6	Fullerton et al.	2000	PTSD	6	0-4; higher score suggests higher severity of PTSD 0-4 per item, 0-40 for scale, higher score suggests greater stress
Perceived Stress Scale	Cohen, Kamarck, & Mermelstein	1983	Perceived Stress	10	0-4 per item, 0-40 for scale, higher score suggests greater stress
Personal History Form	Barrow, Hellman, Lovell, Plapinger, Robinson, & Streuning	1985	Housing history, causes of homelessness	29	Prevalences of responses
Service Attitudes	Saleeby	2000	Attitudes toward services	17	1-5 per item; higher score suggests positive attitudes
Service Use Scale	Sosin, Yamaguchi, Bruni, Grossman, Leonelli, & Reidy	1994	Homeless service use, current and previous	24	Yes-No, Prevalence of responses

Individual questions that reported health care program and provider utilization described specific health care use over the prior six months. Another question asking for health care provider preference described the level of trust and preference homeless people had regarding specific types of health care providers.

Reliability & validity of tools

Prior studies had reported reliability and validity data on the instruments when in use with homeless or similar samples. Drake, McHugo, & Biesanz (1995) found moderate reliability for the Addiction Severity Index (ASI) with correlation coefficients of 0.64 to 0.86 for each component of the tool. They observed this from a sample of 188 homeless adults with substance use disorders. However, they did not report any validity data.

McLellan, et al. (1985) tested the reliability and validity of the ASI in 181 patients of three alcohol and drug treatment facilities. It was not indicated whether the patients were homeless, but concurrent reliability was demonstrated by inter-rater reliability coefficients of 0.89 or greater across all problem areas. Likewise, test-retest identified correlation coefficients between administrations to be 0.92 or greater. Concurrent and discriminant validities were also demonstrated. The expected delineation of patients by addiction severity matched the ASI delineation such that groups were significantly different at $p < .05$. A comparison of the ASI's composite scores with a group of problem specific instruments identified multiple significant correlations at $p < .05$ across the problem areas; the exception was the measurement of legal status among the drug dependent portion of the sample.

The BPTSD-6 instrument demonstrated good reliability with a Chronbach's alpha of .89 in a sample of 99 people who were previously involved in a serious motor vehicle accident (Fullerton et al., 2000). Although the sample was primarily white with some college education and annual incomes over \$20,000, the sample may be similar to a sample of homeless people in that they both may have experienced some form of traumatic event. The BPTSD-6 demonstrated good validity by predicting correctly 85% of PTSD cases and 82% of no-PTSD cases as measured by DSM-III-R.

Studies have demonstrated the reliability and validity of the PSS. One study with a sample of 2,387 people within the United States demonstrated good reliability with $\alpha = .78$ (Cohen & Williamson, 1988). Correlations between the PSS and life event scales demonstrated construct validity ($r \geq 0.26$, $p < .0001$). Inverse correlations between the PSS and life satisfaction scale supported construct validity ($r = 0.47$, $p < .0001$). The study also provided normative data for multiple stratifications by gender, race, and age.

The landmark study for PSS reliability and validation tested the instrument with two college student samples and one community sample focusing on smoking cessation programs (Cohen, Kamarck, & Mermelstein, 1983). Sample sizes were 332 students, 114 students, and 64 smoking cessation program participants, respectively. Test-retest reliability for each sample was $\alpha \geq .84$. Correlations of 0.24 or greater at $p < .01$ between the PSS and life event scores demonstrated moderate concurrent validity. Given the expected effect of depression on stress, correlations of 0.65 or greater at $p < .001$ between the PSS and reported depression symptoms demonstrated good predictive validity for related stress. Likewise, given the expected effect of physical health problems on stress,

correlations of 0.52 or greater at $p < .001$ demonstrated good predictive validity for related stress.

Prior studies have used the PSS in samples of homeless people (De Vincente, Munoz, Perez-Santos, & Santos-Olmo, 2004; Waldrop-Valverde & Valverde, 2005). These studies identified statistically significant differences in perceived stress as it related to the effectiveness of treatment interventions. However, these studies relied on the original instrument reliability from the study by Cohen, Kamarck, and Mermelstein (1983).

The personal history form demonstrated good reliability with correlation coefficients of 0.75 to 0.89 for each tool component (Drake, McHugo, & Biesanz, 1995). The measurement was observed from a sample consisting of 188 homeless adults with substance use disorders. Unfortunately, no validity data was reported.

The service attitudes component of the health belief model instrument had construct validity through factor analysis and test-retest reliability, $\alpha = .89$ (Saleeby, 2000). The measurements were observed from a sample consisting of 123 adults of whom the majority was African American.

The service use scale demonstrated a reliability of $\alpha \geq .70$ for each domain of the tool (Sosin, Yamaguchi, Bruni, Grossman, Leonelli, & Reidy, 1994). The measurement was observed from a sample consisting of 419 homeless adults divided among housing, case management, and control groups.

Procedure

Collection of data

Identification and approaching potential participants

During the first wave of data collection, participants were randomly selected from client lists provided by each housing program. Interviewers approached the selected clients either in person, by phone, by letter, or through case managers. Interviewers described the study and scheduled interviews with those who expressed interest in participating.

During the second wave of data collection, interviewers contacted those participants who completed the first wave interview and scheduled second wave interviews with those who were still interested in continuing to participate. Interviewers used contact information provided at the end of the first wave interview to find the participants. Clients were contacted either by phone, by letter, by email, through case managers, or in person.

Obtainment of consent

During each interview in all waves of data collection, forms regarding participant consent to participate were reviewed (see Appendix D & E for copies of consent forms). Consent consisted of two phases. First, the *informed consent form* was read to the participant. The form described the overall study, the risks and benefits, the confidentiality agreement, and the Certificate of Confidentiality obtained from the National Institute of Health. Interviewers answered any participant questions. Participants who consented signed the form and began the interview. Once the survey

portion of the interview was complete, interviewers started the second phase of consent and read the *consent form for tracking/follow-up* to the participant. The consent form for tracking/follow-up described the use of administrative data and contact information for family members and friends that would be requested from the participant. The purpose of tracking was to setup future interviews as part of the longitudinal study as well as to review administrative data that described the participant's progress in the homeless system over the next 12 months. Participants who consented to be tracked signed the form and any release forms for administrative data that they were comfortable sharing with the researchers. The administrative data included program use information, health information, and service use information from the Illinois Department of Human Services, the Illinois Department of Public Aid, and the Chicago Department of Family and Support Services, respectively.

Data collection protocol

Data collection for both the first and second waves consisted of the following steps:

1. The interviewer approaches the randomly selected participant and schedules an interview time.
2. The interviewer obtains from the locked drawers at the Loyola University Center for Urban Research and Learning (CURL) one survey in its own folder, one folder of consent forms and administrative data release forms, one calendar, one set of scale flip-cards, at least one pen, one 1-day CTA pass, one Jewel-Osco gift card, one reminder card, and one blank receipt.

3. The interviewer numbers the consent forms and data release forms with the eight digit identification number written on the survey.
4. The interviewer meets with the participant at the scheduled interview time.
5. The interviewer reviews the purpose of the study and reads through the informed consent form with the participant. A copy of the consent form is given to the participant. If requested, a copy of the certificate of confidentiality is also given to the participant.
6. If the participant chooses to not consent, the meeting is ended.
7. If and after the participant consents through signing of the informed consent form, the interviewer opens the survey and begins to ask questions in the order that the survey directs. As the participant provides answers, the interviewer records them on the survey.
8. When the survey is complete, interviewers read the consent for tracking/follow-up form with the participant.
9. If the participant does not consent to tracking, he or she is given the reminder card for the next survey, the gift card, and CTA day pass and asked to sign a receipt. The meeting is then ended.
10. If the participant consents to tracking through signing of the form, the interviewer reviews each administrative data release form with the participant and provides an opportunity for the participant to consent or refuse access to such data. The interviewer then completes the client locator form with the participant. The client locator form requests contact information like permanent address and telephone

- numbers, names and addresses of family members and friends who would know the participant's location, and service providers' names and addresses. After completion of the client locator form, the interviewer provides the reminder card for the next survey, the gift card, and the CTA day pass. The interviewer also requests a signature on the receipt as record of payment. The meeting is then ended.
11. The interviewer separates the client locator form, the consent forms, and administrative data release forms into one folder and delivers it to one of the project managers for storage in a locked drawer at CURL that is designated for only those forms. The survey is coded, placed in another folder, and given to the other project manager for review. After it is reviewed for incomplete coding and authorized for filing, the survey is returned to the interviewer who then copies the survey, files the original in one locked drawer at CURL designated for original surveys, and files the copy in a second locked drawer at CURL designated for copied surveys.
 12. Original surveys are entered into an SPSS file for the creation of the database. After an original survey has been entered into the SPSS file, the team member performing the data entry files the survey in a locked drawer at CURL designated for entered surveys.
 13. Another team member double checks the data entry by comparing the entries in SPSS with the original survey. After checking is complete, this team member files the survey in a locked drawer at CURL designated for checked surveys.

Data analysis

In order to answer the questions posed in chapter one of this document, the proposed data analysis required multiple statistical processes (see Appendix A for study map linking statistical methods to questions and variables). In order to identify the difference in stress among three types of housing programs, the mean stress levels of participants were compared by housing program type. With stress as the dependent variable and housing program type as the independent variable, one-way ANOVAs were performed to identify if there were mean differences between groups from different housing program types regarding the stress measurement. Likewise, a one-way ANOVA was performed to identify if there were mean differences in stress between those who remained in one type of housing program and those who left or changed housing programs. A one-way ANOVA was an effective statistical test in this case since there was one discrete independent variable considered, and each participant provided one stress measurement as the dependent variable. An ANOVA primarily tested the hypothesis that the means are not equal. Also, a two-way ANOVA was performed to identify if continuity within a type of housing program yielded different stress levels.

In contrast, identifying multiple variables that predict stress levels required a different statistical approach. Observing any predictive relationship of medical and psychological variables on stress required modeling. The method of multiple regression created a linear model from observed variables. Those independent, observed variables that fit the line well were deemed to be highly predictive of the dependent variable. Thus, the data analysis calculated a multiple regression model to identify if there was a

relationship between stress, medical/physical illness, mental illness, affiliation, environment, economic factors, alcohol abuse, substance abuse, victimization, veteran status, and convict status variables. Where a relation was observed, predictive ability was deemed plausible.

The other study questions also required different statistical methods. In order to describe the likelihood of homeless people seeing a nurse, the observed prevalence of different health care programs and provider utilization was calculated. Odds were calculated to compare the utilization of health care programs. Odds and odds ratios were also calculated to compare the utilization of health care providers. Chi-square tests were used to identify if there was an observed difference between the utilization of different health care programs. Chi-square tests were also used to identify if there was an observed difference between the utilization of different health care providers. Chi-square tests were an applicable statistical method in this case since they identified differences between unequal samples by comparing the observed findings with expected findings. If the expected findings were assumed to be equal, unequal observations indicated differences between groups. Thus, chi-square tests identified if there were differences in the prevalence of utilization; the null hypothesis proposed that the utilization was equal.

A chi-square test was also used to identify if there were differences in preferences for health care providers. The null hypothesis proposed that the number of homeless people preferring one health care provider equaled the number of homeless people preferring any other health care provider. After statistically significant differences were observed, comparisons were made regarding the frequencies of reported preference.

Ethical Considerations

Institutional Review Board application

Although the evaluation study for the evaluation of the Chicago Plan to End Homelessness had obtained Institutional Review Board (IRB) approval, this study also submitted for review in order to ensure that the use of data followed human protections of a vulnerable population. Submission to IRB reflected the proposed performance of a secondary data analysis, and the application was approved through waiver by Loyola University's Lakeshore Campus IRB and Loyola University Medical Center Campus IRB.

Risks of participation

The performance of the proposed data analysis did not change the risks of participating in the study. The risks of participating related to the types of questions that were asked. Specifically, participants were asked questions about illegal behaviors including drug use and criminal acts. Such questions placed participants at risk of prosecution and discrimination by other members of society. Participants were also asked personal questions that could have invoked uncomfortable feelings. Such questions could have also caused a participant to face troubling emotions and review prior unpleasant situations.

Benefits of participation

Participants received no direct benefits for participation other than compensation for their time and having the chance to share their experiences. The compensation was a gift card to Jewel-Osco and 1-day CTA pass. The first wave survey paid a \$20 gift card,

and the second wave survey paid a \$25 gift card. The homeless population, however, benefited since the responses participants provided were intended to improve services for homeless people.

Confidentiality of data protections

When the CPEH evaluation project is complete, all identifiable data will be destroyed, and the de-identified database will remain. Until then and in order to protect patient confidentiality, all consent forms, release forms, and client locators are stored separately from the surveys and in locked drawers at CURL. The identification number is the only link between the consent forms and the surveys. The surveys do not have the participants' names on them.

Presence of informed consent

As mentioned previously, an informed consent form was read with each participant prior to beginning of each interview during the CPEH evaluation project. Interviewers encouraged participants to ask questions about the study and participant protections (see Appendices D & E for copies of consent forms).

CHAPTER FOUR

RESULTS

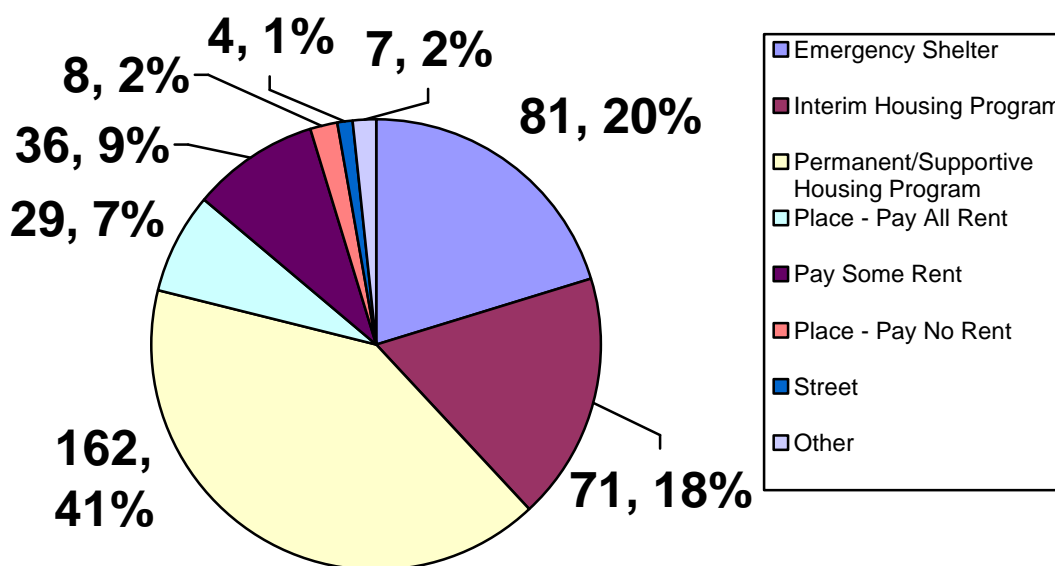
Sample Characteristics

The sample contained a diverse range of demographics but weighed unequally with respect to age, race, gender, and non-veterans. So, besides observing the demographics of the entire sample, comparisons based on age, race, gender, and veteran status were also calculated to describe differences in frequency, housing usage, and measurements of stress.

Housing program type

Regarding the entire sample, it consisted of 398 participants obtained from the second wave of the evaluation study of the Chicago Plan to End Homelessness. Much of the sample, 67.6%, reported being born in Chicago, and nearly all, 96.7%, reported being born in the United States. A small portion had a history of military service, 14.1%. More than half, 54.5%, had a criminal history, and the majority, 83.7%, were receiving food stamps. Of the 398 participants, 81 were in emergency shelters, 71 were interim/transitional housing programs, and 162 in permanent/supportive housing programs. As the sum of participants in housing programs indicates, a portion of the sample was not in a housing program, i.e. on the street, renting an apartment on one's own, etc. Figure 2 depicts the proportions of housing usage in the sample.

Figure 2. Sample by Living Situation



Note that the permanent housing portions include permanent housing programs, supportive housing programs, and permanent housing without the use of a program, i.e. apartment where a participant pays all the rent and receives no services. Since the sample reflects a group of homeless housing program participants following a six month period where changes in programs and living situation can occur; those in permanent housing without program use are considered to be homeless people who have progressed into stable housing and work to maintain it. Emergency shelters and interim housing refer to housing programs only; there are no interim or shelter accommodations outside of an established program among the sample.

The participants within each living situation, i.e. housing program type, place where paying rent, street, etc., may be further described by demographics. The purpose

of such a comparison is to identify differences between groups from different living situations and more specifically different housing program types.

Age

With regards to the demographic of age, the sample as a whole ranged from 21 years to 80 years with a mean age of 46 years and median of 48 years. Figures 3 and 4 provide the spread of ages graphically.

Figure 3. Sample by Age

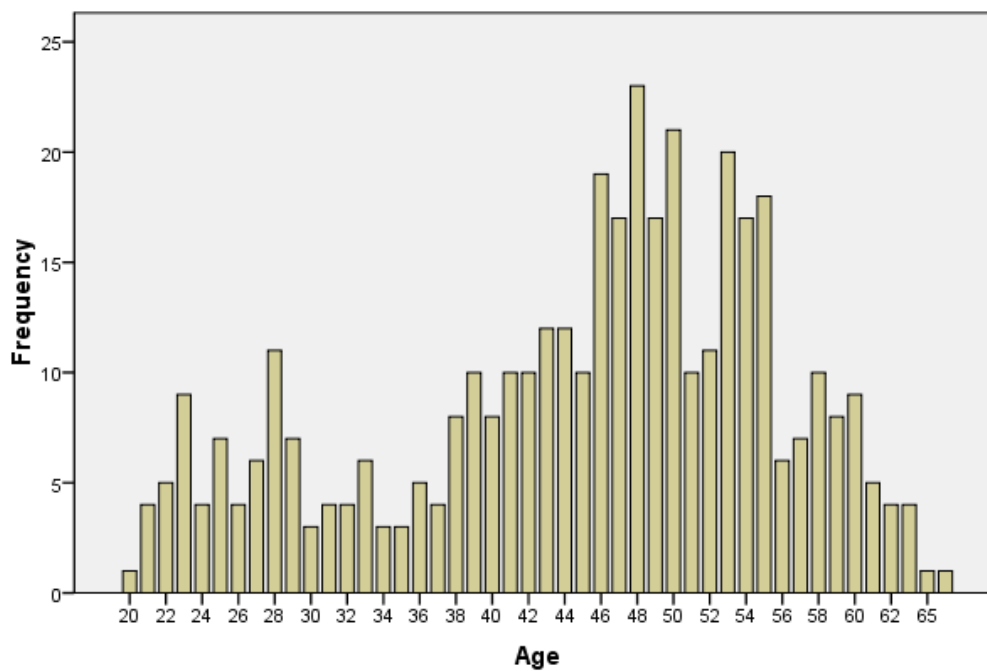
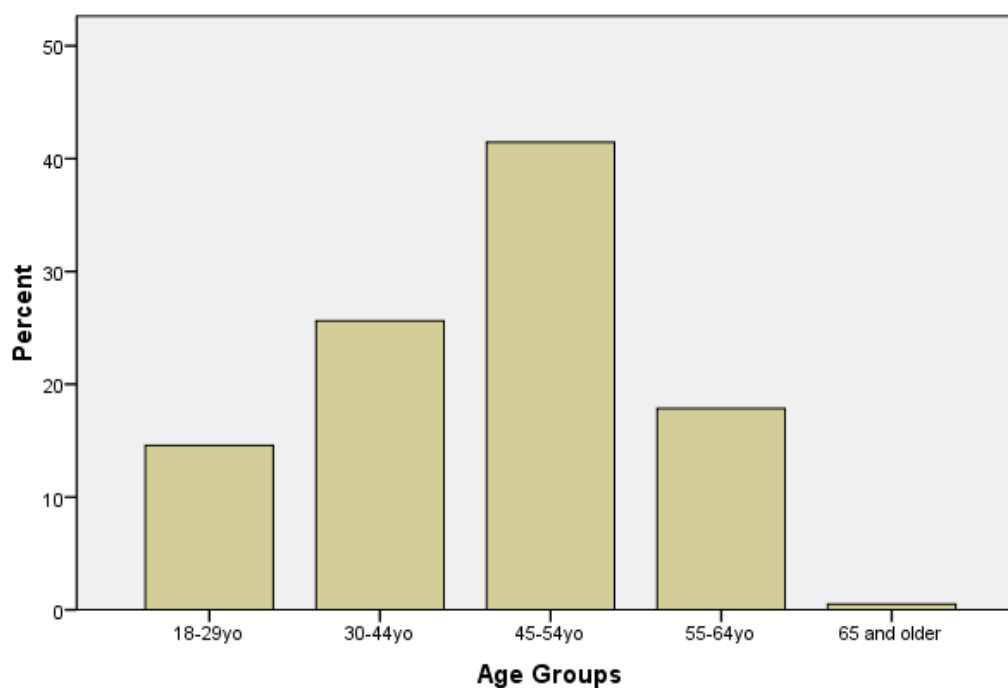


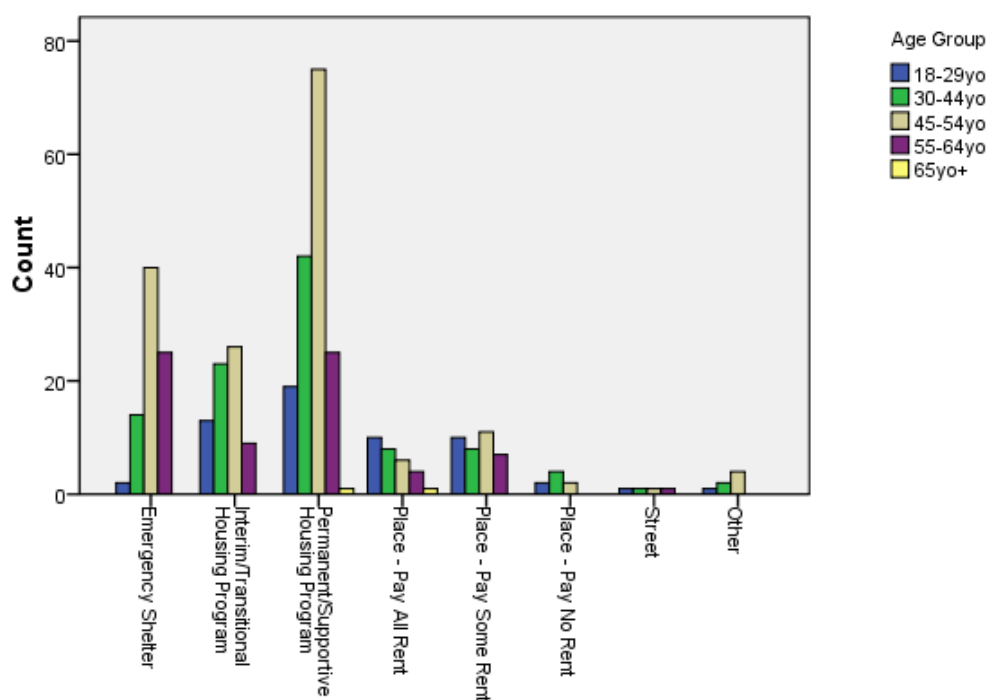
Figure 4. Sample by Age Groups



As Figures 3 and 4 suggest, the age group with the largest portion was age 45 to 54 years old. The smallest portion with only 2 participants was age group 65 years and older. The presence of a difference between ages as delineated by groups and as a continuous variable was clarified by statistically significant chi-square statistics of 23.751 with $p = .003$ and $1.188E^2$ with $p = .007$, respectively.

When the age groups were compared by living situation, all age groups were generally represented among the housing situations with the exception of those participants aged 65 years and older. Figure 5 describes the number of participants in each age group within each living situation.

Figure 5. Sample of Age Groups per Living Situation

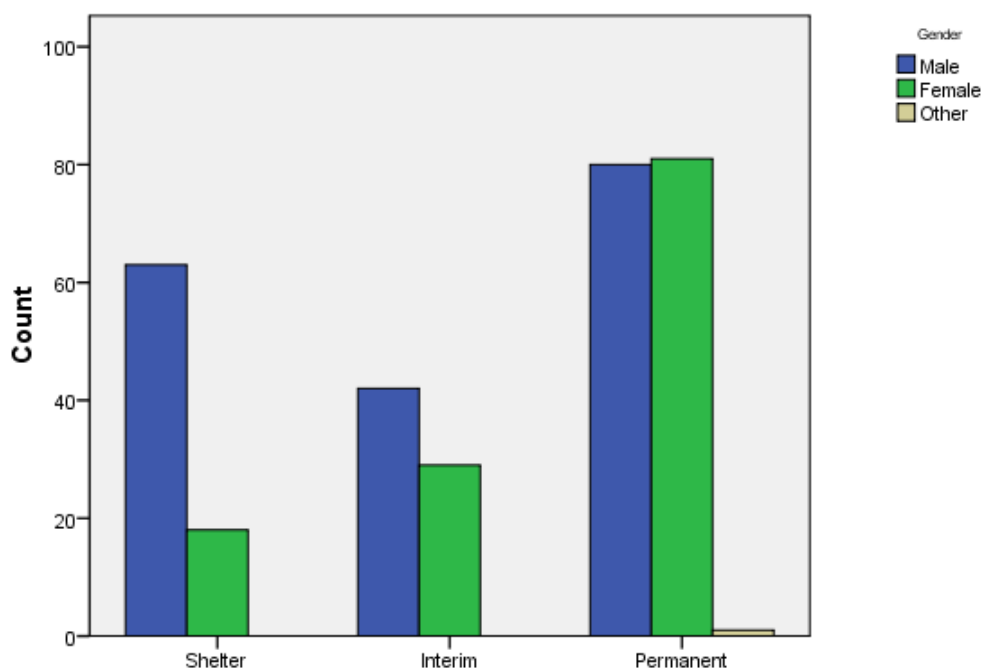


Participants who were not living in a housing program were a minority of the sample and provided minimal comparisons between age groups. If age as divided into two groups, 18 to 44 year olds and 45 year olds and greater, the frequencies of different age groups within each non-housing program living situation were approximately equal suggesting minimal bias by age on non-housing program living situations within the sample. On the other hand, the housing program living situations, i.e. emergency shelter, interim programs, and permanent programs, comprised a majority of the sample. Emergency shelters and permanent/supportive housing programs had greater proportions of those participants aged 45 years and older than aged 44 years and younger. Interim programs had roughly equivalent numbers of older and younger participants.

Gender

Similarly, the sample was further divided by gender. The sample consisted of 222 males, 175 females, and 1 other; this corresponded to approximately 55.8%, 44%, and 0.3% of the sample. With the exception of the *other* gender category, gender categories were represented within each type of living situation. When the genders were compared between housing program types only, the frequency of genders differed as evident by a chi-square of 21.359 with $p < .001$. Figure 6 demonstrates the proportions of males and females in each program type.

Figure 6. Housing Program Type by Gender

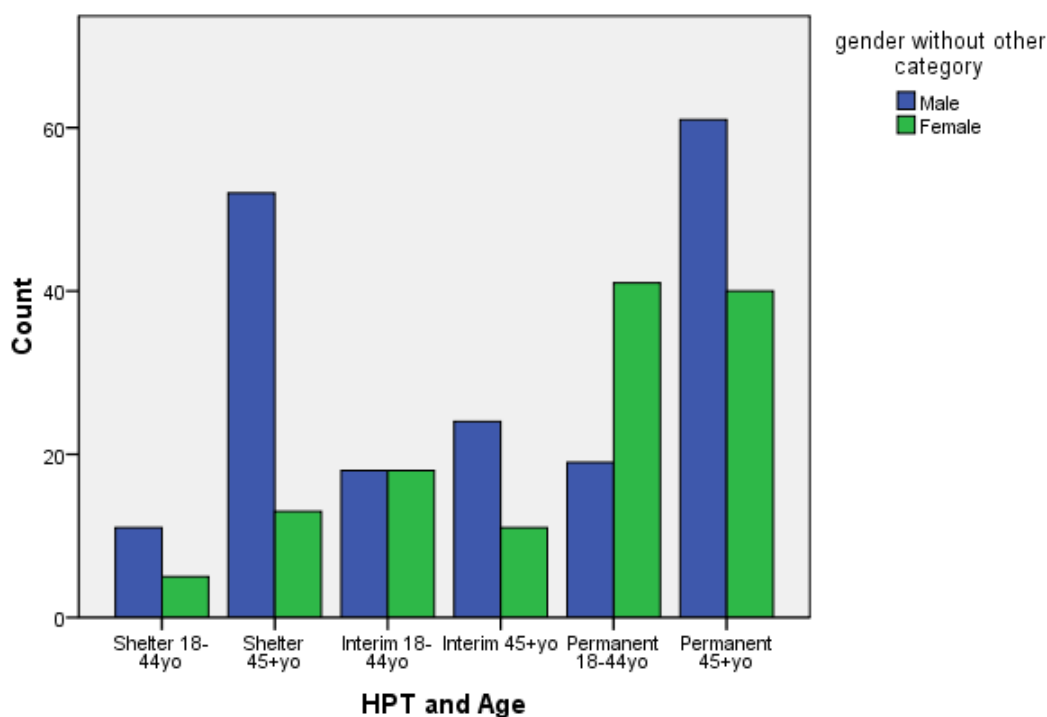


Within housing program types, the frequencies of gender differed among emergency shelters and interim programs but did not appear to differ among permanent programs.

Gender and age

When gender was further delineated by age and housing program type, differences in groups were identified as suggested by a chi-square of 33.647 with $p < .001$; in order to compare males and females, the other category was removed for further calculations. Figure 7 depicts the observed differences in gender among age groups between housing program types.

Figure 7. Gender by Age and Housing Program Type



Specifically, shelters contained more males than females, and interim programs observed a greater majority of males aged 45 year or older. In contrast, permanent programs contained greater numbers of females under 45 years old and males over 44 years old than any other groups. Permanent housing also contained a large number of

females over 44 years old. The potential bias of gender suggested possible effects related to younger females in permanent programs and males in shelter programs.

Race

Another potential bias was also observed among racial groups. The interview questions about race permitted a mixed race response. Figure 8 describes the proportion of races observed.

Figure 8. Sample by Racial Make-up

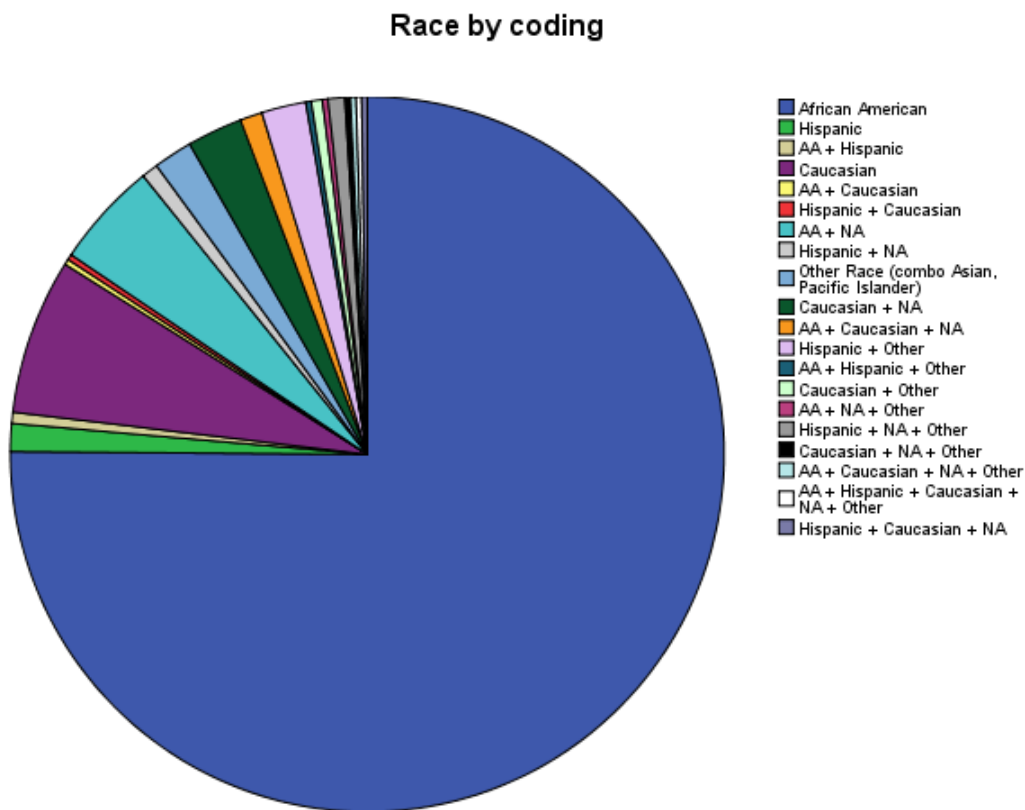


Figure 8 demonstrates that the majority of the sample reported being only African American. This suggests a potential bias in the results favoring the reports by African Americans. The frequencies of reported racial categories are available in Table 2.

Table 2. Racial Frequencies

Race	Frequency	Percent of Sample
African American	338	84.9
Hispanic	28	7
Caucasian	44	11.1
Native American (includes Alaska Native)	41	10.3
Other Race (includes Asian & Hawaiian)	28	7

The frequencies of Table 2 further capture the dominance of those reporting race as African American such that each racial category includes reports from those reporting multiple racial categories. The overwhelming percentage of African Americans in the sample prompted the need to compare that portion of the sample separately.

However, before describing the demographics of the sample of African Americans, comparisons of the whole sample related to race requires elaboration. When race was delineated by housing program type, no statistically significant differences were observed. Table 3 provides the frequencies of reported race within each type of housing program.

Table 3. Housing Program Type by Race

Race	Emergency Shelter	Interim Program	Permanent Program	Chi-Square	Sign.
African American	72	59	138	1.553	.460
Hispanic	6	6	6	1.178	.555
Caucasian	7	8	20	1.516	.469
Native American	5	6	24	3.999	.135
Other Race	7	4	8	3.423	.181

Race and gender

Despite there not being any observed differences in housing program type by race, comparisons by gender and age were further calculated. Table 4 provides the race comparison by gender and housing program type.

Table 4. Housing Program Type by Race and Gender

Race	Emergency Shelter		Interim Program		Permanent Program		Chi-Square	Sign.
	Male	Female	Male	Female	Male	Female		
African American	57	15	36	23	65	72	19.759	<.001
Hispanic	5	1	4	2	1	4	4.752	.093
Caucasian	4	3	2	6	13	6	4.311	.116
Native American	3	2	3	3	10	13	0.475	.788
Other	4	3	3	1	3	5	1.595	.451

Of the five racial categories, African American was the only one to demonstrate a statistically significant difference as delineated by gender and housing program type. It suggested that there exists some difference between African American males and females within and between program types. The remaining racial categories did not demonstrate differences, but it should be noted that the frequency of females in permanent programs were greater than males among not only African Americans but also Hispanic, Native American, and other categories. Also, Caucasians had a greater number of females than males in interim programs.

Race and age

Racial differences were also observed by age groups and housing programs.

Table 5 provides the comparison.

Table 5. Housing Program Type by Race and Age

Race	Emergency Shelter		Interim Program		Permanent Program		Chi-Square	Sign.
	18-44yo	45+yo	18-44yo	45+yo	18-44yo	45+yo		
African American	13	59	28	31	52	86	13.604	.001
Hispanic	4	2	5	1	6	0	2.400	.301
Caucasian	1	6	5	3	8	12	3.616	.164
Native American	0	5	5	1	13	11	7.811	.020
Other	2	5	3	1	3	5	2.371	.306

Statistically significant differences were observed among African American and Native American groups as delineated by age and housing program type. It suggests that the African American portion of the sample tends to consist more of older people, particularly in emergency shelter and permanent programs. It also suggests that Native American participants in shelters are typically older while those in interim programs are typically younger.

Race, age, and gender

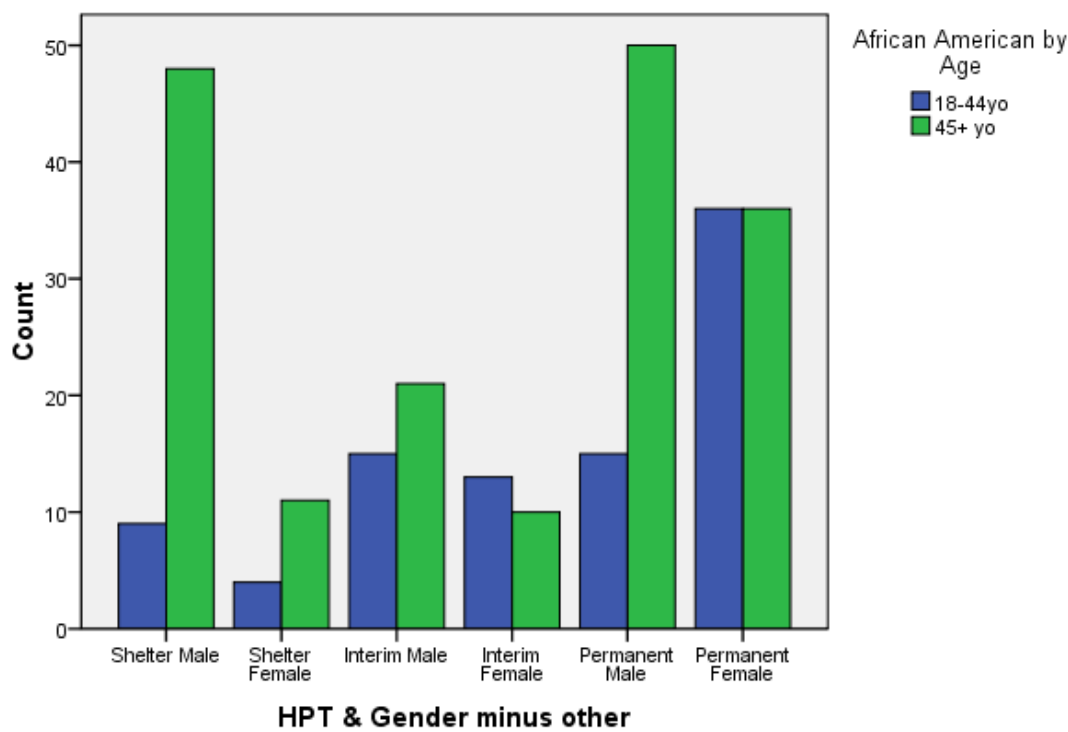
In order to further clarify any differences in race by age, gender, and housing program type, comparisons were calculated. Table 6 provides the comparison.

Table 6. Housing Program Type by Race, Age, and Gender

Race	Emergency Shelter		Interim Program		Permanent Program		Chi-Square by Race	Sign.
	18-44yo	45+yo	18-44yo	45+yo	18-44yo	45+yo		
African American Male	9	48	15	21	15	50	26.459	<.001
African American Female	4	11	13	10	36	36		
Hispanic Male	3	2	3	1	1	0	3.582	.611
Hispanic Female	1	0	2	0	4	0		
Caucasian Male	0	4	0	2	4	9	9.571	.088
Caucasian Female	1	2	5	1	3	3		
Native American Male	0	3	2	1	4	6	9.426	.093
Native American Female	0	2	3	0	8	5		
Other Race Male	2	2	2	1	1	2	4.505	.479
Other Race Female	0	3	1	0	2	3		

The only statistically significant difference observed was among African American males and females. The remaining racial categories had small numbers of participants to spread across the divisions of housing program type, gender, and age; for this reason, it may have been difficult to identify differences. Nonetheless, the frequency differences observed among African Americans are depicted in Figure 9.

Figure 9. African Americans in Housing Program Types by Age and Gender



With respect to African Americans, the majority of those in shelters and permanent housing programs were older males. It may also be suggested that regardless of gender, African Americans in shelters tended to be older. Female African Americans were more prevalent in permanent programs but had approximately equal numbers with respect to age. It should also be noted that the majority of African Americans in interim programs appeared to be older males. More on African American comparisons will be discussed later.

Other demographics

The sample as a whole is complex given the multiple number of demographics beyond race, gender, and age that were available to describe it. For example, family status was described such that 61.6% of the participants reported never being married;

another 33.4% reported being divorced, separated, or widowed. Of the sample, 73.9% reported having birthed or fathered children, but only 86 participants, 21.6%, had their families with them.

Education and employment was also described. The lowest reported education obtained was 2nd grade while 69.1% had at least completed high school or GED. Of the sample, 10.5% had obtained a Bachelor's Degree, vocational diploma, or higher degree by the time of interview. Only 9.3% of the sample reported having fulltime employment; another 14.9% had some form of part-time employment. Most were not employed; 49.5% reported being unemployed, 23.4% reported being retired or disabled, and 2.8% were students. One participant reported being a homemaker.

Health problems were prevalent having been observed in 63.6% of the sample. Of the 398 participants, 56.3% reported having some chronic medical problem that was interfering with their life or required attention; 39.2% of participants reported having a diagnosed disability. Also, 54.8% of the sample reported using prescribed medication on a regular basis.

Mental illness was reported as being present within a smaller portion of the sample. Although only 150 participants responded to the question about the presence of disabilities, their responses demonstrated that 21.1% of the 398 participant sample had some form of psychological or mental health condition. This included schizophrenia at 4.8%, bipolar disorder at 8%, and depression at 9.9%. However, these results can only be taken as estimates since the disabilities question only permitted the inclusion of one disease or disability. It is possible that a participant had more than one disability or

related health problem. Therefore, it is possible that the actual prevalence of mental illness in the sample is higher than reported. It should also be noted that of the 222 participants who responded to the question about the presence of a chronic illness, they demonstrated that of the 398 participant sample, 10.6% had hypertension, 8.3% had a pulmonary disease, 5.4% had diabetes, 4.5% had some form of heart disease, and 2.4% had HIV/AIDS. Other notable health problems in the sample included arthritis at 2.6% and asthma at 7.7%. Similar to the disabilities question, these results may underestimate the quantity of health problems present in the sample since the question requested only one primary chronic illness response. Other health problems reported by participants within the sample included chronic pain, vision difficulties and eye disease, back and hand injuries, cancer, seizure disorders, hepatitis, high cholesterol, and hypothyroidism.

Beyond medical problems, the sample was also described by durations of homelessness. Participants reported durations of homelessness ranging from one month to 372 months. Of the 398 participants, 29 reported being homeless before age 18 years; 154 participants, 38.7%, reported having only one episode of homelessness. Also, 68.3% of the sample was still using the same housing program that they were using approximately six months before the interview.

The demographics of having a medical problem, having only one episode of homelessness, using prescription drugs, problems with alcohol use, problems with substance use, problems with employment, veteran status, and convict status were further cross-referenced with housing program type, gender, age, and race. Table 7 provides the

statistically significant comparisons that indicate differences between groups based on the observed demographics.

Table 7. Statistically Significant Demographic Comparisons

Demographic A	Demographic B	Demographic C	Chi-Square	Sign.
Housing Program Type	Use Prescribed Medication		17.834	<.001
	Medical Problem		14.732	.001
	Problems with Employment		21.599	.006
	Problems with Alcohol		17.423	.026
	Only One Homeless Episode		6.949	.031
Age	African American	Use Prescribed Medication	25.555	<.001
		Medical Problem	15.744	<.001
		Veteran	9.946	.002
	Hispanic	Only One Homeless Episode	6.604	.010
		Veteran	6.171	.013
		Only One Homeless Episode	6.286	.012
	Caucasian	Only One Homeless Episode	6.286	.012
		Veteran	5.132	.023
	Native American	Use Prescribed Medication	4.806	.028
		Only One Homeless Episode	3.939	.047
	Other Race	Use Prescribed Medication	4.861	.027
		Use Prescribed Medication	8.027	.005
	Male	Use Prescribed Medication	8.027	.005
		Use Prescribed Medication	18.463	<.001
	Female	Medical Problem	10.320	.001
Only One Homeless Episode		5.537	.019	
Only One Homeless Episode		5.537	.019	

These statistically significant findings suggest that prescription medication use, presence of medical problems, having problems with employment, having problems with

alcohol, and whether someone has had only one episode of homelessness differed between the housing program types. The differences are demonstrated by the corresponding frequencies available in Table 8.

Table 8. Demographic Comparisons by Housing Program Types

	Emergency Shelter	Interim Program	Permanent Program
Use Prescribed Medication	28	43	108
Have Medical Problem	37	52	119
Have Employment Problems	33	26	48
Have Alcohol Problems	15	7	14
Have Only One Episode of Homelessness	38	17	64

Permanent housing programs had greater frequencies of prescribed medication use, medical problems, and employment problems than the other program types. Permanent programs also had a greater proportion of participants who were experiencing homelessness for the first time. It should also be noted that participants in shelters reported having medical problems or using prescribed medication less than those in interim or permanent programs. Participants in interim programs had fewer problems with alcohol than those in other program types.

Similarly, the other comparisons that were statistically significant but not delineated by housing program type yielded further descriptions of groups within the sample. Table 9 provides the frequencies of these comparisons.

Table 9. Other Significant Comparisons by Race, Age, and Gender

Group	Medical Problem	Use Prescribed Medication	Only One Homeless Episode	Veteran
African American 18-44yo	67	49		9
African American 45+yo	142	129		38
Hispanic 18-44yo			8	0
Hispanic 45+yo			9	2
Caucasian 18-44yo			10	
Caucasian 45+yo			24	
Native American 18-44yo		10	7	0
Native American 45+yo		15	12	4
Other Race 18-44yo		4		
Other Race 45+yo		12		
Male 18-44yo		25		
Male 45+yo		100		
Female 18-44yo	52	38	51	
Female 45+yo	59	55	47	

Specifically, older African Americans had more medical problems and prescription medication use than younger African Americans. Likewise, more of the older African Americans, Hispanics, and Native Americans were veterans than younger African Americans, Hispanics, and Native Americans. Older Native Americans and older participants of the other race category used more prescribed medication than the younger of those two racial categories. More older Native Americans were also experiencing homelessness for the first time compared to younger Native Americans.

Similarly, older males and females used more prescription medication than younger males and females, respectively. Older females also had more medical problems

than younger females, but more younger females than older females were experiencing homelessness for the first time.

Family specific

The demographic findings that noted a difference between the number of people birthing or fathering children and the number of people with children living with them prompted further investigation into the portion of the sample that did have family with them while being homeless. Of the 398 participant sample, 86 participants had their family with them. Table 10 provides the demographics of those participants.

Table 10. Demographics of Participants with Families

Demographic	Frequency With Families	% of Participants With Families	% of			
			Male	Female	18-44yo	45+yo
Whole	86	100.0%	4	82	71	15
Male	4	4.7%			2	2
Female	82	95.3%			69	13
18-29yo	41	47.7%				
30-44yo	30	34.9%				
45-54yo	12	14.0%				
55-64yo	3	3.5%				
65+yo	0	0.0%				
African American	78	90.7%	4	74	64	14
Hispanic	7	8.1%	0	7	7	0
Caucasian	5	5.8%	0	5	4	1
Native American	10	11.6%	1	9	8	2
Other Race	5	5.8%	0	5	5	0
Married	7	8.1%				
Never Married	67	77.9%				
Widowed/ Divorced/ Separated	12	14.0%				

Demographic	Frequency With Families	% of Participants With Families			18-44yo	45+yo
			Male	Female		
Emergency Shelter	1	1.2%	0	1	1	0
Interim Program	18	20.9%	0	18	13	5
Permanent Program	31	36.0%	2	29	23	8
Place – Pay All Rent	16	18.6%				
Place – Pay Some Rent	14	16.3%				
Place – Pay No Rent	3	3.5%				
Street	0	0.0%				
Other Living Situation	3	3.5%				
Use Prescribed Medication	32	37.2%				
Have Medical Problem	43	50.0%				
Only One Homeless Episode	33	38.4%				
Veteran	2	2.3%				
Alcohol Problem	1	1.2%				
Employment Problem	31	36.0%				

The primary finding from the investigation of the family demographic was that the majority of them were young females that had never been married. This finding was consistent across racial categories and housing program types. It should be noted that 41.9% of those with families were no longer in a housing program, but none reported being on the street. Also, a smaller portion, 38.4%, of those with families were

experiencing homelessness for the first time; this suggests that the majority had been homeless previously despite being a primarily younger group.

African American specific

The demographic finding that African Americans dominate the ranks of the sample prompt further elaboration on the demographic specific to those participants.

Table 11 provides the frequencies of African Americans in the sample.

Table 11. Demographics of African Americans within the Sample

Demographic	Frequency of		% of African			
	African Americans	American Participants	Male	Female	18-44yo	45+yo
Whole	338	100.0%	186	151	136	202
Male	186	55.0%			51	135
Female	151	44.7%			84	67
18-29yo	51	15.1%				
30-44yo	85	25.1%				
45-54yo	140	41.4%				
55-64yo	60	17.8%				
65+yo	2	0.6%				
With Family	78	23.1%	4	74	64	14
Married	15	4.4%				
Never Married	213	63.0%				
Widowed/ Divorced/ Separated	110	32.6%				
Emergency Shelter	72	21.3%%	57	15	13	59
Interim Program	59	17.5%	36	23	28	31
Permanent Program	138	40.8%	65	72	52	86
Place – Pay All Rent	25	7.4%	9	16	16	9
Place – Pay Some Rent	26	7.7%	11	15	16	10
Place – Pay No Rent	8	2.4%	4	4	6	2

Demographic	Frequency of African Americans	% of African American Participants	Male	Female	18-44yo	45+yo
Street	4	1.2%	2	2	2	2
Other Living Situation	6	1.8%	2	4	3	3
Use Prescribed Medication	178	52.7%				
Have Medical Problem	209	61.8%				
Convict	190	56.2%				
Veteran	47	13.9%				
Alcohol Problem	30	8.9%				
Employment Problem	121	35.8%				

The majority of the African Americans in the sample were older males using emergency shelters and permanent housing programs, 48 and 50 participants respectively. If an African American participant was female, she was typically younger and had her family with her. She was also typically in a permanent housing program. Specifically, 36 young, African American females with their families were in a permanent program, 13 were in an interim program, and 4 were in an emergency shelter. Over half of the African Americans in the sample had medical problems and/or used prescription medication. Over half also had a criminal history.

Veterans specific

Veterans remained a small portion of the sample, but their potential eligibility for veterans' benefits confounded questions about the utilization of Veterans' Affairs facilities. It was prudent to review the reported eligibilities of those initially identified as veterans, that is those with a history of military service. Since the concern was with the

eligibility for VA healthcare services, the frequency of eligibility was compared to veteran status. Of the 398 participant sample, 56 had a history of military service; 50 had been honorably discharged, but only 28 reported being eligible for VA healthcare benefits. It should be noted that 11 of the 56 veterans did not know if they were eligible for VA healthcare benefits. For the purpose of this study, the term *eligible veterans* refers to those 28 participants who reported being eligible for VA healthcare benefits.

Stress specific

Another concern regarding the effect of demographics on the study corresponded to the PSS scores. In particular, if the demographics were of greater predictive ability than the proposed variables, then the proposed predictor variables would be of little value and potentially demonstrating predictive ability that should actually be attributed to demographics. Since one of the primary questions under investigation paired PSS scores with housing program type, demographics that previously demonstrated statistically significant relationships with housing program type were tested. Specifically, multiple regression modeling was performed with housing program type, having a medical problem, using prescription medication, having alcohol problems, having employment problems, age groups, age as a continuous variable, and gender as independent variables. The model had an F-statistic of 2.541 with $p = .012$, R square = .197, and only two variables, having alcohol problems and having employment problems, demonstrated statistically significant t-statistics, $p = .003$ and $.048$ respectively. Thus, the tested demographics have limited predictive ability toward PSS scores and as a model account for almost no variability.

In order to further test for any relationships by demographics on PSS scores, t-tests were run. PSS scores were compared to age groups, gender, race, and race as divided by gender. The only statistically significant t-test was between PSS scores and age where the t-statistic was 2.265 with a $p = .024$. The mean PSS scores as delineated by those age 18-44 years and those age 45 years or older were 16.64 and 14.72 respectively. This suggested that younger participants in the sample had higher stress scores than older participants.

To further clarify the degrees of stress among portions of the sample, Table 12 provides the mean PSS scores among the sample as delineated by demographics.

Table 12. Mean PSS Scores Among the Sample

Demographic	N	Min	Max	Mean	t-stat	Sign.
Males	197	0	38	15.31	-.467	.641
Females	155	0	37	15.70		
18-44 yo	143	0	35	16.64	2.265	.024
45+yo	210	0	38	14.72		
African Americans	306	0	38	15.38	-0.731	.465
Hispanics	23	4	31	17.74	1.420	.156
Caucasians	36	1	33	16.25	0.607	.544
Native Americans	35	0	37	16.97	1.172	.242
Other Race	22	5	31	16.09	0.366	.715
Alcohol Problems	37	5	37	19.97	3.738	<.001
No Alcohol Problems	316	0	38	14.97		
Drug Problems	37	5	35	21.54	-5.133	<.001
No Drug Problems	316	0	38	14.79		
Employment Problems	126	0	38	16.51	1.736	.085
No Employment Problems	8	0	24	11.25		

Demographic	N	Min	Max	Mean	t-stat	Sign.
Veterans	47	1	38	15.02	-0.448	.654
Eligible Veterans	23	1	38	14.70	-0.195	.846
Ineligible Veterans	15	3	33	15.27		
Family With Participant	81	0	35	15.73	0.300	.764
Family Not With Participant	272	0	38	15.43		
First Homeless Episode	137	0	37	15.17	-0.975	.330
Not First Homeless Episode	194	0	38	16.03		
Male 18-44yo	53	6	33	17.11	1.985	.049
Male 45+yo	144	0	38	14.65		
Female 18-44yo	89	0	35	16.30	1.096	.275
Female 45+yo	66	0	37	14.89		
Shelter Male	63	0	34	16.44	1.944	.056
Shelter Female	15	0	21	12.27		
Interim Male	30	2	23	14.00	-1.723	.091
Interim Female	26	1	30	17.19		
Permanent Male	71	1	38	15.11	-0.560	.576
Permanent Female	70	0	37	15.84		
Shelter Male 18-44yo	11	8	26	17.36	0.437	.664
Shelter Male 45+yo	52	0	34	16.25		
Shelter Female 18-44yo	4	9	21	15.75	1.221	.244
Shelter Female 45+yo	11	0	21	11.00		
Interim Male 18-44yo	13	7	23	16.54	2.482	.019
Interim Male 45+yo	17	2	20	12.06		
Interim Female 18-44yo	16	9	30	20.25	2.607	.015
Interim Female 45+yo	10	1	30	12.30		
Permanent Male 18-44yo	16	7	33	18.50	1.871	.066
Permanent Male 45+yo	55	1	38	14.13		

Demographic	N	Min	Max	Mean	t-stat	Sign.
Permanent Female 18-44yo	38	0	25	14.71	-1.480	.144
Permanent Female 45+yo	32	3	37	17.19		

The PSS score means differed significantly with respect to age, alcohol problems, and drug problems. Specifically, younger participants had higher PSS scores than older participants. The trend continued among male participants of the whole sample, male participants in interim housing programs, and females in interim housing programs. When delineating PSS scores by age and housing program type, t-statistics for shelters and permanent programs remained insignificant, 0.729 with $p = .468$ and 0.507 with $p = .613$ respectively. This finding reiterated t-statistics of the previous shelter and permanent housing program delineations available in Table 12. However, the t-statistic for PSS scores as delineated by age and the interim housing program type was 3.820 with $p < .001$. This statistically significant finding further confirmed that there was a difference in stress levels between age groups within interim housing programs. The mean PSS score of those age 18 to 44 years in interim housing programs was 18.59 while that of those 45 years and older in interim housing programs was 12.15.

Likewise, there was a statistically significant difference in stress regarding alcohol and drug problems. Those participants reporting alcohol problems had higher levels of stress than those not reporting alcohol problems. Those participants reporting drug problems, had higher levels of stress than those not reporting drug problems. These

two findings were kept in reference to the modeling process for question two since they had established relationships with PSS scores.

Question One Results

Hypotheses

The first question under investigation inquired about whether there was a difference in stress among the homeless in three different types of housing programs: emergency shelters, interim/transitional housing, and permanent/supportive housing. The hypotheses to be tested were as follows:

- a. Homeless people using permanent housing programs have less stress than homeless people using interim housing programs.
- b. Homeless people using interim housing programs have less stress than homeless people using emergency shelter programs.
- c. Homeless people using emergency programs have the highest levels of stress.
- d. Homeless people using permanent housing programs have less stress than homeless people using interim housing programs or emergency programs.

The null hypothesis to be tested initially was then:

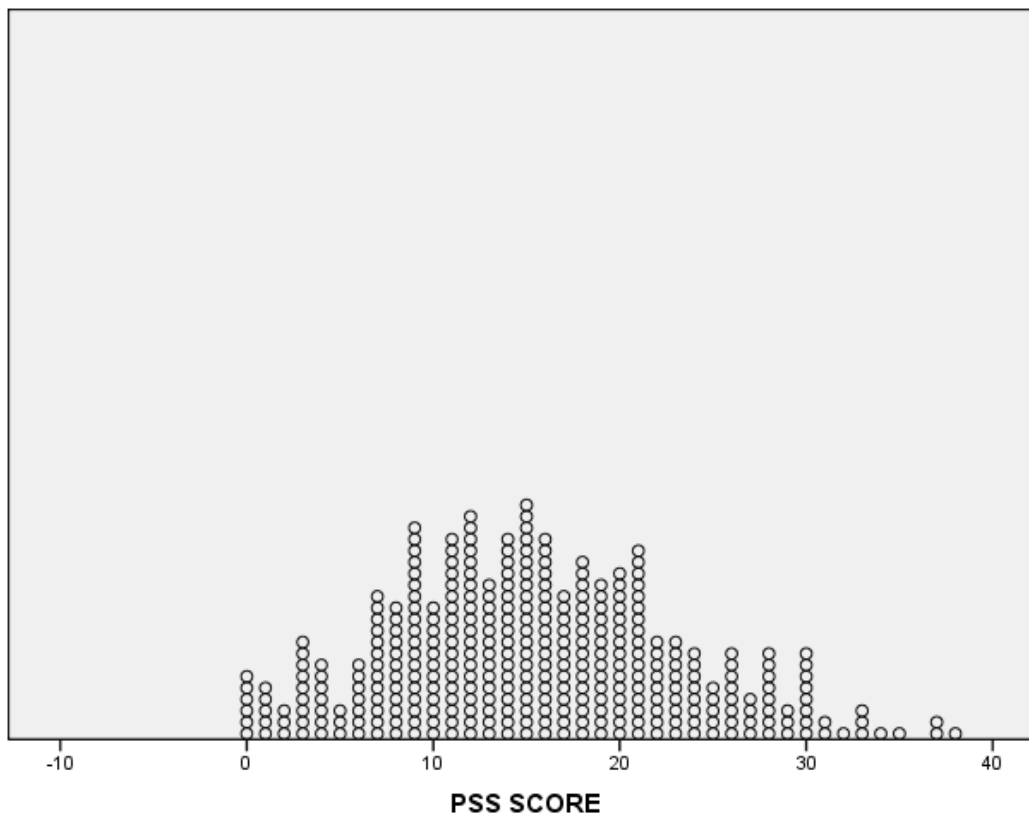
H₀: There is no difference in stress levels between participants of the three different housing programs. In other words, the mean stress levels of participants from each type of program or living place are equal.

Statistics

Assumptions

The statistic used to test these hypotheses was a one-way ANOVA with alpha equal to .05. Three assumptions were required when performing an analysis of variance. The first assumption was that the dependent variable was normally distributed. The score from the PSS measured the dependent variable, stress level (Cohen, Kamarck, & Mermelstein, 1983). Figure 10 is a scatterplot of the PSS scores. The shape of the scatterplot appeared to have a normal bell curve.

Figure 10. PSS Score Distribution Scatterplot



Due to an error in the printing of the surveys during the early part of wave two data collection for the evaluation of the Chicago Plan to End Homelessness, the scores

for the PSS prior to April 5, 2010, were obtained using an incorrect scale. So, the data analyses for questions one and two were based on a smaller portion of the overall sample, 363 participants. The distribution of Figure 3 was based on the 363 participants.

Furthermore, one-sample Kolmogorov-Smirnov tests were performed on the PSS scores with and without the incorrectly scored cases. The Kolmogorov-Smirnov z-score for the sample of 363 participants with correctly obtained PSS scores was 1.038 with $p = .232$. The Kolmogorov-Smirnov z-score for the PSS scores of the 398 participant sample was 1.052 with $p = .218$. Since neither z-score is statistically significant, $p < .05$, both groups of scores were distributed normally.

The second assumption required for analysis of variance was homogeneity. Levene's test demonstrated whether variances were equal. When Levene's F statistic was not statistically significant, the test's null hypothesis that variances were equal could not be rejected, and variances were concluded to be homogenous. Levene's test results are available in Table 16 alongside the ANOVA results.

The third assumption required for analysis of variance was that the dependent variable observations were independent. Since each participant provided only one PSS score, it was assumed that the observations were independent.

Statistical method

Four one-way ANOVAs were performed to test question one's hypotheses. Each one-way ANOVA used the PSS score as the dependent variable. Four combinations of variables were assigned as independent variables, and these combinations included (a) housing program type, i.e. shelter program, interim/transitional housing program, or

permanent/supportive housing program, (b) current living place, i.e. street, apartment, jail, shelter, etc., (c) program continuity, i.e. whether a participant remained in the program since the baseline interview, left the program and returned, or left the program and did not return, and (d) program continuity and baseline interview housing program, i.e. housing program participant was using approximately six months prior to the interview. Table 13 describes the set of performed one-way ANOVAs.

Table 13. Performed ANOVAs for Question One

Test #	Dependent Variable	Independent Variables
1	PSS Score	Housing Program Type
2	PSS Score	Current Living Place
3	PSS Score	Program Continuity
4	PSS Score	Program Continuity & Baseline Housing Program

The one-way ANOVA tests utilized data from 363 participants. Of these 363 participants, 78 were in a shelter program, 56 were in an interim/transitional housing program, and 142 were in a permanent/supportive housing program. To further identify groups with differences, Tukey HSD post hoc tests were performed. Statistically significant mean differences indicated that there were differences between two groups.

Findings

The overall mean of PSS scores was 15.54. This mean was greater than the normal score of 13 established by Cohen and Williamson (1988). PSS means when delineated by demographics were also elevated when compared to previously established norms. Table 14 provides the sample PSS means as delineated by demographics.

Table 14. Comparison of PSS Means with Normal Results

Demographic	Sample (N = 363)			National Sample (N = 2270)		
	Size	Mean	Stand. Dev.	Size	Mean	Stand. Dev
Age						
18 to 29	55	16.42	7.200	645	14.2	6.2
30 to 44	88	16.77	7.252	750	13.0	6.2
45 to 54	142	14.63	8.392	285	12.6	6.1
55 to 64	66	14.95	7.824	282	11.9	6.9
>64	2	13.50	2.121	296	12.0	6.3
Ethnicity						
Hispanic	23	17.74	7.344	98	14.0	6.9
Caucasian	36	16.25	8.108	1924	12.8	6.2
African American	306	15.38	7.982	176	14.7	7.2
Other						
Measured Minority	41	16.10	7.529	50	14.1	5.0
Gender						
Male	197	15.31	7.794	926	12.1	5.9
Female	155	15.70	7.920	1344	13.7	6.6

Note. Adapted from “Perceived Stress in a Probability Sample of the United States,” by S. Cohen & G. M. Williamson, 1988, in S. Spacapan & S. Oskamp (Eds.) *The Social Psychology of Health*, p. 48-50. Copyright 1988 by Sage Publications, Inc.

More importantly for question one, the data provided mean PSS scores as delineated by housing program type. Table 15 provides the PSS score means for each housing program type.

Table 15. PSS Score Means per Housing Program Type

Housing Program Type	Mean	Standard Deviation	Range
Overall Cases	15.54	7.523	0 – 38
Shelter Program	15.64	7.614	
Interim/Transitional Program	15.48	7.038	
Permanent/Supportive Program	15.51	7.707	

At initial glance, the PSS score means, standard deviations, and ranges appeared approximately equal across housing program types. The analysis required ANOVAs to

substantiate this observation. Each one-way ANOVA provided an F-statistic and corresponding significance that was used to determine whether to reject a null hypothesis proposing that the means were equal. Table 16 provides the numerical results of each ANOVA.

Table 16. Question One ANOVA Results

Test #	Sample Size	Levene F-Stat.	Levene Sign.	Homogenous	ANOVA F-Stat.	ANOVA Sign.	H ₀	Tukey HSD Sign.
1	276	0.327	.721	Yes	0.009	.991	FR	0.992-1.000
2	353	2.003	.045	No	1.253	.267	FR	0.344-1.000
3	353	1.903	.151	Yes	0.714	.490	FR	0.554-0.882
4	353	1.400	.164	Yes	0.860	.588	FR	0.387-1.000

Note. FR = Fail to Reject H₀; R = Reject H₀

With no statistically significant F-statistic, the null hypotheses for each ANOVA test could not be rejected. This indicated that the stress levels between the three housing program types without consideration of demographics were equivalent. The power of this test, which indicates the likelihood of identifying a difference between programs if a difference existed, was .05 for both groups. This was a very small power which suggested that the means of the groups were similar enough to prevent identifying any difference between them. Likewise, differences in program continuity did not translate into differences in stress. The stress levels between those people who remained at their baseline housing program, those who left their baseline housing program and returned, and those who left their baseline housing program and did not return were equivalent. Also, there was no difference in stress levels between participants despite their program

continuity and baseline housing program. Nonetheless, it is important to reiterate the finding of the demographics investigation; that is, there is a statistically significant difference in stress between younger and older participants within interim housing programs.

Question Two Results

Hypotheses

The second question under investigation inquired about what variables predicted increased stress levels among the homeless. The hypotheses that were considered with this question include the following:

- a. Homeless people with a chronic illness or diagnosed disability have greater stress than homeless people without a chronic illness or diagnosed disability.
- b. Homeless people with access to health care have less stress than homeless people with no access to health care.

The null hypothesis for this question was then:

H₀: The tested independent variable is not a predictor of the dependent variable, stress level. In other words, the variable or component of a variable has a regression coefficient equal to zero.

If a variable was observed to not have predictive ability toward stress levels, then the groups differentiated by the variable were equivalent regarding stress levels. Table 17 provides the variables under investigation. Appendix A provides a detailed outline about which variables correspond to which questions in the survey.

Table 17. Question Two Independent Variables Categorization

Variable Category	Variable
Affiliation/Disaffiliation	Social Support Living Situation Social Perception
Environment	Neighborhood Quality Residential Problems Neighborhood Perception
Economic Factors	Money Employment Burden Employment Perception Food Affordable Healthcare Clothing Communication
Medical/Physical Illness	Medical Problem Medical Problem Perception Medical Burden
Mental Illness	Psychiatric Problem Perception Psychiatric Burden PTSD
Alcohol Abuse	Alcohol Burden Alcohol Perception
Substance Abuse	Drug Burden Drug Perception
Victim of Violence	Victimization
Veteran Status	Military Service Benefit Eligibility
Convict Status	Convictions

Although the prior investigation of question one demonstrated similar results between the testing of PSS scores with the incorrectly scored cases and without the

incorrectly scored cases, the incorrectly scored cases was omitted from the analysis of question two to preserve the accuracy of identifying predictive variables. The PSS scores from the sample served as the dependent variable for the analysis of question two.

Statistics

Multiple regression using backward elimination was utilized to develop a model containing the independent variables with predictive ability toward stress levels. The initial model was based on the whole sample and consisted of five predictors that each demonstrated predictive ability in the model as demonstrated by statistically significant t-statistics. While the initial model was a good model as suggested by an F-statistic of 77.670 with $p < .001$ and mean square of 28.594, which was less than half the square of the standard deviation of the PSS scores, the initial model only accounted for 53.1% of the variability. In order to identify the existence of any stronger models, regressions were run with samples delineated by age, gender, race, and whether participants had family with them. As appropriate, models were further controlled for age, gender, housing program type, living situation, history of military service, eligibility for veteran healthcare, whether participants had family with them, having medical problems, having only one episode of homelessness, convict status, and using prescribed medication. Initially, the demographic of African American was expected to yield a better model since it covered a large portion of the sample but also narrowed the focus of the model. However, while the African American portion of the sample yielded a model with an F-statistic of 34.944 with $p < .001$, it only accounted for 51.4% of the variability. When the African American sample was further delineated by gender, the male model had an F-

statistic of 45.031 with $p < .001$, but it only accounted for 58.3% of the variability. The African American female model had an F-statistic of 24.611 with $p < .001$, but it only accounted for 56.1% of the variability. Another model addressed the portion of the sample that had families with them. This family model had an F-statistic of 20.190 with $p < .001$; it accounted for 62% of the variability. Another notable rendition was the model that accounted for African American females that had their families with them. This model had an F-statistic of 20.898 with $p < .001$; however, it only accounted for 59.5% of the variability.

The derived model that accounted for the most variance was based on the younger portion of the sample, age 18 to 44 years. It accounted for 68.4% of the variability. The derivation and details of this model follow. For the sake of vigor, the model based on the older portion of the sample, age 45 years and older, had an F-statistic of 81.553 with $p < .001$; however, this model only accounted for 54.5% of the variability.

The model based on the group of participants aged 18 to 44 years was derived through multiple regression. The chosen alpha was .05. Multiple regression required seven assumptions: (a) there was an appropriate ratio of sample to predictors, (b) residuals were normally distributed, (c) prediction residuals had a linear relationship with the dependent variable, (d) residuals demonstrated homoscedasticity, (e) there were no outliers in the derived regression equation, (f) there was no multicollinearity and singularity among predictors, and (g) prediction residuals were independent. Regarding the sample to predictors ratio, the initial number of potential predictor variables being considered was 27, which was distributed among 10 variable categories that were

previously identified as having a possible predictive relationship with stress levels in homeless people. The 27 predictor variables consisted of 91 variable components, questions from the survey. One rule of thumb suggested that the sample size should equal the number of predictor variables times 8 and plus 50 (Tabachnick & Fidell, 2007). This meant that this study should require $50 + 8(27) = 266$ participants, of which there was ample sample size. However, for the purpose of calculation, the regression equation was derived using the variable components. This initially meant that the sample size should equal $50 + 8(91) = 778$, of which there is not enough participants in the sample. The remedy for this analysis problem was the point-biserial, Spearman Rho, and Pearson correlations which identified which variable components demonstrated a linear relationship with the dependent variable. Point-biserial correlations were used for nominal independent variables. Spearman Rho correlations were used for ordinal independent variables, and Pearson correlations were used for continuous independent variables. Table 18 provides the correlations of the variable components.

Table 18. Variable Component Correlations with Stress Level

Variable	Component	Question	Correlation	Significance
Affiliation/ Disaffiliation	Social Support	W2-would caseworkers, counselors, or clergy be available if you wanted to talk about personal problems	-0.171	.042
		W2-would caseworkers, counselors, or clergy be available if you needed to borrow several hundred dollars	-0.228	.007

Variable	Component	Question	Correlation	Significance	
Environment		W2-would friends/family be available if you were upset, nervous, depressed	-0.262	.002	
		W2-would friends/family be available if you wanted to talk about personal problems	-0.225	.007	
		W2-would friends/family be available to take care of you if you were confined to bed	-0.206	.014	
		W2-would friends/family be available if you needed to borrow ten dollars or other small help	-0.215	.010	
		W2-would friends/family be available if you needed to borrow several hundred dollars	-0.216	.010	
		W2-Currently you are living with your own adult children	0.218	.036	
	Living Situation		W2-Currently you are living with other adult children (not your own children)	-0.268	.009
		Social Perception	W2-in the last month how bothered were you by family problems	0.363	<.001
			W2-in the last month how bothered were you by problems with friends or associates	0.296	<.001
	Neighborhood Quality		W2-neighborhood safe for children during the day	-0.179	.045
			W2-neighborhood safe for children during the night	-0.267	.002
			W2-it is safe in my neighborhood	-0.195	.028

Variable	Component	Question	Correlation	Significance
Economic Factors	Residential Problems	W2-do not feel safe walking in my neighborhood	0.185	.037
		W2-neighborhood is a good place to live	-0.272	.002
		W2-broken windows	-0.194	.028
		W2-electrical problems	-0.279	.002
		W2-broken stove or refrigerator	-0.250	.005
	Neighborhood Perception	W2-How satisfied or dissatisfied are you with this neighborhood as a place to live	-0.258	.003
	Money	W2-In the last month how much money did you receive from child support	-0.173	.039
		W2-Which statement best describes the food eaten in your household in the last month	0.355	<.001
		W2-During the last month did you or your kids need clothes but couldn't afford it	-0.169	.044
	Medical/Physical Illness	Medical Problem Perception	W2-how troubled by medical problems	0.341
Medical Burden		W2-in the last month how many days you experienced medical problems	0.244	.003
Mental Illness	Psychiatric Problem Perception	W2-how much were you bothered by emotional problems in the last month	0.552	<.001

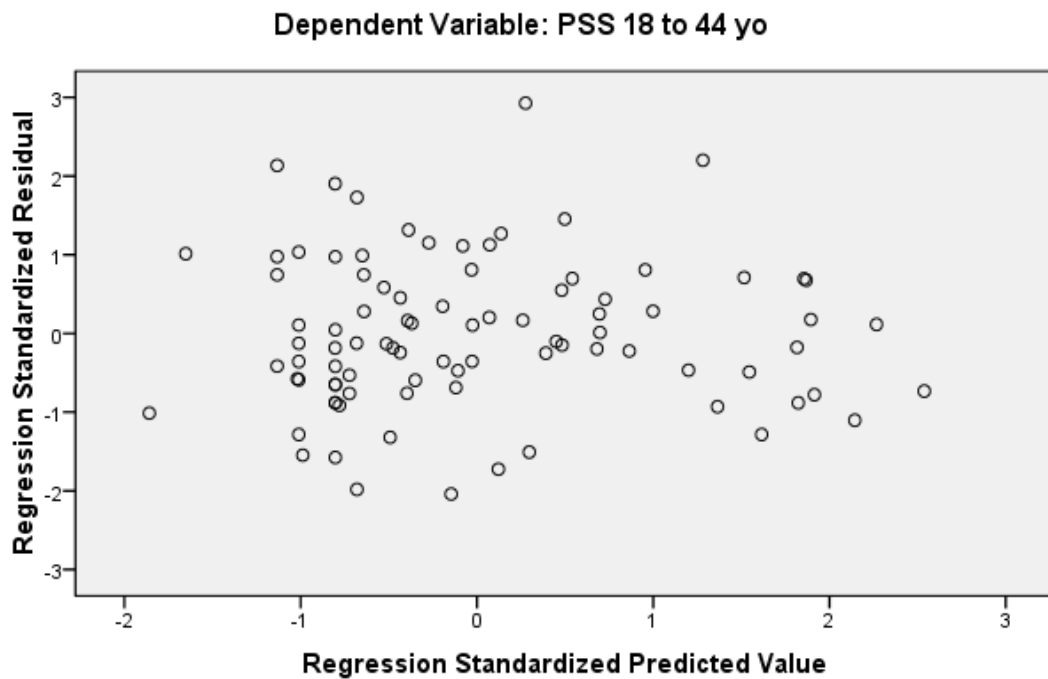
Variable	Component	Question	Correlation	Significance
Substance Abuse	Psychiatric Burden	W2-in the last month how many days did you experience emotional problems	0.384	<.001
	PTSD	BPTSD6SCORE	0.641	<.001
Convict Status	Drug Perception	W2-In the last month how troubled or bothered were you by drug problems	0.218	.009
	Convictions	Convict Status dichotomous	-0.170	.043

The demographic of having only one episode of homelessness was also added to the calculation since it was found to have a statistically significant relationship with the PSS scores of those aged 18 to 44 years.

Only those variable components with a statistically significant correlation were selected for further analysis. This reduced the number of selected variable components to 30. This required a sample of $50 + 8(30) = 290$, of which there was technically not enough sample to perform a regression since the available sample of 18 to 44 year olds was 143 participants. However, since the final model contained seven variable components, only a sample size of 106 was actually required.

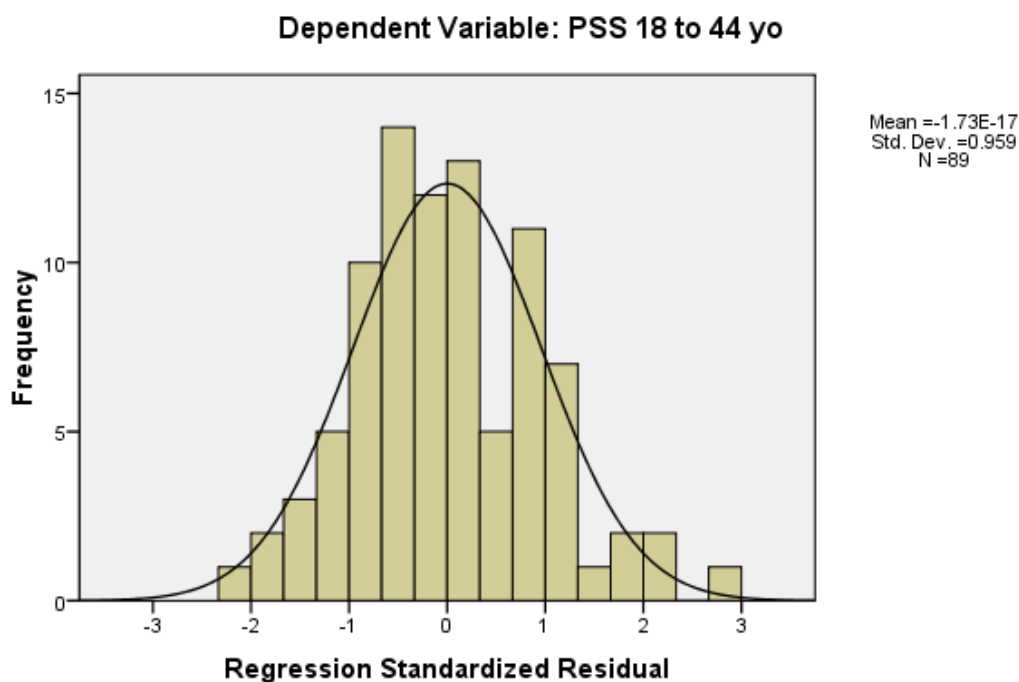
Regarding the linearity, normality, and homoscedasticity of residuals, the scatterplot of the final regression model's residuals in Figure 11 demonstrated that these assumptions were met.

Figure 11. Scatterplot of Residuals



The scatterplot demonstrated that residuals concentrated close to zero residual, which described the linearity of residuals. The spread from zero residual was in the shape similar to a rectangle, which described the normality of residuals. The normality was further demonstrated by Figure 12 that depicted the frequency of residuals as similar to a normal distribution.

Figure 12. Normal Distribution of Residuals Histogram



Since the spread of residuals from zero residual in Figure 4 was somewhat even across predicted dependent variable values and not demonstrating greater error on any one extreme of the predicted values, the assumption of homoscedasticity was met.

The scatterplot of Figure 4 also demonstrated the fifth assumption, absence of outliers in the regression model. One rule of thumb suggested that outliers for samples less than 1,000 cases have standardized residuals greater than 3.3 or less than -3.3 (Tabachnick & Fidell, 2007). The scatterplot showed no residuals greater than 3 or less than -3. Therefore, the final regression model was absent of outliers.

The sixth assumption of no multicollinearity and singularity was investigated through correlation and demonstrated through tolerance and VIF statistics of the final regression model. It was expected that multiple variable components would have some

statistically significant correlations since many of them referred to the same variable, and the variables had theoretical relationships with each other. For example, drug problems could have affected a participant's social support. As expected, a correlation matrix demonstrated statistically significant correlations between variable components, and all 30 variable components were significantly correlated to at least one other variable component. Nonetheless, all 30 variable components were included in the analysis since they demonstrated a linear relationship with the dependent variable and theoretically could be actual predictors. Following the derivation of the regression model, the tolerance and VIF statistics for each predictor retained in the model were obtained. Table 19 provides the tolerance and VIF statistics.

Table 19. Multicollinearity Statistics

Variable Component	Tolerance	VIF
Convict Status dichotomous	.982	1.018
W2- would friends/family be available if you wanted to talk about personal problems	.978	1.022
W2-Currently you are living with other adult children (not your own children)	.964	1.037
W2-Currently you are living with your own adult children	.952	1.051
BPTSD6 SCORE	.563	1.776
W2-in the last month how many days did you experience emotional problems	.542	1.847
W2-how much were you bothered by emotional problems in the last month	.440	2.273

All of the variable components in the derived model had a tolerance greater than or equal to .440. Three of the five variable components had tolerances greater than

0.951. This suggested that while there was some multicollinearity, it did not have a large effect on the model. Similarly, the highest VIF statistic was 2.273. Since a VIF of 10 strongly suggests the presence of multicollinearity, the variable components in the model had a low amount of multicollinearity. The process of modeling increased the tolerance statistics as variable components were removed. Likewise, this diminished singularity since the removed variable components were typically redundant.

Regarding the seventh assumption for regression, the final model demonstrated independence of residuals from each other. A Durbin-Watson statistic of 2.129 identified the independence with minimal negative autocorrelation. In other words, successive prediction errors were different from each other suggesting close to perfect independence, which is usually indicated by a Durbin-Watson statistic of two.

Despite having derived a model, further one-way ANOVA tests were performed to demonstrate differences among specific predictor variables proposed in the hypotheses of question two. These specific predictor variables during the analysis were not retained in the final model due to their lack of predictive contribution.

Findings

The regression analysis sought the largest possible R squared with highest possible power, large F-statistic, and statistically significant slope t-statistics. The resulting quality of the model is available in Table 20.

Table 20. Regression Model Quality

R	R Squared	Adjusted R Squared	Std. Error of the Estimate		
.827	.684	.657	4.313		
	Sum of Squares	df	Mean Square	F	Sig.
Regression	3267.810	7	466.830	25.092	<.001
Residual	1506.999	81	18.605		
Total	4774.809	88			
		Mean	Std. Dev.	SD Square	
PSS Scores (Dependent)		15.70	7.37	54.32	

With an R squared of .684, the model accounted for 68.4% of the variance. In other words, the predictors explain 68.4% of the variability. The mean square residual of 18.605 was less than the square of the standard deviation of the PSS scores, 54.32. This suggested that the model had a moderate level of error. The F-statistic, 25.092, was large with statistical significance, $p < .001$. This suggested that the model was good; in other words, the independent variables as a group were typically able to predict the stress level of a participant in the sample at the observed variance. The power was calculated using G*Power Version 3.1.2. The power of the final model was 1.00.

The variable components that were included in the model are available in Table 21. Table 21 also provides the slopes and beta weights of these components in the model.

Table 21. Regression Coefficients Model Characteristics

	B	Std. Error	Beta	T	Sig.	CI Lower Bound	CI Upper Bound
(Constant)	8.528	7.463		1.143	.257	-6.321	23.376
Convict Status dichotomous	-2.009	0.930	-0.136	-2.160	.034	-3.859	-0.159
W2- would friends/family be available if you wanted to talk about personal problems	-1.001	0.359	-0.176	-2.791	.007	-1.715	-0.288
W2-Currently you are living with other adult children (not your own children)	-5.720	1.545	-0.235	-3.703	<.001	-8.793	-2.647
W2-Currently you are living with your own adult children	9.661	3.162	0.195	3.055	.003	3.369	15.953
BPTSD6 SCORE	0.749	0.105	0.594	7.138	<.001	0.540	0.957
W2-in the last month how many days did you experience emotional problems	-0.154	0.070	-0.188	-2.212	.030	-0.292	-0.015
W2-how much were you bothered by emotional problems in the last month	1.404	0.494	0.267	2.841	.006	0.421	2.387

The two most important variable components statistically were the BPTSD-6 score and the degree of being bothered by emotional problems in the last month; these components had beta weights of 0.594 and 0.267 respectively. This meant that the variables, psychiatric problem perception and PTSD, provided the most influence toward calculating the stress level. Also, this meant that the variable category of mental illness provided the most influence toward calculating the stress level.

None of the retained predictor variable components had confidence intervals that crossed zero as was further demonstrated by statistically significant t-tests of the variable components' slopes. This suggested that each variable component contributed to the predictive power of the model.

Addressing hypotheses beyond model

The hypotheses of question two specifically requested if there was a difference in stress levels between groups delineated by the predictor variables, medical problem and affordable healthcare. Neither of these variables contributed predictive ability to the model, but they both had a linear relationship with the PSS scores of the whole sample. So, one-way ANOVA tests were performed to identify any differences. Again, the PSS scores had a normal distribution, and each score was assumed to be independent. Table 22 provides the ANOVA results for the components of these two variables.

Table 22. Other Variable ANOVA Results

Variable/Variable Component	Levene's Statistic	Levene's Sig.	Homogenous	F-Statistic	F-Sig.	MS Residual
Medical Problem/W2-Do you have chronic medical problem; do you have diagnosed disability (Combined dichotomous variable)	2.086	.150	Yes	10.070	.002	59.899
Affordable Healthcare/W2-During last month did you need to see a doctor or dentist but couldn't afford it	2.656	.104	Yes	20.117	<.001	58.230

Both variables, medical problem and affordable healthcare, had statistically significant F-statistics demonstrating that those with medical problems or lacking affordable healthcare when it was needed had higher levels of stress. It should be noted, however, that the mean square residuals were large and close to the square of the standard deviation of the PSS score, which was approximately 61.450. This suggested that the statistical linear models derived from the variables did not fit the data well. In other words, despite having a model where stress levels were different between groups, individually, the variables did not consistently differentiate groups by stress level. Table 23 further describes the difference in stress levels observed between groups delineated by the variable components in Table 22.

Table 23. *Mean Stress of Having Medical Problems and Affordable Healthcare*

Variable Component	Mean	CI Lower	CI Upper	Standard Deviation	Standard Error
W2-Do you have chronic medical problem; do you have diagnosed disability (Combined dichotomous variable)	15.52	14.70	16.34	7.839	0.418
Yes	16.52	15.46	17.59	8.067	0.543
No	13.82	12.58	15.05	7.152	0.625
W2-During last month did you need to see a doctor or dentist but couldn't afford it	15.50	14.68	16.32	7.835	0.417
Yes	18.32	16.69	19.95	8.382	0.822
No	14.32	13.41	15.23	7.296	0.462

For the variable, medical problem, the confidence intervals of groups did not overlap. This described a direct relationship between stress levels and having a medical problem. For the variable, affordable healthcare, the confidence intervals of groups did not overlap. This described an inverse relationship between stress levels and having access to affordable healthcare.

Question Three Results

Hypotheses

The third question under investigation inquired about the likeliness of a homeless person having self-reported contact with a nurse. The hypotheses for investigating this question was as followed:

- a. There is a difference between the quantity of participants who saw any one healthcare provider and the quantity of those who did not see that provider.
- b. There is a difference between the quantity of participants who visited any one type of healthcare facility and the quantity of those who did not visit that type of facility.

- c. There is a difference between the quantity of participants that saw a particular healthcare provider and the quantity of participants that saw a different healthcare provider.
- d. There is a difference between the quantity of participants that visited a particular type of healthcare facility and the quantity of participants that visited a different type of healthcare facility.

The types of healthcare facilities under investigation included emergency departments at a Veteran's Affairs hospitals, emergency departments at a non-Veteran's Affairs hospitals, inpatient departments at a Veteran's Affairs hospitals, inpatient departments at a non-Veteran's Affairs hospitals, outpatient Veteran's Affairs clinics, outpatient non-Veteran's Affairs clinics, shelter-based or housing site health clinics, street outreach health clinics/buses/vans, community/public health clinics, prison/jail health clinics, occupational health clinics, and doctors' offices. The types of healthcare providers under investigation included nurse practitioners, nurses other than nurse practitioners, physicians, physician assistants, podiatrists, and psychologists/psychiatrists. The null hypotheses for this question were then:

H₀: The frequency of participants who visited a type of healthcare facility is equal to the frequency of participants who did not visit that type of healthcare facility.

H₀: The frequency of participants who saw a healthcare provider is equal to the frequency of participants who did not see that healthcare provider.

H₀: The frequency of participants who visited a type of healthcare facility is equal to the frequency of participants who visit any other type of healthcare facility.

H₀: The frequency of participants who saw a healthcare provider is equal to the frequency of participants who saw any other healthcare provider.

Statistics

In order to test the hypotheses of question three, frequencies and odds of reported usage were calculated to identify the use of facilities and providers. It should be noted that participants reported whether or not they used a facility or provider type; they did not report the number of visit to or duration of using any one type of facility or provider. This dichotomous data translated into frequencies that were in turn used to compare facility types, compare provider types, and perform chi-square tests to identify if there were differences in the frequencies of using and not using a particular type of facility or provider. The frequencies were also tested using McNemar's test. This test provided a chi-square statistic to describe the presence of differences between types of healthcare facilities. It also was used to detect differences between healthcare providers.

The chi-square tests required four assumptions: (a) tested data were frequencies, (b) there was sufficient sample size, (c) measurements were independent, and (d) variable categorization was based on theory (Munro, 2001). Regarding the first assumption, the data consisted of frequencies. Regarding the second assumption, Munro (2001) recommended that the compared frequencies should have sizes of five or more. Most of the frequencies met this assumption; the exceptions to this were the variables describing the utilization of prison/jail/correctional health clinics and occupational health clinics. Regarding the third assumption of independence, each participant was only able to respond 'yes' or 'no' to each prompted facility and provider. So, for investigating the

difference between positive and negative responses for each facility and provider, independence was maintained. Likewise, since each participant could only provide one combination of positive and negative responses describing the utilization of facilities and providers, independence within the chi-square tests' 2X2 cells was maintained.

A possible exception to independence stemmed from the argument that some participants did not visit a certain healthcare facility or provider because he or she already visited a different facility or provider. This was a possibility. However, concern about this argument was suspended for this study in consideration of two lines of thought. First, multiple participants reported visiting more than one location and provider. This suggested that with or without the bias, participants could still utilize and report more than one location or provider. Second, one purpose of the study was to identify the frequency of utilization, which entails a matter of preference, attributed utility, and opportunity on the part of the participant. Therefore, the presence of a participant's bias was recognized within the measurement of frequency, and a chi-square test comparing frequencies described participants' biases or choices, which were independent.

The fourth assumption for using chi-square tests involved having reason behind the selection of variables and how they categorized participants. The combination of facilities and providers written into the survey was based on types of health care facilities and personnel available in the Chicago area. Any types of facilities or providers missing or not described by the listed facilities and providers were captured under the 'other' option. Theoretically, a participant could use all, part, or none of the facilities and

providers, and the reported use of any combination of facilities and providers depicted the diversity of a participant's healthcare utilization.

Findings

Facility

Participants had a range of facility and provider usage, but as Table 24 demonstrates, the majority of participants used only one facility and/or two providers.

Table 24. Descriptive Statistics for Number of Facilities and Providers Used

Statistic	Number of Facilities Used	Number of Providers Used
Mean	1.88	2.18
Median	2	2
Mode	1	2
Minimum	0	0
Maximum	6	7

Some had used up to six facilities and/or seven providers, but such usage was not typical. The sample reported usage of each facility and provider category prompted by interviewers to participants; however, some categories had higher frequencies of usage than others. In particular, the top four types of healthcare facilities with the most reported visits were doctors' offices, outpatient non-Veterans affairs clinics, emergency departments of non-Veteran's Affairs hospitals, and community/public health clinics. Table 25 and Figure 13 provide the frequencies, odds, and chi-square statistics comparing positive and negative responses for healthcare facilities.

Figure 13. Healthcare Facility Utilization Graph

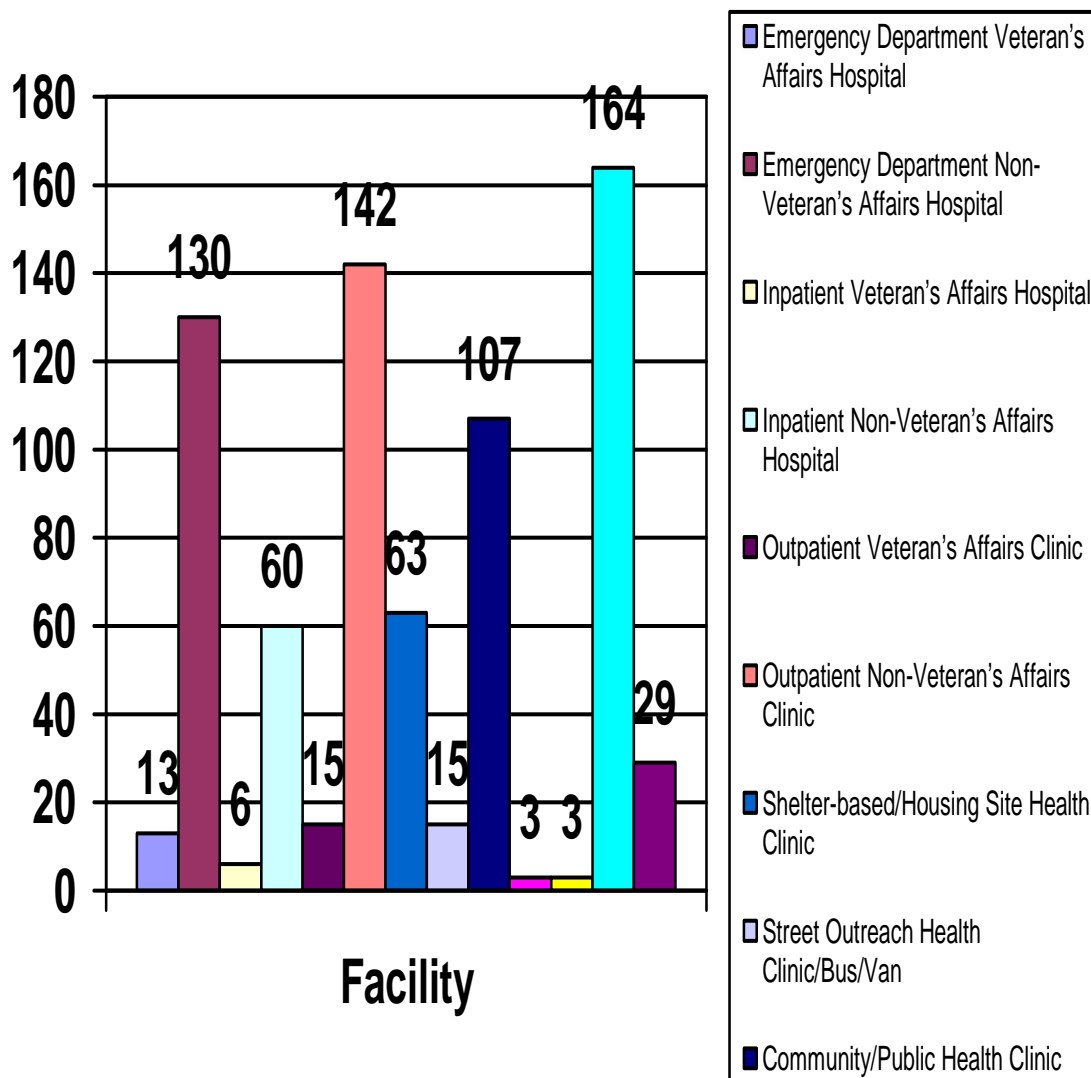


Table 25. Healthcare Facility Utilization

Healthcare Facility	Visited	Not Visited	Odds	Chi-Square	Sig.	Different?
Emergency Department Veteran's Affairs Hospital	13	385	0.033	347.698	<.001	Yes
Emergency Department Non- Veteran's Affairs Hospital	130	268	0.485	47.849	<.001	Yes
Inpatient Veteran's Affairs Hospital	6	392	0.015	374.362	<.001	Yes
Inpatient Non-Veteran's Affairs Hospital	60	338	0.178	194.181	<.001	Yes
Outpatient Veteran's Affairs Clinic	15	383	0.039	340.261	<.001	Yes
Outpatient Non-Veteran's Affairs Clinic	142	256	0.555	32.653	<.001	Yes
Shelter-based/Housing Site Health Clinic	63	335	0.188	185.889	<.001	Yes
Street Outreach Health Clinic/Bus/Van	15	383	0.039	340.261	<.001	Yes
Community/Public Health Clinic	107	291	0.368	85.065	<.001	Yes
Prison/Jail/Correctional Health Clinic	3	395	0.008	386.090	<.001	Yes
Occupational Health Clinic (Associated with Employment or Place of Work)	3	395	0.008	386.090	<.001	Yes
Doctor's Office	164	234	0.701	12.312	<.001	Yes
Other Place	29	369	0.079	290.452	<.001	Yes

Since each chi-square statistic was statistically significant in comparing positive and negative frequencies for the utilization of healthcare facilities, there was a difference between the number of those who visited a specific type of facility and those who did not visit that type of facility. Doctor's offices had the largest frequency with the odds of visiting a doctor's office at 70.1%. However, one possible error may have occurred regarding the frequency of visiting a doctor's office. Participants may have recognized multiple healthcare facility types, i.e. outpatient clinics and public health clinics, as

doctors' offices. If this was the case, the frequency of doctor's office utilization referred to the utilization of facilities where doctors, or those perceived as doctors, practice.

The top four categories also did not differ when the sample was delineated by age and gender. Table 26 provides the delineation of frequencies.

Table 26. Frequency of Facility Use by Age and Gender

Facility	Male 18-44yo	Male 45+yo	Female 18-44yo	Female 45+yo
Overall Portion of Sample, N	61	161	98	77
ED VA	1	8	2	2
ED Non-VA	18	53	34	25
Inpatient VA	1	4	1	0
Inpatient Non-VA	5	25	18	12
Outpatient Clinic VA	0	15	0	0
Outpatient Clinic Non-VA	19	58	28	37
Shelter/Housing Site Clinic	7	31	12	13
Street Outreach Clinic	2	8	1	4
Community/PH Clinic	18	40	22	27
Prison/Jail Clinic	0	2	1	0
Occupational Clinic	1	1	0	1
Doctor's Office	15	61	55	33
Any Other Facility	2	11	8	8

Delineations in gender and age did not carry over into differences in facility usage. Doctor's offices, community clinics, non-VA outpatient clinics, and non-VA emergency departments maintained the highest reported frequencies of usage across age and gender.

Another sample delineation, intensity of healthcare usage, lent support to these category findings. Specifically, groups composed of those who used at least one facility or provider and groups composed of those who used only one facility or provider were compared. Table 27 provides the frequency of facility usage as delineated intensity of healthcare usage.

Table 27. Frequencies of Facility Use per Intensity of Usage

Facility	Any Facility Use	Any Provider Use	Only One Facility Use	Only One Provider Use
Overall Portion of Sample, N	326	312	111	72
ED VA	13	13	2	1
ED Non-VA	130	123	17	15
Inpatient VA	6	6	0	2
Inpatient Non-VA	60	58	0	7
Outpatient Clinic VA	15	14	5	4
Outpatient Clinic Non-VA	142	135	13	16
Shelter/Housing Site Clinic	63	58	18	10
Street Outreach Clinic	15	14	4	4
Community/PH Clinic	107	101	16	19
Prison/Jail Clinic	3	3	1	0
Occupational Clinic	3	3	0	0
Doctor's Office	164	162	23	22
Any Other Facility	29	26	12	11

Of the participants who went to at least one facility or at least one provider, most reported visiting doctor's offices, community clinics, non-VA outpatient clinics, and non-VA emergency departments. Of the participants who utilized only one provider, most reported visiting doctor's offices, community clinics, non-VA outpatient clinics, and non-VA emergency departments. Of the participants who utilized only one facility, most reported visiting doctor's offices, community clinics, non-VA emergency departments, and shelter-based/housing site health clinics. This greater use of shelter-based clinics was the one deviation from the prior findings.

On the lower end of frequencies, healthcare facilities associated with Veteran's Affairs had frequencies ranging from six to 15; this was not unexpected given the portion of the sample with military service history, 56 participants or 14.1% of the sample, who may have access to such resources. Of those with military service history among the

sample, 10.7% had a frequency of six; the odds of utilization equaled 0.12, or 12%.

Furthermore, 26.8% of those with military service history in the sample had a frequency of 15; this corresponded with odds of utilization equal to 0.366, or 36.6%.

Therefore, those with military service history seemed to also use VA services minimally; however, when the portion of veterans who reported being eligible for VA services was reviewed separately, utilization of VA facilities by those with access was higher. Table 28 provides the comparison of eligible veterans, ineligible veterans, and those veterans who were unsure of their eligibility.

Table 28. Veteran Facility Usage by Eligibility for VA Health Services

Facility	Eligible Veteran	Ineligible Veteran	Unknown Eligibility
Overall Portion of Sample, N	28	17	11
ED VA	8	1	1
ED Non-VA	2	7	4
Inpatient VA	4	0	1
Inpatient Non-VA	2	2	3
Outpatient Clinic VA	14	1	0
Outpatient Clinic Non-VA	4	7	4
Shelter/Housing Site Clinic	1	2	1
Street Outreach Clinic	0	0	3
Community/PH Clinic	2	5	4
Prison/Jail Clinic	0	0	0
Occupational Clinic	0	0	0
Doctor's Office	8	7	6
Any Other Facility	0	1	2

The use of VA services by ineligible veterans and those veterans who were unsure of their eligibility was minimal. The majority of VA service use was by eligible veterans. Specifically, eligible veterans were 61.5% of reported VA emergency department uses, 66.6% of reported VA inpatient uses, and 93.3% of reported VA outpatient clinic uses.

Provider

Similar to facility utilization, the chi-square tests of healthcare provider utilization observed statistically significant differences when comparing the number of those who saw a specific provider and those who did not see that provider. In the sample, physicians were seen the most followed by nurse practitioners and nurses who were not nurse practitioners. Table 29 and Figure 14 provides the frequencies, odds, and chi-square statistics comparing positive and negative responses for utilization of healthcare providers.

Figure 14. Healthcare Provider Utilization Graph

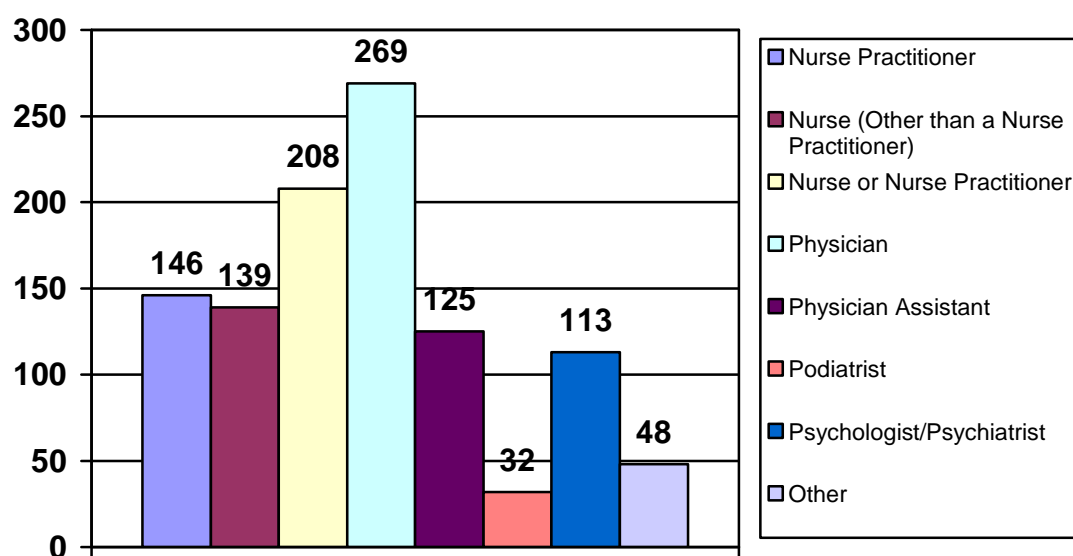


Table 29. Healthcare Provider Utilization

Healthcare Provider	Seen	Not Seen	Odds	Chi-Square	Sig.	Different?
Nurse Practitioner	146	248	0.589	26.406	<.001	Yes
Nurse (Other than a Nurse Practitioner)	139	255	0.545	34.152	<.001	Yes
Nurse or Nurse Practitioner	208	184	1.130	1.469	.225	No
Physician	269	127	2.118	50.919	<.001	Yes
Physician Assistant	125	269	0.465	52.629	<.001	Yes
Podiatrist	32	365	0.088	279.317	<.001	Yes
Psychologist/Psychiatrist	113	284	0.398	73.655	<.001	Yes
Other	48	349	0.138	228.214	<.001	Yes

The odds ratio comparing nurses to physicians was 3.886; this meant that participants were almost four times as likely to report seeing a physician than a non-nurse practitioner nurse. Similarly, participants were 3.596 times more likely to report seeing a physician than a nurse practitioner. On the other hand, participants likely saw non-nurse practitioner nurses 1.369 times more than psychologists or psychiatrists and 6.193 times more than podiatrists. Participants also likely saw nurse practitioners 1.480 times more than psychologists or psychiatrists and 6.693 times more than podiatrists. When comparing the frequency of seeing a nurse practitioner and/or non-nurse practitioner nurse with the frequency of seeing a physician, the odds ratio equaled 1.874. This meant that participants were 1.874 times more likely to report seeing a physician than a nurse practitioner or non-nurse practitioner nurse.

The frequency of provider usage was also delineated by gender and age. Table 30 provides the frequencies for this comparison.

Table 30. Frequency of Provider Use by Age and Gender

Provider	Male 18-44yo	Male 45+yo	Female 18-44yo	Female 45+yo
Overall Portion of Sample, N	61	161	98	77
Nurse Practitioner	23	61	36	26
Non-Nurse Practitioner Nurse	24	61	27	27
Physician	35	112	63	59
Physician Assistant	15	55	34	21
Podiatrist	2	19	6	5
Psychologist/Psychiatrist	18	45	25	25
Other Provider	2	24	10	11

Specifically, across age and gender, participants reported using physicians the most. Males regardless of age reported also using nurse practitioners and non-NP nurses in greater frequency. Older females typically reported also using nurse practitioners, non-NP nurses, and psychologist/psychiatrists in greater frequency. In contrast, younger females typically reported also using nurse practitioners and physician assistants in greater frequency. This heavier use of physician assistants was not apparent when looking at the whole sample.

The provider utilization was also observable as delineated by the intensity of utilization. Table 31 provides the frequencies of provider usage as delineated by utilization intensity.

Table 31. Frequency of Provider Use per Intensity of Usage

Provider	Any Facility Use	Any Provider Use	Only One Facility Use	Only One Provider Use
Overall Portion of Sample, N	326	312	111	72
Nurse Practitioner	143	141	37	8
Non-Nurse Practitioner Nurse	137	134	39	9
Physician	269	262	72	33
Physician Assistant	125	122	29	0
Podiatrist	32	30	9	2
Psychologist/Psychiatrist	112	110	27	11
Other Provider	46	46	14	9

Regardless of whether participants used only one facility, only one provider, or multiple facilities and providers, they typically reported using a physician the most and nurse practitioners and non-NP nurses as second and third. The exception to this observation was among the group who only used one provider. While the sample size of this group was smaller, the reported frequency of psychologist and other provider usage were practically equivalent to that of nurse practitioners and non-NP nurses.

Again, the effect of being a veteran and eligible for VA services remained in question. While all of the prompted provider categories were available from the VA, due diligence called for identifying any differences in provider usage by eligible veterans.

Table 32 provides the comparison.

Table 32. Veteran Provider Usage by Eligibility for VA Health Services

Provider	Eligible Veteran	Ineligible Veteran	Unknown Eligibility
Overall Portion of Sample, N	28	16	11
Nurse Practitioner	14	4	4
Non-Nurse Practitioner Nurse	8	5	5
Physician	21	12	9
Physician Assistant	9	5	5
Podiatrist	1	0	2
Psychologist/Psychiatrist	13	8	3
Other Provider	8	1	2

Veterans despite eligibility reported using physicians the most. Eligible veterans reported using nurse practitioners and psychologist/psychiatrist less than physicians but more than the other provider categories.

Further facility and provider comparisons

The next component of analysis determined if there were observed differences in utilization frequency between locations and between providers. The chi-square statistics from McNemar tests for location comparisons are available in Table 33. When the sample size was inadequate for some comparisons, SPSS calculated the binomial distribution and related significance level. If the p-value was less than the chosen alpha of .05, the comparison was deemed significantly different. However, it should be recognized that such results assumed the assumptions expected of parametric tests.

Table 33. Healthcare Facility Comparisons

Healthcare Facility #1	Healthcare Facility #2	Chi-square	Sig.	Differs ?
Emergency Department Veteran's Affairs Hospital	Emergency Department Non-Veteran's Affairs Hospital	95.433	<.001	Yes

Healthcare Facility #1	Healthcare Facility #2	Chi-square	Sig.	Differs ?
	Inpatient Veteran's Affairs Hospital	BN	.092	No
	Inpatient Non-Veteran's Affairs Hospital	29.803	<.001	Yes
	Outpatient Veteran's Affairs Clinic	BN	.804	No
	Outpatient Non-Veteran's Affairs Clinic	108.503	<.001	Yes
	Shelter-based/Housing Site Health Clinic	32.446	<.001	Yes
	Street Outreach Health Clinic/Bus/Van	0.036	.850	No
	Community/Public Health Clinic	74.560	<.001	Yes
	Prison/Jail/Correctional Health Clinic	BN	.021	No
	Occupational Health Clinic (Associated with Employment or Place of Work)	BN	.021	No
	Doctor's Office	136.364	<.001	Yes
	Other Place	5.357	.021	Yes
Emergency Department	Inpatient Veteran's Affairs Hospital	111.243	<.001	Yes
Non-Veteran's Affairs Hospital	Inpatient Non-Veteran's Affairs Hospital	58.061	<.001	Yes
	Outpatient Veteran's Affairs Clinic	90.881	<.001	Yes
	Outpatient Non-Veteran's Affairs Clinic	0.917	.338	No
	Shelter-based/Housing Site Health Clinic	28.471	<.001	Yes
	Street Outreach Health Clinic/Bus/Van	99.206	<.001	Yes
	Community/Public Health Clinic	3.083	.079	No
	Prison/Jail/Correctional Health Clinic	123.070	<.001	Yes

Healthcare Facility #1	Healthcare Facility #2	Chi-square	Sig.	Differs ?
Inpatient Veteran's Affairs Hospital	Occupational Health Clinic (Associated with Employment or Place of Work)	119.368	<.001	Yes
	Doctor's Office	7.459	.006	Yes
	Other Place	67.114	<.001	Yes
	Inpatient Non-Veteran's Affairs Hospital	42.561	<.001	Yes
	Outpatient Veteran's Affairs Clinic	BN	.035	Yes
	Outpatient Non-Veteran's Affairs Clinic	123.142	<.001	Yes
	Shelter-based/Housing Site Health Clinic	45.449	<.001	Yes
	Street Outreach Health Clinic/Bus/Van	BN	.078	No
	Community/Public Health Clinic	88.496	<.001	Yes
	Prison/Jail/Correctional Health Clinic	BN	.508	No
	Occupational Health Clinic (Associated with Employment or Place of Work)	BN	.508	No
Inpatient Non-Veteran's Affairs Hospital	Doctor's Office	152.154	<.001	Yes
	Other Place	13.829	<.001	Yes
	Outpatient Veteran's Affairs Clinic	26.521	<.001	Yes
	Outpatient Non-Veteran's Affairs Clinic	50.469	<.001	Yes
	Shelter-based/Housing Site Health Clinic	0.040	.842	No
	Street Outreach Health Clinic/Bus/Van	29.785	<.001	Yes
	Community/Public Health Clinic	16.928	<.001	Yes
	Prison/Jail/Correctional Health Clinic	51.410	<.001	Yes
	Occupational Health Clinic (Associated with Employment or Place of Work)	49.778	<.001	Yes

Healthcare Facility #1	Healthcare Facility #2	Chi-square	Sig.	Differs ?
Outpatient Veteran's Affairs Clinic	Doctor's Office	76.877	<.001	Yes
	Other Place	11.111	.001	Yes
	Outpatient Non-Veteran's Affairs Clinic	102.426	<.001	Yes
	Shelter-based/Housing Site Health Clinic	28.321	<.001	Yes
	Street Outreach Health Clinic/Bus/Van	0.000	1.000	No
	Community/Public Health Clinic	67.877	<.001	Yes
	Prison/Jail/Correctional Health Clinic	BN	.008	Yes
	Occupational Health Clinic (Associated with Employment or Place of Work)	BN	.008	Yes
	Outpatient Non-Veteran's Affairs Clinic	Doctor's Office	132.752	<.001
Other Place		3.841	.050	Yes
Shelter-based/Housing Site Health Clinic		37.789	<.001	Yes
Street Outreach Health Clinic/Bus/Van		108.000	<.001	Yes
Community/Public Health Clinic		8.317	.004	Yes
Prison/Jail/Correctional Health Clinic		133.175	<.001	Yes
Occupational Health Clinic (Associated with Employment or Place of Work)		133.175	<.001	Yes
Doctor's Office		3.291	.070	No
Other Place		79.898	<.001	Yes
Shelter-based/Housing Site Health Clinic	Street Outreach Health Clinic/Bus/Van	31.557	<.001	Yes
	Community/Public Health Clinic	13.399	<.001	Yes
	Prison/Jail/Correctional Health Clinic	54.391	<.001	Yes
	Occupational Health Clinic (Associated with Employment or Place of Work)	52.742	<.001	Yes

Healthcare Facility #1	Healthcare Facility #2	Chi-square	Sig.	Differs ?
Street Outreach Health Clinic/Bus/Van	Doctor's Office	52.356	<.001	Yes
	Other Place	13.280	<.001	Yes
	Community/Public Health Clinic	72.640	<.001	Yes
	Prison/Jail/Correctional Health Clinic	BN	.004	Yes
	Occupational Health Clinic (Associated with Employment or Place of Work)	BN	.008	Yes
Community/Public Health Clinic	Doctor's Office	129.609	<.001	Yes
	Other Place	4.024	.045	Yes
	Prison/Jail/Correctional Health Clinic	96.445	<.001	Yes
	Occupational Health Clinic (Associated with Employment or Place of Work)	98.231	<.001	Yes
Prison/Jail/Correctional Health Clinic	Doctor's Office	20.232	<.001	Yes
	Other Place	51.112	<.001	Yes
	Occupational Health Clinic (Associated with Employment or Place of Work)	BN	1.000	No
Occupational Health Clinic (Associated with Employment or Place of Work)	Doctor's Office	157.055	<.001	Yes
	Other Place	19.531	<.001	Yes
Doctor's Office	Doctor's Office	159.006	<.001	Yes
	Other Place	19.531	<.001	Yes
Doctor's Office	Other Place	102.606	<.001	Yes

Note. BN = Significance based on binomial distribution due to small sample size.

The chi-square statistics from McNemar tests for provider comparisons are available in Table 34. The provider comparisons maintained adequate sample sizes in each cell of the chi-square tests and did not require binomial test calculations.

Table 34. Healthcare Provider Comparisons

Healthcare Provider #1	Healthcare Provider #2	Chi-square	Sig.	Different?
Nurse Practitioner	Nurse (Other than a Nurse Practitioner)	0.267	.606	No
	Physician	91.720	<.001	Yes
	Physician Assistant	3.684	.055	No
	Podiatrist	89.923	<.001	Yes
	Psychologist/Psychiatrist	7.563	.006	Yes
	Other	63.574	<.001	Yes
Nurse (Other than a Nurse Practitioner)	Physician	99.562	<.001	Yes
	Physician Assistant	1.363	.243	No
	Podiatrist	83.230	<.001	Yes
	Psychologist/Psychiatrist	3.956	.047	Yes
	Other	51.592	<.001	Yes
Physician	Nurse or Nurse Practitioner	28.500	<.001	Yes
	Physician Assistant	126.452	<.001	Yes
	Podiatrist	227.331	<.001	Yes
	Psychologist/Psychiatrist	126.447	<.001	Yes
	Other	200.830	<.001	Yes
Physician Assistant	Nurse or Nurse Practitioner	52.124	<.001	Yes
	Podiatrist	75.521	<.001	Yes
	Psychologist/Psychiatrist	1.225	.268	No
	Other	41.959	<.001	Yes
Podiatrist	Nurse or Nurse Practitioner	154.672	<.001	Yes
	Psychologist/Psychiatrist	52.893	<.001	Yes
	Other	3.214	.073	No
Psychologist/Psychiatrist	Nurse or Nurse Practitioner	51.868	<.001	Yes
	Other	33.301	<.001	Yes
No Provider	Nurse Practitioner	21.446	<.001	Yes
	Nurse (Other than a Nurse Practitioner)	17.879	<.001	Yes
	Physician	106.852	<.001	Yes
	Physician Assistant	11.463	.001	Yes
	Podiatrist	17.120	<.001	Yes
	Psychologist/Psychiatrist	6.857	.009	Yes
	Other	5.879	.015	Yes

Of note, differences in the frequencies of being seen were not observed among nurses, nurse practitioners, and physician assistants. Likewise, no difference was

observed between physician assistants and psychologists/psychiatrists. On the other hand, the frequency of seeing physicians was different from any other provider prompted in the survey. Similarly, the frequency of not seeing any provider was statistically different from the frequencies of seeing any of the prompted providers.

Question Four Results

Hypotheses

Question four inquired whether nurses were the preferred provider for homeless people. In relation to the chosen statistics for analysis, the hypotheses for this question were as follows:

- a. Nurses or nurse practitioners are preferred the most by homeless participants in the sample as evident by frequency of provider preference.
- b. Frequencies of provider preference differ.

The null hypotheses for question four were then:

H₀: The frequency of provider preference for nurses is less than or equal to another provider type.

H₀: The frequency of provider preference for nurse practitioners is less than or equal to another provider type.

H₀: Frequencies of provider preference are equal.

Statistics

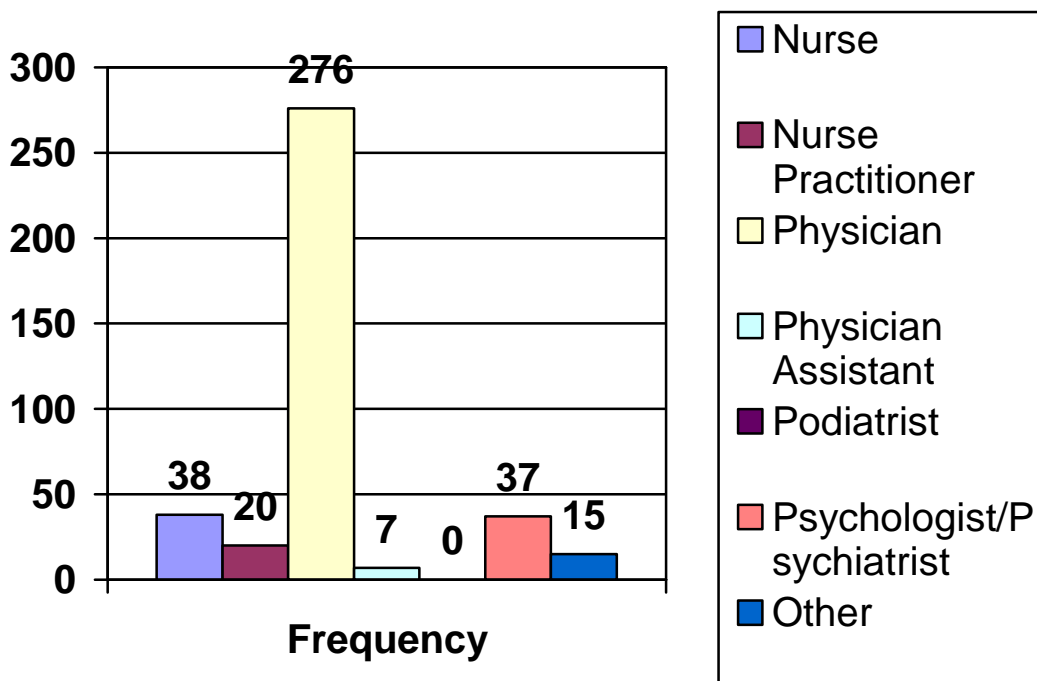
Frequencies were performed to identify the provider type with the greatest reported preference by participants. A chi-square test was performed to identify if there

was a statistically significant difference between the frequencies of the six healthcare provider types.

Findings

Participants most often reported preferring physicians to manage their healthcare; this accounted for 69.3% of the sample. Nurses came in second at 9.5% of the sample, and psychologists/psychiatrists came in third at 9.3% of the sample. Figure 15 provides the frequencies of preferences.

Figure 15. Healthcare Provider Preference Frequencies



With physician being the most preferred provider type in the sample, the null hypothesis that the frequencies of preference for nurses and nurse practitioners would be less than or equal to another provider type could not be rejected. In order to clarify if the failure to reject was because nurse and nurse practitioner preferences were less than

physicians or equal to physicians, chi-square tests comparing provider types was performed. The chi-square statistic between the six provider choices was 823.229 with a statistical significance of $p < .001$. This suggested that there was at least one statistically significant difference in preference among the six provider types, and the null hypothesis indicating that the types were equal had been rejected. Furthermore, given that the frequency of preference for physicians was at least seven times greater than any other provider type, the analysis concluded that the frequencies of provider preference for nurses and nurse practitioners were less than that for physicians.

The *other* category for provider type was offered in the survey as a possible response. Participants who reported preferring an other healthcare provider further provided responses about the specific provider they preferred. Responses included counselor, one specific physician, a specialist in the field that matches the current health problem, homeopathic medicine practitioner, mother, fiancé, god, the President of the United States, the participant him- or herself, and no one. The frequency of these responses was four or less.

In order to clarify if there was a difference in frequency between those who preferred a type of provider that had been seen in the last six months and those who preferred a type of provider that had not been seen in the last six months, the variables of provider preference and utilization were combined to form a variable known as *seen provider preference*. Table 35 provides the frequencies and related percentages of the sample for seen provider preference.

Table 35. Healthcare Seen Provider Preference Frequencies

Status	Frequency	Percent of Sample	Percent per Provider Type Preference Frequency
Preferred Provider Not Seen	136	34.2%	
Preferred Provider Seen	256	64.3%	
Nurse Practitioner Seen & Preferred	14	3.5%	70.0%
Nurse Seen & Preferred	8	2.0%	21.1%
Physician Seen & Preferred	199	50.0%	72.1%
Physician Assistant Seen & Preferred	2	0.5%	28.6%
Psychologist/Psychiatrist Seen & Preferred	31	7.8%	83.8%
Other Provider Seen & Preferred	2	0.5%	13.3%

Of the sample, 64.3% had seen their preferred provider in the last six months.

The largest portion of this group was those preferring physicians at 50% of the sample.

However, when comparing the seen provider preference frequencies to the provider preference frequencies for each provider type, psychologists and psychiatrists had the highest volume of being seen and preferred at 83.8% of those preferring psychologists or psychiatrists. Similarly, nurse practitioners and physicians were seen by 70.0% and 72.1% of those who preferred them. Nurses were seen by 21.1% of those who preferred them; this equated to 2.0% of the overall sample.

Further chi-square tests were performed to demonstrate whether the frequencies of those preferring seen providers differed from the frequencies of those preferring unseen providers. Table 36 contains the chi-square statistics.

Table 36. Healthcare Seen Provider Preference Chi-Square Test Results

Comparison	Chi-square	Significance	Difference?
Provider Preferred & Not Seen Vs. Provider Preferred & Seen	36.735	< .001	Yes
Provider Preferred & Not Seen Vs. Types of Providers Preferred & Seen	667.393	< .001	Yes

The statistically significant chi-square statistics identified that the frequency of those who preferred providers they had seen differed significantly from the frequency of those who preferred providers they had not seen. This suggested that the majority of the sample preferred a provider type they had recently seen.

CHAPTER FIVE

DISCUSSION

The purpose of this chapter is to discuss the conclusions drawn from the results presented in chapter four. The first statistic to consider is stress level since it is the dependent variable of the first two research questions and the underlying reason for asking the last two research questions. As a reminder, the mean stress level of the sample as measured by the PSS was 15.54. Keeping in mind that the normal level of stress score based on a national polling is 13 (Cohen and Williamson, 1988) with a score of 19 suggesting a moderately high level of stress and a score of 25 suggesting a high level of stress, the sample demonstrated a higher than normal level of stress. This was further confirmed by the higher than normal PSS means as delineated by demographic groups, i.e. gender, age, and ethnicity; recall Table 4 where a national sample's results were lower than the findings of this study (Cohen & Williamson, 1988). This further lends weight to the argument that homeless people have greater stress than the overall population and supports the theory that stressors common to homeless people may contribute to this elevated level of stress (Chilton & Rose, 2009; Davis, 1999; Latkin & Curry, 2003; Munoz, Panadero, Santos, & Quiroga, 2005).

Demographics

Age, gender, & race

On the other hand, the effect of demographics should also be considered. In particular, a large portion of the sample reported being African American, and while there were differences observed among housing program types, the differences were related to gender and age but not related to race alone. Similarly, PSS scores did not differ based on race but rather age. Specifically, the demographics investigation identified that those aged 18 to 44 years had greater stress than those 45 years and older. This finding was further observed between the two age groups among interim housing programs but not emergency shelters or permanent housing programs. So, although a large portion of the sample was African American, the demographic age had a greater influence on the results.

The finding that younger participants have greater stress than older participants may be explained by a couple possibilities. First, the circumstance of having family in tow while being homeless may have increased the average stress of the younger group. As the demographic investigation indicated, most participants with families were young females, and while the demographic of being with family was not by itself a differentiating factor with regards to stress levels, the theoretical implication of young mothers who were typically unmarried and having to care for a family within a homeless situation could be interpreted as a stressor.

A second explanation for the effect of age on stress levels could theoretically have something to do with experience and maturity. As was demonstrated in the comparison

of this study's PSS score means with those of a national sample, PSS scores appear to decrease with age (Cohen & Williamson, 1988). However, the rate of decrease was more moderate in the national sample than in this study's sample, which suggests that there may be more to the difference in stress than just age.

There were differences in stress between those with alcohol or drug problems and those without such problems. However, there was no observed difference in substance problems across age groups, a finding that suggests that the stress differences by age were not a result of one age group having more problems with drugs or alcohol.

There was also an inconsistency regarding any effect due to having medical problems. Specifically, older participants tended to report having medical problems in greater frequency than younger participants. As an ANOVA test suggested, having a medical problem corresponded to having a higher level of stress. Technically, a greater mean stress level should have been observed among the older group, but this was not the case. This finding suggests that having a medical problem did not necessarily influence the difference in stress levels observed among different age groups. The cause for the difference in stress based on age remained inconclusive, prompting a question for future research.

Question One

Explanation of results

The null hypothesis that stress levels as measured by the PSS are equal between the three types of housing programs cannot be rejected since no statistically significant F-statistic has been observed to suggest the contrary. While it must be recognized that the post-hoc power calculation observed the test to be of very low power, .05, the revelation that the power is low further confirms the similarity in stress levels statistically identified between the types of housing programs. Power describes the ability to not commit a type II error; that is failing to reject a true null hypothesis or observe a difference between groups even if a difference exists. Because the means and variances of stress levels for housing program types are practically the same, it becomes difficult to identify statistically significant differences.

Furthermore, the lack of statically significant F-statistics for each ANOVA performed for question one indicate that there exists no difference in stress levels between homeless people based on the type of housing they are currently using, whether or not they remained with a housing program for the last six months, and whether or not they remained with a specific type of housing program.

Convergence and divergence

As may be recalled from the literature review, housing was a source of stressors and stress relief (Banyard & Graham-Bermann, 1998; Huang, 2001; Menke, 2000). Hypothetically, a gradation in stress is expected such that concerns about obtaining or maintaining shelter are stressors, and having stable housing is stress relief. However, the

observed equivalence in stress among people in the three types of housing programs disputes this. If the study assumes emergency shelters, interim housing programs, and permanent housing programs to be progressive steps in housing homeless people, the progressive move toward stable housing ought to translate into increased stress relief with the diminishing stressor, but this is not the case according to the observed results.

So, why was no difference in stress observed? When reviewing the spread of scores as delineated by the three housing program types, it is roughly the same. Each housing program type serves people with low levels of stress, people with moderate levels of stress, and people with high levels of stress. This suggests three possible occurrences. First, the utilization of a type of housing program provides both stressor and stress relief as the literature indicated. For example, some people perceive the access to a housing program as stress relief since it diminishes the stressor of not having shelter. On the other hand, some people perceive the access to a housing program as a stressor because they have program rules and goals to follow, they continue to struggle for stable housing, or they have to redevelop modes of survival that differ from the ones they developed while on the street.

A second way to look at the observed equivalence in stress refers to the understanding of stress; namely, stress is the perception of stressors. People may perceive the experience of a housing program differently and have as a result different levels of stress despite using the same program.

A third way to look at the observed equivalence in stress considers the diversity of programming and services available in housing programs. When describing a housing

program by type, descriptions typically include the permitted duration of stays and the available services. While services tend to be more comprehensive among interim and permanent/supportive housing programs, services that provide stress relief, directly or indirectly, may occur in or be missing from any of the three types of housing programs. For example, childcare programs that may relieve some parental stressors can be found among some but not all interim housing programs. Since interventions are not standard among and across types of programs, variations in outcomes occur.

Implications of findings

The observation that stress does not vary by housing program type clarifies what was not previously known about housing programs and stress. As was mentioned previously, no research had previously explored the difference in stress between homeless people using different types of programs but instead focused on program evaluation, i.e. the effect of a stress relief intervention (Davey & Neff, 2001; De Vincente, Munoz, Perez-Santos, & Santos-Olmo, 2004; Kim & Ford, 2006; Kissman, 1999; Lester, et al., 2007; Toro, Tulloch, & Ouellette, 2008). This study has compared housing program types which were theoretically thought to provide relief from stressors and has identified no difference in stress relief or stress elevation based solely on program type utilization.

Furthermore, the descriptive statistics from the sample provide stress levels for subpopulations of the homeless population not previously well addressed. While a statistical test between the sample's PSS scores and nationally based normative scores could not be performed and subsequently, a difference could not be established, the

amount of variation in stress observed provides an idea of the degree of stress homeless people have. In particular, the mean PSS score for homeless males using some type of housing program was 15.31. This lends to a description of the average homeless male's experience of stress as appearing slightly higher than the established norm. Also, the mean PSS score for homeless women, including those with and without children, using some type of housing program was 15.70. Previously, homeless women with children received more attention regarding stress research than homeless women without children (Banyard & Graham-Bermann, 1998; Kissman, 1999; Meadows-Oliver, Sadler, Swartz, & Ryan-Krause, 2007; Wagner & Menke, 1991; Williams, 2007). Having found an average level of stress for homeless women provides a basis for future comparison in research addressing all homeless women.

Clinically, the results of this study do not support the need to further assess for stress based solely on the report of using a housing program. However, the observed range of scores among the sample indicates that those in homeless housing programs can have high levels of stress and subsequently require assessment. This is where question two which seeks other predictors of stress levels in homeless people lends focus.

Question Two

The statistics behind question two sought to identify predictors of stress among homeless people that health practitioners, particularly nurses, could use to assess stress among their homeless patients. Unfortunately, the group of variables identified as strong predictors only moderately predicts stress among the 18 to 44 year old participants of the sample.

Explanation of results

The final regression model composed of strong predictors of stress that account for 68.4% of the variability. It is important to note that the predictors as a group provide that degree of predictive ability. The variable components of the final model included: living with adult children who are not one's own children, living with one's own adult children, having family or friends available to talk about personal problems, having a criminal history, the number of days one experienced emotional problems in the last month, being bothered by emotional problems in the last month, and the BPTSD-6 score. This corresponds to the variables: PTSD, psychiatric problem perception, psychiatric burden, convictions, social support, and living situation related to living with an adult child who may or may not be one's own child. Each of these by their statistically significant t-statistics and large model F-statistic suggest that they are good predictors of stress levels in the sample.

This finding corroborates the underlying theory derived from the reviewed literature; specifically, some stressors that are prevalent among homeless people are perceived in a way that results in the experience of stress. In particular, mental illness and specifically PTSD have been observed in substantial portions of homeless samples (Davis, 1999; Schanzer, Dominguez, Shrout, & Caton, 2007). The findings of this study indicate that the report being bothered by emotional problems or having PTSD suggests the possibility of elevated levels of stress. In contrast, the reported duration of emotional problems appeared to increase as stress decreased. This finding does not necessarily add support to the effect of emotional problems on stress but does highlight the theoretical

understanding of stress to be based on the perception of stressors. Speculatively, an emotional problem with a longer duration may be perceived more positively than an emotional problem with shorter duration if the participant perceives it to be. The duration may also suggest other underlying mental health issue to which the participant may have adapted. In this case, stress related to a mental health issue may not be perceived as negatively as in previous experiences since it has become a common part of life.

Similarly, the finding that having a history of criminal convictions is a strong predictor of stress levels supports the findings of Chilton and Rose (2009) whose research linked food insecurity to depression and anxiety. From an economic standpoint, having a criminal conviction record can endanger employment which has an intuitive link to food resources (Metraux & Culhane, 2004). That is, unstable employment may threaten the perceived availability of resources like food and thus increase stress. If this is the case, the finding lends support to ongoing projects in the city of Chicago that connect ex-convicts with employment or employment programs.

Similarly, having family or friends available to discuss problems and living with an adult child that is not your own child have been observed to be predictors of stress although they tend to suggest lower stress levels. Affiliation has been documented as supporting exits from homelessness which in theory should decrease stress (Zlotnick, Tam, & Robertson, 2003). Thus, the finding that increases in affiliation correspond to decreased stress supports the literature.

On the other hand, it was surprising to find that living with an adult child who is your own child was a predictor of increased stress. Given the literature's take on affiliation, the dynamics of this finding are unclear (Zlotnick, Tam, & Robertson, 2003). Further qualitative investigation is required since the presence of this affiliation has not been previously conceived as negative. However, speculatively, parental figures tend to expect adult children to fend on their own to some degree. This may be even more the case due to the age of the parent. For a participant aged 18 to 44 years to have an adult child, he or she would have had the child at age 26 years or younger. In this case, there may be other underlying issues, i.e. resentment of the adult child for taking one's youth or a need to encourage the autonomy in the adult child due to years of depleting resources. In either case, when the separation does not occur, the parental figure has difficulty adapting to this stressor and experiences greater stress. In contrast, the finding does not necessarily explain the scenario of the good child who as an adult remains with the family to provide financial and emotional support. Further research is necessary to understand the nature of this finding within the model.

It should also be noted that the model did not lend further support to other observations in the literature. Despite studies supporting the effect of environment on stress, the model did not lend evidence that provides further support to that idea (Aneshensel & Sucoff, 1996; Hill, Ross, & Angel, 2005; Latkin & Curry, 2003; Ross & Mirowsky, 2009). Similarly, despite the suggested causal link of stressful life events with drug and alcohol abuse, the model provided no strong predictor that could lend further evidence to this relationship (Munoz, Panadero, Santos, & Quiroga, 2005).

Although the model does not contain predictors categorized as environment or substance abuse, the nature of regression modeling does not dispute that such variables can lead to stress; such variables were just not strong predictors within the model. It should be noted, however, that differences in stress were identified in relation to drug and alcohol problems during the demographic investigation. Furthermore, the quality of the model indicates an unaccounted proportion of variability.

While the model had a power of 1.00, a variability proportion of 68.4% is not large enough to use clinically for the identification of stress. With that said, this does not necessarily deter the predictive ability of these variables. It should be remembered that each variable component maintained a linear relationship with stress levels and had statistically significant t-statistics when they were compared with PSS scores. Each variable component contributes a small amount of predictive ability to the model, but each also suggests the presence of stress with some accuracy. These variable components and the variables to which they belong may be useful as markers that prompt further assessment of stress in homeless patients by clinicians in the practice setting.

Specifically, the variables, psychiatric problem perception and PTSD, provided the largest contributions to the regression model and thus the greatest predictive contribution. This converges with previous research that identified substantial proportions of PTSD among homeless subpopulations and the effect of stressful life events on the development of trauma symptoms. While the statistics of this study do not identify emotional problems and PTSD as causes for observed stress, theoretically, the presence of emotional issues and PTSD could be sources of stress. So, as the model

projects, if a homeless person has PTSD or emotional problems, he or she likely has a higher level of stress.

Similarly, the variables, medical problem and affordable healthcare, maintained linear relationships with stress level; however, they were sorted out during modeling due to lack of contribution to the model's predictive ability. Nonetheless, the analysis of variance test and related confidence intervals demonstrates that those reporting a medical problem have higher mean levels of stress than those not reporting a medical problem. Likewise, those reporting that they need a doctor or dentist but cannot afford it have higher mean levels of stress than those reporting that they did not need a doctor or dentist or that they could afford healthcare services.

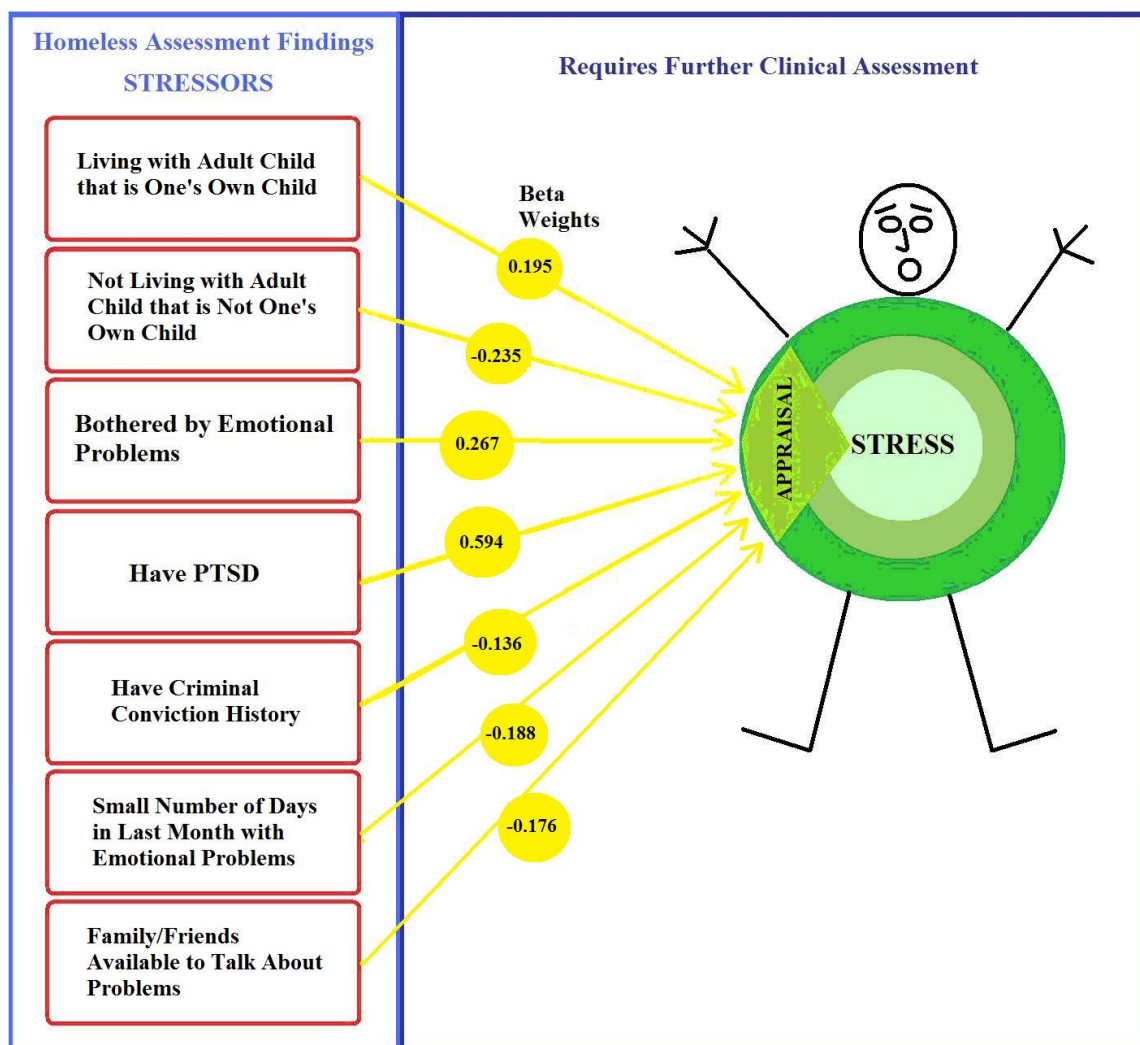
Differences in stress as delineated by the variables, medical problem and affordable healthcare, confirm two hypotheses of question two. Specifically, homeless people with the added stressor of medical problems have higher levels of stress than those without the added stressor. Homeless people with the added stressor of being unable to afford needed healthcare have higher levels of stress than those without the added stressor.

Implications of findings

The final conclusion of question two is that living with an adult child that is your own child, not living with an adult child that is not your own child, not having family or friends available to talk about personal problems, having fewer days of emotional problems, being bothered by emotional problems, having a criminal conviction history, and/or having PTSD suggests that a homeless person has stress; it does not confirm stress

but clinically, provides evidence for further investigation into the presence and degree of stress. This use of these variables adds to the current understanding of stress among homeless people and the method for clinicians to suspect it. Figure 16 provides a visual model of these findings.

Figure 16. Model of Homeless Stress Predictors



Question Three

Clinicians, particularly nurses, need to have access to the homeless population in order to assess and treat homeless patients for stress. The results of question three identify the facilities and providers most utilized by the sample.

Explanation of results

Facility

Veterans Affairs facilities aside, the most utilized facilities are doctors' offices, emergency departments, outpatient clinics, and community/public health clinics. While other types of facilities had reported utilization, these four types have the greatest odds of visitation. As was mentioned previously about the possible error in broadly characterizing a doctor's office, an adjustment in description encompasses outpatient clinics and community/public health clinics. Since there is no statistical difference in the number of homeless people visiting emergency departments compared to outpatient clinics and community/public health clinics, providing assessment and intervention through these three facilities covers a substantial portion of the odds and has the greatest likelihood of accessing the portion of the homeless population represented by the sample.

The findings reinforce prior literature regarding healthcare facility utilization. In particular, the proficient use of emergency departments had already been documented (Caton, Wilkins, & Anderson, 2007; Hahn, Kushel, Bangsberg, Riley, & Moss, 2006, Hwang & Henderson, 2010). Greater than average use of inpatient services was reported previously (Kuno, Rothbard, Averyt, & Culhane, 2000). Although this study observed 66

reports of inpatient facility utilization, this frequency was not as great as the reported usage of other types of facilities.

As may be recalled, the one deviation to these findings regarded the greater reported use of shelter-base/housing site health clinics by those who reported only using one facility. One explanation for this is that shelter-based clinics are onsite providing increased opportunity to reach patients through easier access. For example, a participant enters a shelter or housing site with a clinic. He or she may not need a health screening or have any known health problems, but since it is free, requires no further travel, and probably offers care by healthcare providers who volunteered their time suggesting that they want to help, the participant agrees to use the clinic. Other types of facilities typically have patients who walk in for only health related reasons whereas shelter-based/housing site health clinics also catch people who are seeking housing.

In contrast to the facilities with higher reported use, prison/jail/correctional health clinics and occupation health clinics demonstrated lower reported use. So much was the case that their frequencies did not meet the sample size assumption for chi-square tests. This meant that while there was not enough sample to run these statistics, their minimal frequencies suggested that they were not utilized very much and thus would not be facilities to focus efforts of healthcare interventions.

Provider

The providers with greatest odds of being seen are physicians. Nurse practitioners and nurses come in second and third, respectively. The same remains true when the frequency of participants who saw a nurse and/or nurse practitioner is compared

to the frequency of seeing a physician. The odds of seeing a nurse or nurse practitioner is 1.130 indicating that a homeless person is 1.130 times more likely to see a nurse or nurse practitioner than not. Therefore, nurses do have access to the homeless population although physicians have better access. This finding adds detail to the research about healthcare service utilization, i.e. emergency services, inpatient hospitalizations, and substance abuse treatment (Hwang & Henderson, 2010). The type of provider offering specific services is typically inferred or blurred in the literature since the focus is on service utilization and the availability of services. The findings of this study suggest that among the services provided, the role of physician is the most recognized or credited with providing care.

This finding remains evident even when the sample is delineated by age, gender, and intensity of healthcare utilization. However, it should be noted that females aged 45 years and older frequented psychologists and psychiatrists approximately as much as they frequented nurse practitioners and non-NP nurses. Likewise, those who used only one provider also frequented psychologists and psychiatrists approximately as much as they frequented nurse practitioners and non-NP nurses. The reason for these findings may be attributed to patients receiving long courses of psychiatric treatment, and having developed a rapport, they do not seek out other providers.

A similar explanation could explain the high frequency of reported physician usage; however, there are two other possible speculative reasons for this finding. First, participants may not have recognized nurses as nurses and possibly misidentified some nurses or nurse practitioners as physicians or physician assistants. The logical basis for

this argument relies on an understanding of healthcare facilities. Despite the variety of facilities inquired of participants, each facility typically has some nursing staff.

Theoretically, if a participant reported visiting any of the prompted facilities, he or she should have come into contact, at least visually, with a nurse. This typically includes facilities where physicians are providing care, i.e. doctors' offices, community clinics, etc. This is a reasonable explanation given the research reporting high uses of emergency departments and inpatient hospitalizations; both of these facilities typically provide nurses as frontline care providers and would make it difficult to avoid contact with a nurse (Caton, Wilkins, & Anderson, 2007; Hwang & Henderson, 2010).

The second possible reason for this finding is that physicians are seen more often than nurses or are viewed as the healthcare provider in healthcare facilities. In this way, it is assumed that participants accurately identify providers and make assumptions about their roles. If physicians are seen more often, nurses may be able to increase access to the homeless population by developing and promoting nursing services in facilities where physicians practice. Nurses may also focus stress assessment and reduction interventions in those same facilities.

Veterans

Eligible veterans of the sample reported high frequency usage of VA health facilities. This finding deters any misconception in this study that VA services were of little use. However, one concern is the portion of veterans who are either ineligible or do not know their eligibility. From their reported use of VA services, they do not frequent VA services as much as those who report being eligible. While this makes sense for

those who know they are ineligible, it leaves a potential gap in access for those who are unsure of their eligibility. This finding prompts a future investigation to identify if there is an effective intervention to increase veteran knowledge about their potential access to VA services.

Question Four

The observation that more physicians are seen than nurses parallels the results of the statistics for question four. That is, physicians are the most trusted or preferred providers by homeless people for the management of their healthcare. Nurses are the second most trusted or preferred.

Explanation of results

The provider with the greater frequency of preference in the sample is physician at a portion of 69.3%. When combining nurse and nurse practitioner frequencies, they summate to a portion of 14.5% and hold as the second most preferred provider. The reason that physicians are the most preferred is not absolutely clear. Of those who preferred nurses, 21.1% saw a nurse. Of those who prefer nurse practitioners, 70.0% saw a nurse practitioner. Of those who prefer physicians, 72.1% saw a physician. Having seen and recognized a physician may have influenced preferences. However, qualitative follow-up is needed to substantiate this claim.

Effect in Nursing

As the United States progresses with healthcare reform, an important set of ramifications arises for homeless people (National Health Care for the Homeless Council, 2010). First, the expansion of Medicaid will provide any single adult earning less than

\$14,400 per year with health care coverage by 2019. This covers many homeless people as well as those on the verge of becoming homeless. This means that more homeless people will have the healthcare coverage to seek regular outpatient services as well as emergency services. In the future, nurses will have greater influence on the healthcare of the homeless population just because more of the population will have access. Although this study suggests that homeless people prefer care by physicians, nurses will have an increase in opportunities to impact the health of the homeless. Nurses will also have an opportunity to assert themselves where physicians provide care, promote their roles, and endear themselves to the population as easily accessible and proficient healthcare resources.

The second ramification is the effect by community health centers (National Health Care for the Homeless Council, 2010). The healthcare reform law includes a substantial allocation of funding to the expansion of community health centers. This includes the expansion of facilities, available services, and patient loads. Such an expansion enables homeless people to have more available health services in the areas they inhabit. Walking can be less expensive than public transportation; so if a homeless person can readily walk to a community health center for services, it will decrease their out-of-pocket costs and encourage their use of community health centers. For the nurses who provide care at community health centers, this may increase the number of homeless patients they see, and it will be an opportunity for them to promote their role as primary care providers. Also, in that role, they will be able to use the five predictors of stress as

evidence for doing further assessment and potentially implementing stress reduction interventions.

The third ramification is the focus on the expansion of the healthcare workforce (National Health Care for the Homeless Council, 2010). This includes educational funding for nurses, funding to increase the number of public health and primary care providers, funding to increase available primary care services in underserved areas, funding to train future physicians about public health and cultural competency, and an emphasis on primary care models including team approaches to health management. For nurses, this hopefully means replenishing a short labor supply, giving nurse practitioners more primary care and team management opportunities, and providing nurses with more available educational paths. For nurses treating homeless patients, this means teaming with future physicians to provide primary care with consideration for public health concerns, cultural issues, and the underserved. For nurses treating stress among homeless patients, this means that nurses will potentially have increased access to the homeless population through primary care services and increases in available nurses. Greater access provides opportunities to assess homeless patients and treat stress that they may have.

More specifically, as NSM argues, nurses may address stress in the homeless at three levels of prevention, (a) primary, (b) secondary, and (c) tertiary (Neuman, 2002). At the primary level, nurses recognize the risk factors for becoming homeless among their patients and increase their patient's flexible line of defense by eliminating those factors and implementing stress reduction measures. First, nurses position themselves at

locations that maximize access to the homeless population; this includes emergency departments, outpatient clinics, community/public health clinics, and doctors' offices. Next, within these settings, nurses can be vigilant for the presence of employment problems, emotional problems, PTSD, inadequate food supplies, and an adult child of non-blood relation in household. Then when a homeless patient becomes at risk of developing such predictive stressors, nurses may implement interventions that prevent those stressors from occurring. For example, when a homeless patient indicates that his or her significant other has invited an adult child from a previous marriage to live in the same household, the nurse may preemptively provide stress reduction techniques and methods for dealing with the added dependent or sharer of family resources.

At the secondary level of prevention, typically community nurses treat the health issues of homeless people in shelters or free clinics. However, this may extend to nurses in the emergency department and outpatient clinics. If a homeless person presents with a medical problem, an inability to pay for their healthcare, emotional problems, employment problems, or PTSD, a nurse may suspect an elevated level of stress and assess for the need of stress relief.

At the tertiary level of prevention, which focuses on case management, substance abuse treatment, mental health programs, and permanent housing programs, successful treatment relies on compliance to maintain the new system stability that the person has assumed following the homeless episode. At this level of prevention, nurses recognize the history of PTSD, emotional problems, and employment problems and maintain the

adaptation of the person through stress reduction and other interventions that manage the stressors.

Limitations of Study

Sample size

In relation to the population, generalization is difficult with this sample.

Although participants were originally recruited through a tiered randomized selection process, only those who returned to complete another interview provided the data for this study. This means that the sample was a convenience sample derived from a larger, previously random sample of people. This convenience sample carries the same problems as other convenience samples; namely, the sample is not representative of the population since it lacks representation from the portion of the previously random sample that chose to not continue their participation in the study.

Sample location

The sample comes from the Chicago, Illinois, area and has not been adequately compared to national averages in terms of demographics. While the PSS scores as delineated by demographics have been compared to national norms during the data analysis of this study, actual differences could not be identified statistically. The results of this study cannot be generalized beyond homeless people in the Chicago area. Furthermore, despite Chicago providing an urban environment from which to draw a sample, the results have not and cannot be generalized to any other urban homeless population. The data of this study has not been compared to data from a like study in another urban area.

Reliability and Validity

Reliability

This study maintains decent high reliability. Since trained and experienced interviewers administered the survey, questions and their interpretations remained consistent. Also, interviewers with experience in administering a similar survey tested the survey prior to use and corrected issues of misinterpreted questions in relation to their experience in interviewing homeless people in Chicago. These attributes of the study support a consensus of maintained internal consistency.

Regarding the use of the PSS, a previously developed and tested instrument, the reliability remained high within this study. The Cronbach's alpha for the PSS instrument as it was used with this study's sample was .957.

Validity

While the reliability of the study remains high, the validity of the study is limited. The variables retained in the regression model derived for question two correlate with the measure of stress significantly and indicates the existence of a linear relationship. This suggests the presence of concurrent criterion validity. However, the final model accounts for only 68.4% of the variability. This is a minimal predictive ability that downplays the predictive criterion validity of the model.

Similarly, for question three, the possible misinterpretations of prompted locations and providers by participants undermine the study's content validity. As mentioned previously, despite the consistent administration of the survey, participants may have understood the facility, doctor's office, broadly and included multiple facility

types under this descriptor. Likewise, participants may have misidentified nurses and nurse practitioners as other types of providers. If this is the case, the survey questions about utilizing healthcare facilities and providers did not measure exactly as was intended, and content validity diminishes.

Another validity issue arises from the analysis of question one such that the proposed hypothesis had virtually no construct validity. The proposed hypothesis has argued that in theory, there are differences in stress among homeless people using different housing program types, but the results have clarified that the stress levels are equal. The proposed theory does not stand and thus is not valid.

Directions for Future Research

Understanding that stress is based on the perception of stressors easily prompts investigations into stressors because they are seen as the cause of stress. However, at the base of developing such studies, it may be the ease of measuring stressors as opposed to measuring perceptions of stressors that encourage such methods. At its purest form, studies of stress that look at stressors must measure from the eyes of the subject encountering the stressor. In this way, the true measurement of a stressor can be identified.

This study on stress among homeless people in Chicago has maintained that degree of measurement when possible, but some variables could be clearer measurements. For example, the stressors of criminal conviction history and military history might be worth measuring as how a person perceives having any such history in everyday life. These variables could again be compared to a stress instrument and clarify

if the average measured perception predicts stress levels. In this way, the stressor can be identified as a predictor of stress if the average perception of stressor is a predictor of stress. Also, for those instances where deviations from the average perception of particular stressors result in different stress levels, such findings could be used to create a tool for identifying people with deviations from the normal perception and providing a corresponding difference in the expected level of stress.

Other studies could also be developed. The conclusions of this study point to several questions that need clarification. In particular, the observation that mean stress levels are the same between housing program types does not explain the spread of scores observed within each housing program type. What programs within each housing program type have lower levels of stress, and of these programs, what part of their programming or services keeps stress low? Since specific stress reduction techniques and services can be evaluated, a cross referencing of programming and services among programs with high and low mean stress levels may identify those services and programming that promote the most stress reduction. Such a study would also initially identify if there is a difference in mean stress between specific programs.

Another question that has arisen and is of more importance to nursing considers the use of the variables identified in this study as having value in prompting the further assessment for stress in younger homeless patients. Specifically, the variables of living situation related to the inclusion of an adult child, the availability of family or friends to discuss problems, the perception of emotional problems, the duration of emotional problems, criminal conviction history, and PTSD can be assessed quickly through intake

forms. They in turn may prompt further assessment by nurses as to the actual stress level and any needs for stress reduction interventions. In order to validate the usefulness of these variables as prompts, a study to identify their effectiveness would be prudent. Outcomes to be measured include the percentage of homeless patients who receive further assessment and actually have high levels of stress, the percentage of homeless patients who have high levels of stress and received further assessment, and the percentage of homeless patients who receive further assessment but actually have low levels of stress. Also, a study expanding on the differences in stress due to living with adult children would clarify some of the findings from this current study.

Another area of concern concluded by this study revolves around the issue of identified provider roles. In theory, if homeless patients are not able to identify nurses and their roles, nurses receive less credit for what they do and limit their access to the population because homeless patients will recall the type of provider they used previously for a specific service and return to the perceived provider. In order to further validate this study and clarify any need for the promotion of nursing roles, research addressing the identification of nurses by homeless people in relation to roles and visualization should be performed.

Along similar lines, an investigation into the use of psychologists and psychiatrists by homeless females aged 45 year and older should be considered. The same applies to a study investigating the use of psychologists and psychiatrists by homeless people who only use one provider. Such qualitative investigations may clarify the basis of the usage and why it is on par with nursing usage.

It would also be prudent to further explore veterans who do not know their eligibility. In particular, a study to identify barriers to access, health needs, and effects of educational interventions may serve this group.

Furthermore, the measure of reported preference should be advanced into a standard measurement. A tool that combines the clarification of roles, the provision of services, and degree of preference should be utilized to measure a homeless persons preference for healthcare providers. Some qualitative insight may clarify why physicians were chosen more often than nurses and verify if the results on provider preference were accurate.

This study on stress and nursing utilization provides some guidance in the realm of nursing to provide interventions for stress among Chicago's homeless. Further work is needed to improve the generalization of the findings and to verify the conclusions. The drive to continue the work remains. Despite past efforts, homelessness has not ceased, and realistically, it is difficult to say that the occurrence of it will stop anytime soon. However, with time, we may come to understand the complete dynamic of homelessness and find a way to still its perpetuation.

APPENDIX A
STUDY MAP

Study Map

Question 1

What is the difference in stress among the homeless in three different types of housing programs: emergency shelters, interim/transitional housing, and permanent/supportive housing?

Variables:

A) Stress

- a. Perceived Stress Scale (score from 10 items)
 - i. Wave 2, page 41, #1-10
 - ii. Items: pss12, pss22, pss32, pss42, pss52, pss62, pss72, pss82, pss92, pss102 (discrete, ratio)
 - iii. Note: Responses on survey must subtract 1 in order to match original PSS

B) Housing Program Type

- a. Current Living Place
 - i. “Right now, which of the following best describes the type of place where you are living?”
 - ii. Wave 2, page 13, #2
 - iii. Item: livenow22 (nominal, categorical)
- b. Original Housing Program (~6 months ago)
 - i. Group ID
 - ii. Wave 2, page 2, #1
 - iii. Item; groupid (nominal, categorical)
- c. Continuity with Original Program
 - i. “Are you still living in that program now?” and “Have you lived in this program continuously since you were last interviewed?”
 - ii. Wave 2, page 5, #1 & #1a
 - iii. Items: prognow12, prognow1a2 (combined to reflect three possible categorical answers – 1.1 = continuously and still in program, 1.2 = left and came back to program, 2.7 = left program)

Statistics:

- 1) ANOVA or linear regression between Stress (Dependent) and Current Living Place (Independent) – Identifies difference in mean stress level between the different living situations.
- 2) ANOVA or linear regression between Stress (Dependent) and Current Living Place (for participants indicating one of the three types of housing programs; Independent) – Identifies difference in mean stress level between the different types of housing programs.
- 3) ANOVA or linear regression between Stress (Dependent) and Continuity with Original Program (Independent) – Identifies if continued duration in program is different in stress level than leaving program.

4) 2-Way ANOVA or multiple regression between Stress (Dependent), Original Housing Program (Independent), and Continuity with Original Program (Independent) – Identifies if staying or leaving a particular type of housing program yields different stress levels.

Question 2

What variables predict increased stress levels among the homeless?

Variables:

A) Stress

- a. Perceived Stress Scale (score from 10 items)
 - i. Wave 2, page 41, #1-10
 - ii. Items: pss12, pss22, pss32, pss42, pss52, pss62, pss72, pss82, pss92, pss102 (discrete, ratio)
 - iii. Note: Responses on survey must subtract 1 in order to match original PSS

B) Affiliation/Disaffiliation

- a. Social Support
 - i. Group of 16 items asking about support from professionals and family/friends
 - ii. Wave 2, page 37-38, #6-21
 - iii. Items: socrel62, socrel72, socrel82, socrel92, socrel102, socrel112, socrel122, socrel132, socrel142, socrel152, socrel162, socrel172, socrel182, socrel192, socrel202, socrel212 (calculated in statistical analysis as separate variables: discrete, interval – 1 to 5 where 1 is *definitely not* and 5 is *definitely yes*)
- b. Living Situation
 - i. “Currently, are you living with any of the following people...?”
 - ii. Wave 2, page 13, #1
 - iii. Items: phf21a2, phf21b2, phf21c2, phf21d2, phf21e2, phf21f2, phf21g2, phf21h2, phf21i2, phf21j2 (entered as individual dichotomous variables for statistical analysis)
- c. Social Perception
 - i. “In the last 30 days, how troubled or bothered were you by problems with members of your family?” and “In the last 30 days, how troubled or bothered were you problems with your friends and associates?”
 - ii. Wave 2, page 36, #3a & #3b
 - iii. Items: socrel5a2, socrel5b2 (calculated in statistical analysis as separate variables; discrete, interval – 1 to 5 where 1 is *not at all* and 5 is *extremely*)

C) Environment

- a. Neighborhood Quality
 - i. Nine questions about neighborhood
 - ii. Wave 2, page 15, #4-12
 - iii. Items: nhood12, nhood22, nhood32, nhood42, nhood52, nhood62, nhood72, nhood82, nhood92 (calculated in statistical analysis as

separate variables; discrete, interval – 1 to 4 where 1 is *strongly disagree* and 4 is *strongly agree*)

- b. Residential Problems
 - i. “During the last month, which of the following did you experience...?”
 - ii. Wave 2, page 16, #14a-h
 - iii. Items: hardship6a2, hardship6b2, hardship6c2, hardship6d2, hardship6e2, hardship6f2, hardship6g2, hardship6h2 (calculated in statistical analysis as separate variables; dichotomous)
- c. Neighborhood Perception
 - i. “All things considered, how satisfied or dissatisfied are you with this neighborhood as a place to live?”
 - ii. Wave 2, page 16, #15
 - iii. Item: nhood152 (discrete, interval – 1 to 5 where 1 is completely dissatisfied and 5 is completely satisfied)

D) Economic Factors

- a. Money
 - i. “To better understand your financial situation, in the past 30 days, how much money did you receive from the following sources...”
 - ii. Wave 2, page 30, #15a-h
 - iii. Items: asi15a2, asi15b2, asi15c2, asi15d2, asi15e2, asi15f2, asi15g2, asi15h2 (continuous, calculated as separate variables)
- b. Employment Burden
 - i. “In the past 30 days, on how many days did you experience employment problems?”
 - ii. Wave 2, page 31, #17
 - iii. Item: asi72 (continuous, ratio, expressed as number of days)
- c. Employment Perception
 - i. “How troubled or bothered have you been by these employment problems in the last 30 days?”
 - ii. Wave 2, page 31, #18a
 - iii. Item: asi18a2 (discrete, interval – 1 to 5 where 1 is *not at all* and 5 is *extremely*)
- d. Food
 - i. “Which of the following statements best describes the food eaten in your household in the last month...?”
 - ii. Wave 2, page 45, #1
 - iii. Item: hardship12 (Ordinal)
- e. Affordable Healthcare
 - i. “During the last month, was there a time when you needed to see a doctor or dentist but could not go because you could not afford it?”
 - ii. Wave 2, page 45, #2
 - iii. Item: hardship22 (dichotomous)
- f. Clothing

- i. “During the last month, did you or your children go without proper clothing because you could not afford it?”
 - ii. Wave 2, page 45, #3
 - iii. Item: hardship32 (dichotomous)
 - g. Communication
 - i. “During the last month, did you go without a phone because you could not afford to pay the bill?”
 - ii. Wave 2, page 45, #4
 - iii. Item: hardship52 (dichotomous)
- E) Medical/Physical Illness
 - a. Medical Problem
 - i. “Do you have any chronic medical problems which require special attention or continue to interfere with your life?” and “At this time, do you have a diagnosed disability?”
 - ii. Wave 2, page 22-23, #3 & #5
 - iii. Items: asi32, asi52 (two dichotomous variables combined into one such that any yes answer to either item equals *yes there is a medical problem*, a no to both items equals *no there is not a medical problem*)
 - b. Medical Problem Perception
 - i. “How troubled or bothered have you been by medical conditions in the last 30 days?”
 - ii. Wave 2, page 24, #7a
 - iii. Item: asi7a2 (discrete, interval – 1 to 5 where 1 is *not at all* and 5 is *extremely*)
 - c. Medical Burden
 - i. “In the last 30 days, how many days did you experience any medical problems?”
 - ii. Wave 2, page 24, #6
 - iii. Item: asi62 (continuous, ratio, expressed as number of days)
- F) Mental Illness
 - a. Psychiatric Problem Perception
 - i. “How much were you troubled or bothered by these psychological or emotional problems in the last 30 days?”
 - ii. Wave 2, page 40, #7
 - iii. Item: psych72 (discrete, interval – 1 to 5 where 1 is *not at all* and 5 is *extremely*)
 - b. Psychiatric Burden
 - i. “In the last 30 days, how many days did you experience emotional problems like those we just discussed?”
 - ii. Wave 2, page 40, #6
 - iii. Item: psych62 (continuous, ratio, expressed as number of days)
 - c. PTSD
 - i. BPTSD-6 (scale of 6 items)

- ii. Wave 2, page 42, #8-13
- iii. Items: psych82, psych92, psych102, psych112, psych122, psych132 (discrete, ratio – 0 to 24)
- iv. Note: Responses on survey must subtract 1 in order to match original BPTSD-6

G) Alcohol Abuse

- a. Alcohol Burden
 - i. “In the past 30 days, how many days did you experience alcohol problems?”
 - ii. Wave 2, page 33, #30a
 - iii. Item: asi30a2 (continuous, ratio, expressed as number of days)
- b. Alcohol Perception
 - i. “In the past 30 days, how troubled or bothered have you been by alcohol problems?”
 - ii. Wave 2, page 34, #30b
 - iii. Item: asi30b2 (discrete, interval – 1 to 5 where 1 is *not at all* and 5 is *extremely*)

H) Substance Abuse

- a. Drug Burden
 - i. “In the past 30 days, how many days did you experience drug problems?”
 - ii. Wave 2, page 34, #31a
 - iii. Item: asi31a2 (continuous, ratio, expressed as number of days)
- b. Drug Perception
 - i. “In the past 30 days, how troubled or bothered were you by drug problems?”
 - ii. Wave 2, page 34, #31b
 - iii. Item: asi31b2 (discrete, interval – 1 to 5 where 1 is *not at all* and 5 is *extremely*)

I) Victim of Violence

- a. Victimization
 - i. “In the past 60 days, how many times have you been the victim of a robbery?”, “In the past 60 days, how many times have you been the victim of assault?”, “In the past 60 days, how many times have you been the victim of rape?”, “In the past 60 days, how many times have you been the victim of domestic violence?”, and “In the past 60 days, how many times have you engaged in sex for money?”
 - ii. Wave 2, page 35, #37-40 & #41b
 - iii. Items: asi372, asi382, asi392, asi402, asi41b2 (calculated in statistical analysis as separate continuous, ratio variables; if asi41b2 is coded 97, it will be recoded as zero)

J) Veteran Status

- a. Military Service

- i. “Have you ever served in the following...?”
 - ii. Wave 1, page 20, #7a-f
 - iii. Items: chyth7a, chyth7b, chyth7c, chyth7d, chyth7e, chyth7f (six dichotomous items combined into one dichotomous item such that any *yes* answer from these items equals *yes, I have served*; having all six items as *no* answers equals *no, I have not served*)
- b. Benefit Eligibility
- i. “Are you eligible for any of the following VA benefits...?”
 - ii. Wave 1, page 21, #11a-h
 - iii. Items: chyth11a, chyth11b, chyth11c, chyth11d, chyth11e, chyth11f, chyth11g, chyth11h (dichotomous items)

K) Convict Status

- a. Convictions
- i. “In your lifetime, have you ever been convicted of a crime?” and “In the past 30 days, were you convicted of a crime?”
 - ii. Wave 1, page 49, #34b; Wave 2, page 35, #35
 - iii. Items: asi34b, asi3512 (two dichotomous items combined into one dichotomous item such that if asi34b or asi3512 is *yes*, then variable = *yes*; if asi34b and asi3512 is *no*, then variable is *no*; NOTE - variable is limited by missing period of ~ 5 months between wave 1 interview and 30 days prior to wave 2 interview)

Statistics:

1) Multiple Regression modeling Stress (Dependent) against the other variables (Independent). A leaned model will identify independent variables that are predictive of stress levels among the sample; beta weights will indicate variables with greatest importance for prediction. Sign (+/-) will indicate prediction relationship. This multiple regression statistic will provide variables/factors available to a nursing assessment that may trigger the need for stress reduction or trigger awareness of presence of stress requiring treatment.

Question 3

How likely are the homeless to report seeing a nurse? (What is the likelihood of a homeless person self-reporting contact with a nurse?)

Variables

A) Health Care Program Utilization

a. Locations

- i. “In the last 6 months, did you go to any of the following places for health care...”
- ii. Wave 2, page 24-25, #7c
- iii. Items : asi7ca2, asi7cb2, asi7cc2, asi7cd2, asi7ce2, asi7cf2, asi7cg2, asi7ch2, asi7ci2, asi7cj2, asi7ck2, asi7cl2, asi7cm2, asi7cn2 (Each item is calculated as a separate dichotomous variable when performing statistical analysis.)

B) Health Care Provider Utilization

a. Provider Usage

- i. “In the last 6 months, have you seen any of the following types of healthcare providers for healthcare...”
- ii. Wave 2, page 25, #7d
- iii. Items : asi7da2, asi7db2, asi7dc2, asi7dd2, asi7de2, asi7df2, asi7dg2, asi7dh2 (Each item is calculated as a separate dichotomous variable when performing statistical analysis.)

Statistics:

- 1) Descriptive Statistics for Locations – Indicates frequency of usage for each healthcare location.
- 2) Descriptive Statistics for Provider Usage – Indicates frequency of perceived usage of different types of health care providers and in particular nurses and nurse practitioners.
- 3) Odds and Odds Ratios for Locations – Identifies likelihood of a participant to visit a type of health care location and indicates prime locations for contact with homeless patients by nurses through differences in usage.
- 4) Odds and Odds Ratios for Provider Usage – Identifies likelihood of a participant to use a type of health care provider including nurses and nurse practitioners and indicates differences in usage.
- 5) Chi-square of Locations – Identifies if there are statistically significant differences in usage among healthcare locations. Note: Use of multiple locations by one participant is not a problem that will effect the meaning of the calculated result because (a) I am seeking the locations with greater usage (if someone visits multiple places and another person visits just one of those places, the one place that both visited has the greatest usage and is the location that has a greater likelihood of having patient contact) and (b) having multiple locations with the same usage is a meaningful result since it indicates that the group of locations with the greatest likelihood of contact. This portion of the

analysis requires multiple chi-square calculations, one for each locations' frequencies of use.

4) Chi-square of Provider Usage - Identifies if there are statistically significant differences in usage among healthcare provider types. Note: Use of multiple providers by one participant is not a problem that will effect the meaning of the calculated result because (a) I am seeking the types of providers with greater usage (if someone visits multiple providers and another person visits just one of those providers, the one provider that both visited has the greatest usage and is the type of provider that has a greater likelihood of having patient contact) and (b) having multiple providers with the same usage is a meaningful result since it indicates similar usage of providers who then have similar likelihoods of contact. This portion of the analysis requires multiple chi-square calculations, one for each provider usage frequencies.

Question 4

How likely are the homeless to trust and prefer nurses as health care providers? (How likely is a homeless person to prefer a nurse as his/her health care provider?)

Variable:

A) Preferred Provider

a. Trusted/Preferred Provider

- i. “What type of healthcare would you most trust or prefer to manage your healthcare?”
- ii. Wave 2, page 26, #7e
- iii. Item: asi7e2

Statistic:

1) Descriptive Statistics of Trusted/Preferred Provider – Identifies frequencies of participants’ preferences for providers including nurses and nurse practitioners.

2) Chi-square of Trusted/Preferred Provider – Identifies if there are statistically significant differences regarding preference by homeless people for types of health care providers including nurses and nurse practitioners.

Sub-question 4a

Among those that saw a certain health care provider in the last six month, how many rated that certain health care provider as preferred?

Variables:

A) Preferred Provider

b. Preferred Provider

- i. “What type of healthcare would you most trust or prefer to manage your healthcare?”
- ii. Wave 2, page 26, #7e
- iii. Item: asi7e2

B) Health Care Provider Utilization

b. Six Months Provider Usage

- i. “In the last 6 months, have you seen any of the following types of healthcare providers for healthcare...”
- ii. Wave 2, page 25, #7d
- iii. Items : asi7da2, asi7db2, asi7dc2, asi7dd2, asi7de2, asi7df2, asi7dg2, asi7dh2 (Considered as separate variables for analysis calculations)

Statistics:

1) Descriptive Statistics (after creating combined variable) – After coding a new variable combining participants preference for a provider and report of seeing providers,

descriptive statistics will identify the quantity of people who saw a provider and prefer him or her.

APPENDIX B
PERCEIVED STRESS SCALE

Perceived Stress Scale (from wave 2 survey)

Now I am going to ask you a few questions about your feelings and thoughts during the last month. Using Card G, and answering on a scale where 1 = Never and 5 = Very Often, I want you to tell me how often you felt or thought a certain way.

1 = Never 2 = Almost Never 3 = Sometimes 4 = Fairly Often 5 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?

2. In the last month, how often have you felt that you were unable to control the important things in your life?

3. In the last month, how often have you felt nervous and stressed?

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

5. In the last month, how often have you felt that things were going your way?

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

7. In the last month, how often have you been able to control irritations in your life?

8. In the last month, how often have you felt that you were on top of things?

9. In the last month, how often have you been angered because of things that were outside your control?

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

(Cohen, Kamarck, & Mermelstein, 1983)

Note: Conversion of 1 to 5 scale by subtracting 1 is required to match scoring system of original PSS.

APPENDIX C

BPTSD-6

BPTSD-6 (from wave 2 survey)

For the following items, we'll be using the scale on CARD E again, the 5 point scale were 1 is "not at all" and 5 is "extremely".

- 1 = Not at all
- 2 = Slightly/a little
- 3 = Moderately/somewhat
- 4 = Considerably/a lot
- 5 = Extremely

In the past week, how much were you bothered by...

1. Repeated, unpleasant dreams or nightmares
2. Feelings of reliving something very unpleasant or traumatic
3. Feeling detached or estranged from others
4. Trying to avoid certain thoughts or feelings because they remind you of something unpleasant or traumatic
5. Feeling distressed because something reminds you of an unpleasant or traumatic event
6. Feeling easily startled

(Fullerton et al., 2000)

Note: Conversion of 1 to 5 scale by subtracting 1 is required to match scoring system of original BPTSD-6.

APPENDIX D
CONSENT FORMS WAVE ONE

Interview Consent Form
Consent to Participate in Research
 Evaluation of Chicago's 10-year Plan to End Homelessness

Christine George, Ph.D. Principal Investigator Investigator Center for Urban Research and Learning Administration Loyola University Chicago Chicago (312) 915-8625	Susan Grossman, Ph.D. Principal Investigator School of Social Work Loyola University Chicago (312) 915-6465	Michael Sosin, Ph.D. Principal School of Social Service University of Chicago (773) 702-1129
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Researchers from Loyola University Chicago and the University of Chicago are asking you to be in a research study. The purpose of this consent form is to give you the information you will need to help you decide whether to be in the study or not. Please read the form carefully. You may ask questions about the purpose of the research, what we, the researchers will ask you to do, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When the researchers have answered all your questions, you can decide if you want to be in the study or not. This process is called "informed consent." You will be given a copy of this form for your records.

Purpose of the Study

What is this study?

Researchers from Loyola University Chicago and the University of Chicago are working with the City of Chicago and the Chicago Alliance to End Homelessness to evaluate Chicago's 10-year Plan to End Homelessness. Chicago's 10-year Plan is different from many other programs around the country and there is a lot of interest in how the Plan has impacted the individuals who use the City's homelessness services. The researchers are interviewing approximately 600 individuals who are living in shelters, interim housing, and supportive housing to better understand how they use these services and how well these services are meeting their needs. In addition, the researchers want to learn about your experiences in order to assess how well services and programs are able to meet your needs and the needs of people like you.

Who is doing this study?

Researchers from Loyola University Chicago and the University of Chicago are working in cooperation with the City of Chicago and the Chicago Alliance to End Homelessness to complete this study.

Procedures

What will you be asked to do?

If you agree to participate in the study, you will be asked a series of questions by an interviewer from the Loyola University Chicago Center for Urban Research and Learning. The interview will probably take between 90 minutes and 2 hours. The interview can be done in your home, at an agency where you are currently receiving services, or another private location which will be easy for you to get to. Some of the questions deal with topics that can be difficult to talk about. You do not have to answer any questions that you don't feel comfortable answering and you have the right to stop the interview at any time.

What kinds of questions will you be asked?

You will be asked about your experiences with homelessness, your situation prior to experiencing homelessness, certain aspects of your past and your social relationships. Among the topics that will be covered are:

- Your residential history and places you have lived
- What circumstances led up to your first and most recent episode of homelessness
- Relationships with family, friends, partners, and children
- Your childhood and youth
- Education and employment
- Criminal background
- Mental and physical health
- Use of alcohol and other drugs
- Victimization
- Government benefits and economic well-being
- Use of social services like shelters, food programs, and substance abuse treatment

Risks, Stress, or Discomfort

What are the risks associated with participating in this study?

Some of the questions you are asked may make you feel uncomfortable or embarrassed. The survey includes questions about involvement in illegal activities, drug and alcohol use, and your medical and psychological history. If your answers to these questions were disclosed you could be at risk of criminal prosecution, loss of employment, or social stigma. The researchers will make every effort to insure that the information you provide is kept strictly confidential. Any information you give to the researchers will not be shared with your service provider or any other service provider. You do not have to answer any of these questions. Although the information you provide will be kept strictly confidential, the interviewer may need to notify the appropriate authorities if you report evidence of child abuse or neglect or if you threaten to harm yourself or someone else.

Benefits of the Study

What are the benefits of participating in this study?

Your participation in this study will not result in any direct benefits to you. However, the information you provide about your experiences may be used to improve the services that individuals experiencing homelessness receive both before and after they find housing. In addition, participating in this study is an opportunity for you to talk about your experiences, and many individuals that have experienced homelessness appreciate this chance to tell their story and be listened to.

Information for Individuals that may be Prisoners or Parolees

The decision whether or not to participate in this research will have no effect on your parole status, legal trial, or sentencing. You should be aware that some of the questions in this interview will ask about illegal behaviors and your answers to those questions could impact your parole status, legal trial, or sentencing if your answers were made known to authorities. However, every effort will be made to ensure your answers are completely confidential. More information about how we will protect your information can be found below. In addition, you do not have to answer any questions you do not wish to answer.

Other Information

Will the information about you be kept confidential?

Yes. The researchers will not share the information you provide, or the information obtained from other sources, with anyone who is not part of the research team. All of the information about you will be kept confidential by:

- Not putting your name on any written records except for the consent form and keeping that consent form in a separate place. Instead, you will be assigned an identification number. This number will be included on the questionnaire instead of your name;

- Storing the information about you in a locked drawer or in a secure password protected computer, including the information about which identification numbers correspond to which individuals;
- Only giving people on the research team access to your information;
- Not using your name or any other identifying information in reports, presentations or articles;
- Destroying any identifiable data at the conclusion of this study and keeping only de-identified data indefinitely for a public use data set.

No information about you will be shared with the agency(s) you are involved with.

To further help us protect your privacy, we have obtained a Certificate of Confidentiality from the National Institute of Health. With this Certificate, the researchers cannot be forced to disclose information that may identify you, even by a court subpoena, in any federal, state, or local, civil, criminal, administrative, legislative or other proceedings. The researchers will use the Certificate to resist any demands for information that would identify you, except as I will explain below.

The Certificate cannot be used to resist a demand for information from personnel of the United States Government that is used for auditing or evaluation of Federally funded projects, or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration.

You should understand that a Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about yourself or your involvement in this research. If an insurer, employer, or other person obtains your written consent to receive research information, then the researchers may not use the Certificate to withhold that information since you have given your consent for us to share information with them.

Lastly, the Certificate of Confidentiality does not prevent the researchers from disclosing voluntarily, without your consent, information that would identify you as a participant in the research project under if you report evidence of child abuse or neglect or if you threaten to harm yourself or someone else, as I mentioned before.

How will the researchers use the information about you?

The researchers will use the information about you and the other people in this study in reports written for the funders of this project and our partners, in presentations we make at conferences, and in articles that may be published. All data in these publications will be reported in summary form; no names or identifying information will be included in those reports, presentations or articles. This information will also be used to create a data set that other researchers can use. However, this public use data set will not include any information that could be used to identify you.

Will you be paid if you participate in the study?

Yes. You will be given a \$20 gift card to Jewel-Osco and a CTA day pass for your participation in this survey. You will be given the gift cards at the end of the survey. If you agree to participate in future surveys, you will be compensated for those, as well. You will still receive the gift card even if you do not answer all of the questions or if you end the interview early.

Can you change your mind later if you agree to participate today?

Yes. You may withdraw from the study at any time without consequences of any kind. You can also refuse to answer any questions you don't want to answer and still continue to participate. If you decide to withdraw and you do not complete the survey, the researchers will not include the survey in the study. To withdraw from the study, simply inform the researcher you would like to stop the survey and that you do not wish to answer any additional questions. Withdrawing from the study or refusing to answer specific questions will not affect your eligibility for any services.

What do you do if you want to participate?

Please check the boxes below to indicate that the interviewer from Loyola University Chicago has explained

the conditions of your participation and your questions have been answered to your satisfaction.

- I understand that my participation in this study is voluntary.
- I understand that I may withdraw from this study or end the interview at any time without any consequences.
- I understand that I will be one of the approximately 600 individuals participating in this study.
- I understand that I will be interviewed today and that the interview will take between 90 minutes and two hours.
- I understand that everything I say will be kept confidential, as described above, and will not be shared with anyone other than the research team.
- I understand that any identifying information about me will be destroyed at the completion of the study but that de-identified data will be preserved indefinitely for possible future use.
- I understand that my name or any other identifying information will not be used in written reports, presentations, or articles.
- I understand that this study gives me an opportunity to tell my story and may help social service agencies and governments improve their homeless services.
- I understand that I will be given a \$20 gift card and a CTA day pass at the end of the interview. However, I will still receive the gift card and days pass even if I don't answer all the questions or if I end the interview early.

Permission to contact you again:

At the end of your interview, the researchers will ask your permission to interview you again in 6 months and again in 12 months. The researchers will also ask your permission to contact your family, friends, or other people in your life that may know where you are, as well as to use administrative data to help locate you. You will be given a separate form at the end of the interview where this will be explained and where you can decide whether you agree to provide this information.

Subject's Statement

Agreement to Participate

This study has been explained to me. I, _____ [print name], understand the procedures described above. My questions have been answered to my satisfaction, and I voluntarily agree to participate in this study and be interviewed today. I recognize that I can change my mind and withdraw from the study at any time. If I have questions later about the research, I can ask one of the researchers listed above. If I have questions about my rights as a research subject, I can call the Loyola University Chicago Compliance Manager at (773) 508-2689. I have been given a copy of this form.

Signature of Participant _____
Date

Signature of Survey Interviewer _____
Date

Consent for Tracking and the Use of Administrative Data Form
Consent for Tracking and Use of Administrative Data Form
 Evaluation of Chicago's 10-year Plan to End Homelessness

Christine George, PhD. Principal Investigator Investigator Center for Urban Research and Learning Administration Loyola University Chicago Chicago (312)915-8625	Susan Grossman, PhD Principal Investigator School of Social Work Loyola University Chicago (312) 915-6465	Michael Sosin, Ph.D. Principal School of Social Service University of Chicago (773) 702-1129
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Researchers would like to meet with you again to conduct a second survey in six months, and a third survey 12 months from now. If you agree to be contacted for an additional interview, the researchers will schedule a time to meet with you again in six months. If you do not wish to participate in a future interview, you do not have to sign this form. If you agree to participate in an additional interview, the researchers would like your permission to contact your family, friends, or other people in your life that may know where you are, in the event that we are not able to reach you to schedule your next interview. The researchers will record the contact information for these individuals on a client locator form you will go through together. These family members and friends will be told that you participated in an interview with researchers from Loyola University and that you provided their contact information in order to reach you for additional interviews.

The researchers are also asking for your permission to review various kinds of administrative data and public records that might contain information about you to help locate you. They will use the information we obtain from these other sources in two ways. First, they will use it to help locate you in the event that we want to interview you again. Second, they will use it to help us better understand what has happened to you since we last interviewed you.

What information will you be asked to provide?

You will be asked to give the researchers the following information, if available:

- Any aliases you may have;
- The telephone number and address of the location where you will be if you leave this program;
- The telephone number and address of friends or family members you keep in touch with who would be most likely to know where you are;
- Contact information for any workers or contacts at agencies or programs that you go to for services.

The researchers are also requesting your permission to review various kinds of administrative data such as department of motor vehicle records, education records, public assistance records, credit bureau records, and criminal justice records that might contain information about you. Regarding these data sources:

- The researchers will respect all state local laws regarding the confidentiality of those data.
- They will ask you to sign a release form for each data source for which you provide permission for the researchers to review and obtain information. If you agree, you can sign any or all of these forms at this time.

How will the researchers contact you if you agree to participate in additional interviews?

The researchers will first attempt to contact you using your current contact information. If they are unable to locate you using that information, they will use the contact information you provide for your friends and family to ask those individuals if they know where you are and how the researchers can get in touch with you. They will also use the Administrative Data to determine if you are incarcerated or receiving services from another agency, and may use that information to contact other individuals that might know how to get

in touch with you.

Risks, Stress, or Discomfort

What are the risks associated with allowing researchers to use Administrative Data?

The administrative data will be used to help us find you for future interviews. The risks associated with allowing the researchers to access this data are no more than you experience in everyday life.

What are the risks associated with allowing researchers to contact my friends and family?

The information you provide about your friends and family will only be used in order to assist the researchers to locate you for the purpose of future interviews. When we contact them, they will be told that you participated in a study with Loyola University and provided their contact information to help the researchers find you for an additional interview. The risks associated with providing the researchers contact information for your friends and family are no more than you may experience in everyday life.

Benefits of the Study

What are the benefits of participating in this study?

Allowing the researchers to access Administrative Data about you and allowing them to contact your friends and family will not result in any direct benefits to you. However, the information you provide will help us to locate you for future interviews that may be used to improve the services that individuals experiencing homelessness receive both before and after they find housing. These additional interviews will also be another opportunity for you to talk about your experiences, and many individuals that have experienced homelessness appreciate this chance to tell their story and be listened to.

Will the information about you be kept confidential?

Yes. We will not share the information you provide, or the information we get from other sources, with anyone who is not part of the research team. We will keep all of the information about you confidential by:

- Storing the information about you in a locked drawer or in a secure password protected computer;
- Only giving people on the research team access to your information;
- Not using your name or any other identifying information in reports, presentations or articles;
- Destroying any identifiable data at the conclusion of this study and keeping only de-identified data indefinitely for a public use data set.

The researchers will not share any information about you as an individual with the agency(s) where you receive services.

Do I have to provide all of this information?

No. You have the right to provide as much or little information as you would like on the client locator form.

- You can consent to the use of any or all types of administrative data and public records
- Consenting to the use of data from one agency does not mean you have to consent to the use of data from any other agencies.
- Release forms will be provided for each individual agency at this time.

Providing any of this information and agreeing to be contacted for additional interviews is completely voluntary. You can choose to withdraw from the study at any time. If you withdraw from the study, we will no longer attempt to find you. We will destroy any contact information for friends and family you provide and we will not request any information about you from governmental or other agencies. If you wish to withdraw from the study, you can contact Julie Davis, a research coordinator at Loyola University Chicago, at 312-915-8601 to withdraw.

Subject's Statement

This study has been explained to me. I, _____ [print name], understand the procedures described above. My questions have been answered to my satisfaction.

Please check the boxes below as appropriate:

_____ I voluntarily agree to schedule an additional interview in approximately 6 months and agree to be contacted for the purposes of confirming this interview. I will be asked to provide consent for that interview when it is conducted 6 months from now.

_____ I voluntarily agree to provide contact information that will be used to contact me, my family, friends, or other people in my life that may know where I am,

_____ I voluntarily agree to provide my authorization for the researchers to use administrative data to help locate me and understand my experiences after this interview. For the release of and use administrative data, I will sign an authorization form for release of information for each individual source.

I recognize that I can change my mind and withdraw from the study at any time, and that I can agree to provide as much or as little information or access to administrative data as I would like. If I have questions later about the research, I can ask one of the researchers listed above. If I have questions about my rights as a research subject, I can call the Loyola University Chicago Compliance Manager at (773) 508-2689. I have been given a copy of this form.

Signature of Participant

Date

Signature of Survey Interviewer

Date

APPENDIX E
CONSENT FORMS WAVE TWO

Consent to Participate in Research

Evaluation of Chicago's 10-year Plan to End Homelessness

Christine George, Ph.D.	Susan Grossman, Ph.D.	Michael Sosin, Ph.D.
Principal Investigator	Principal Investigator	Principal Investigator
Center for Urban Research and Learning Administration	School of Social Work	School of Social Service
Loyola University Chicago (312) 915-8625	Loyola University Chicago (312) 915-6465	University of Chicago (773) 702-1129

Researchers from Loyola University Chicago and the University of Chicago are asking you to participate for a second time in a research study. The purpose of this consent form is to give you the information you will need to help you decide whether to be in the study or not. Please read the form carefully. You may ask questions about the purpose of the research, what we will ask you to do, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When the researchers have answered all your questions, you can decide if you want to be in the study or not. This process is called "informed consent." You will be given a copy of this form for your records.

Purpose of the Study

🕒 What is this study?

This is the same research study you participated in approximately 5 months ago. Researchers from Loyola University Chicago and the University of Chicago are working with the City of Chicago and the Chicago Alliance to End Homelessness to evaluate Chicago's 10-year Plan to End Homelessness. Chicago's 10-year Plan is different from many other programs around the country and there is a lot of interest in how the Plan has impacted the individuals who use the City's homelessness services. The researchers are interviewing approximately 600 individuals who are currently or were recently living in shelters, interim housing, and supportive housing to better understand how they use these services and how well these services are meeting their needs. In addition, the researchers want to learn about your experiences in order to assess how well services and programs are able to meet your needs and the needs of people like you.

🕒 Who is doing this study?

Researchers from Loyola University Chicago and the University of Chicago are working in cooperation with the City of Chicago and the Chicago Alliance to End Homelessness to complete this study.

Procedures

🕒 What will you be asked to do?

Just like the last time you participated in the study, if you agree to participate in the study, you will be asked a series of questions by an interviewer from the Loyola University Chicago Center for Urban Research and Learning. The interview will probably take between 90 minutes and 2 hours. The interview can be done in your home or wherever is convenient for you.

Some of the questions deal with topics that can be difficult to talk about. You do not have to answer any questions that you don't feel comfortable answering and you have the right to stop the interview at any time.

🕒 What kinds of questions will you be asked?

You will again be asked about your experiences with homelessness, your situation prior to experiencing homelessness, certain aspects of your past and your social relationships. Among the topics that will be covered are:

Your residential history and places you have lived
 What circumstances led up to your first and most recent episode of homelessness
 Relationships with family, friends, partners, and children
 Your childhood and youth
 Education and employment
 Criminal background
 Mental and physical health
 Use of alcohol and other drugs
 Victimization
 Government benefits and economic well-being
 Use of social services like shelters, food programs, and substance abuse treatment

Risks, Stress, or Discomfort

⌚ What are the risks associated with participating in this study?

Some of the questions you are asked may make you feel uncomfortable or embarrassed. The survey includes questions about involvement in illegal activities, drug and alcohol use, and your medical and psychological history. If your answers to these questions were disclosed you could be at risk of criminal prosecution, loss of employment, or social stigma. The researchers will make every effort to insure that the information you provide is kept strictly confidential. You do not have to answer any of these questions. Although the information you provide will be kept strictly confidential, the interviewer may need to notify the appropriate authorities if you report evidence of child abuse or neglect or if you threaten to harm yourself or someone else.

Benefits of the Study

⌚ What are the benefits of participating in this study?

Your participation in this study will not result in any direct benefits to you. However, the information you provide about your experiences may be used to improve the services that individuals experiencing homelessness receive both before and after they find housing. In addition, participating in this study is an opportunity for you to talk about your experiences, and many individuals that have experienced homelessness appreciate this chance to tell their story and be listened to.

Other Information

⌚ Will the information about you be kept confidential?

Yes. The researchers will not share the information you provide, or the information obtained from other sources, with anyone who is not part of the research team. All of the information about you will be kept confidential by:

- Not putting your name on any written records except for the consent form and keeping that consent form in a separate place. Instead, you will be assigned an identification number. This number will be included on the questionnaire instead of your name;
- Storing the information about you in a locked drawer or in a secure password protected computer;
- Only giving people on the research team access to your information;
- Not using your name or any other identifying information in reports, presentations or articles;
- Destroying any identifiable data at the conclusion of this study and keeping only de-identified data indefinitely for a public use data set.

No information about you will be shared with the agency(s) you are involved with.

To further help us protect your privacy, we have obtained a Certificate of Confidentiality from the National Institute of Health. With this Certificate, the researchers cannot be forced to disclose information that may identify you, even by a court subpoena, in any federal, state, or local, civil, criminal, administrative, legislative or other proceedings. The researchers will use the Certificate to resist any demands for information that would identify you, except as I will explain below.

The Certificate cannot be used to resist a demand for information from personnel of the United States Government that is used for auditing or evaluation of Federally funded projects, or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration.

You should understand that a Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about yourself or your involvement in this research. If an insurer, employer, or other person obtains your written consent to receive research information, then the researchers may not use the Certificate to withhold that information since you have given your consent for us to share information with them.

Lastly, the Certificate of Confidentiality does not prevent the researchers from disclosing voluntarily, without your consent, information that would identify you as a participant in the research project under if you report evidence of child abuse or neglect or if you threaten to harm yourself or someone else, as I mentioned before.

🕒 **How will the researchers use the information about you?**

The researchers will use the information about you and the other people in this study in reports written for the funders of this project and our partners, in presentations we make at conferences, and in articles that may be published. All data in these publications will be reported in summary form; no names or identifying information will be included in those reports, presentations or articles. This information will also be used to create a data set that other researchers can use. However, this public use data set will not include any information that could be used to identify you.

🕒 **Will you be paid if you participate in the study?**

Yes. You will be given a \$25 gift card to Jewel-Osco and a CTA day pass for your participation in this survey. You will be given the gift cards at the end of the survey. If you agree to participate in future surveys, you will be compensated for those, as well. You will still receive the gift card even if you do not answer all of the questions or if you end the interview early.

🕒 **Can you change your mind later if you agree to participate today?**

Yes. You may withdraw from the study at any time without consequences of any kind. You can also refuse to answer any questions you don't want to answer and still continue to participate. If you decide to withdraw and you do not complete the survey, the researchers will not include the survey in the study. Withdrawing from the study or refusing to answer specific questions will not affect your eligibility for any services.

🕒 **What do you do if you want to participate?**

Please check the boxes below to indicate that the interviewer from Loyola University Chicago has explained the conditions of your participation and your questions have been answered to your satisfaction.

- I understand that my participation in this study is voluntary.
- I understand that I may withdraw from this study or end the interview at any time without any consequences.
- I understand that I will be one of the approximately 600 individuals participating in this study.

- I understand that I will be interviewed today and that the interview will take between 90 minutes and two hours.
- I understand that everything I say will be kept confidential, as described above, and will not be shared with anyone other than the research team.
- I understand that any identifying information about me will be destroyed at the completion of the study but that de-identified data will be preserved indefinitely for possible future use.
- I understand that my name or any other identifying information will not be used in written reports, presentations, or articles.
- I understand that this study gives me an opportunity to tell my story and may help social service agencies and governments improve their homeless services.
- I understand that I will be given a \$25 gift card and a CTA day pass at the end of the interview. However, I will still receive the gift card and days pass even if I don't answer all the questions or if I end the interview early.

🕒 **Permission to contact you again:**

At the end of your interview, the researchers will ask your permission to interview you again in another 5 months. The researchers will also ask your permission to contact your family, friends, or other people in your life that may know where you are, as well as to use administrative data to help locate you. You will be given a separate form at the end of the interview where this will be explained and where you can decide whether you agree to provide this information.

Subject's Statement

Agreement to Participate

This study has been explained to me. I, _____ [print name], understand the procedures described above. My questions have been answered to my satisfaction, and I voluntarily agree to participate in this study and be interviewed today. I recognize that I can change my mind and withdraw from the study at any time. If I have questions later about the research, I can ask one of the researchers listed above. If I have questions about my rights as a research subject, I can call the Loyola University Chicago Compliance Manager at (773) 508-2689. I have been given a copy of this form.

Signature of Participant Date

Signature of Survey Interviewer Date

Consent for Follow-Up and Use of Administrative Data Form

Evaluation of Chicago's 10-year Plan to End Homelessness

Christine George, PhD.	Susan Grossman, PhD	Michael Sosin, Ph.D.
Principal Investigator	Principal Investigator	Principal Investigator
Center for Urban Research and Learning Administration	School of Social Work	School of Social Service
Loyola University Chicago	Loyola University Chicago	University of Chicago
(312)915-8625	(312) 915-6465	(773) 702-1129

We would like to meet with you again in approximately 5 months to complete another survey. We will contact you at that time to schedule your third and final survey. If you participate in a third survey, you will be given a \$40 Jewel-Osco gift card and a CTA day pass. We would like your permission to contact your family, friends, or other people in your life that may know where you are, in the event that we are not able to reach you to schedule your next survey. We will record the contact information for these individuals on a client locator form we will go through together.

As we did the last time we spoke with you, we are also asking for your permission to review various kinds of administrative data and public records that might contain information about you to help locate you. We will use the information we obtain from these other sources in two ways. First, we will use it to help locate you for your third survey in the event we cannot locate you using other methods. Second, we will use it to help us better understand what has happened to you since we last interviewed you.

⌚ **What information are we asking for?**

We are requesting that you provide the following information, if available:

- Any aliases you may have;
- The telephone number and address of the location where you will be if you leave this program;
- The telephone number and address of friends or family members you keep in touch with who would be most likely to know where you are;
- Contact information for any workers or contacts at agencies or programs that you go to for services.

We are also requesting your permission to review various kinds of administrative data from sources such as the Department of Public Aid, Homeless Information Management Systems, and the Department of Human Services. Regarding these data sources:

- We will respect all state local laws regarding the confidentiality of those data.
- We will ask you to sign a release form for each data source for which you provide permission for the researchers to review and obtain information.

⌚ **Will the information about you be kept confidential?**

Yes. We will not share the information you provide, or the information we get from other sources, with anyone who is not part of the research team. We will keep all of the information about you confidential by:

- Storing the information about you in a locked drawer or in a secure password protected computer;
- Only giving people on the research team access to your information;
- Not using your name or any other identifying information in reports, presentations or articles;
- Destroying any identifiable data at the conclusion of this study and keeping only de-identified data indefinitely for a public use data set.

⌚ **Do I have to provide all of this information?**

No. You have the right to provide as much or little information as you would like on the client locator form.

You can consent to the use of any or all types of administrative data and public records
Consenting to the use of data from one agency does not mean you have to consent to the use of
data from any other agencies.
Release forms will be provided for each individual agency.

Subject's Statement

Agreement to Provide Contact Information

This study has been explained to me. I, _____ [print name],
understand the procedures described above. My questions have been answered to my satisfaction, and I
voluntarily agree to provide contact information that will be used to contact me, my family, friends, or
other people in my life that may know where I am, as well as to use administrative data to help locate me
and understand my experiences after this interview. For the release of and use administrative data, I will
sign an authorization form for release of information for each individual source. I recognize that I can
change my mind and withdraw from the study at any time. If I have questions later about the research, I can
ask one of the researchers listed above. If I have questions about my rights as a research subject, I can call
the Loyola University Chicago Compliance Manager at (773) 508-2689. I have been given a copy of this
form.

Signature of Participant Date

Signature of Survey Interviewer Date

APPENDIX F
RESEARCH GRID

Citation	Purpose	Sample	Method	Results
<p>Littrell, J. (2001). Predictors of depression in a sample of African-American homeless men: Identifying effective coping strategies given varying levels of daily stressors. <i>Community Mental Health Journal</i>, 37(1), 15-29.</p>	<p>Predict depression prevalence based on daily stressors and coping strategies in homeless AA males</p>	<p>90 AA males from a church soup kitchen</p>	<p>Questionnaire with or without interviewer Tools = CES-D, COPE, list of hassles/stressors for the previous week Alpha .60 to .90</p>	<p>Active coping (0.22, $p < .05$) and planning (0.22, $p < .05$) was associated with lower amount of depression symptoms. Discrete stressful events increase depression symptom risk. Emotion focused copers show greater depression symptoms (0.68, $p < .001$); problem focused copers (venting) show fewer depression symptoms (0.48, $p < .001$).</p>

<p>Kim, M. M., & Ford, J. D. (2006). Trauma and post-traumatic stress among homeless men: A review of current research. <i>Journal of Aggression, Maltreatment & Trauma, 13</i>(2), 1-22.</p>	<p>Review literature on trauma in homeless males and identify policy recommendations.</p>	<p>NOT A STUDY</p>	<p>NOT A STUDY</p>	<p>Literature suggests high prevalence of violence and trauma in homeless increasing risk of PTSD. Identified GAPS – causal pathways between trauma, PTSD, SA, physical illness, and MI are unknown; what types of trauma or traumatic stress put men at risk of homelessness? ; what role does traumatic stressors and PTSD in persisting or recurring homelessness in men?; what is the role of family in the effect of trauma on homelessness in men?</p>
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<p>Kim, M. M., & Arnold, E. M. (2004). Stressful life events and trauma among substance-abusing homeless men. <i>Journal of Social Work Practice in the Addictions</i>, 4(2), 3-19.</p>	<p>Measures prevalence of stressful life events and their effect on trauma severity among homeless SA</p>	<p>99 homeless SA males from Southeast treatment agencies</p>	<p>Interview; Tools = Stressful Life Events Screening Questionnaire [SLESQ], Trauma Symptom Checklist-40, demographics; SLESQ = 13 item; good test-retest reliability, convergent reliability, concurrent validity (Goodman, Corcoran, Turner, Yuan, & Green, 1998; Green et al., 2000).</p>	<p>An increased number of SLE (t=3.40, p=0.001) and the presence of MI (t=2.17, p=0.03) predicted an increase in level of trauma symptoms.</p>
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<p>Banyard, V. L., & Graham-Bermann, S. A. (1998). Surviving poverty: Stress and coping in the lives of housed and homeless mothers. <i>American Journal of Orthopsychiatry</i>, 68(3), 479-489.</p>	<p>Measure difference b/t housed and homeless mothers regarding stress, coping, and depression.</p>	<p>64 homeless mothers, 59 poor housed mothers</p>	<p>Interview Tools = African-American Women's Stress Scale (100 item, alpha 0.87, number of stressful events from last 6 wks; Watts-Jones, 1991), Health and Daily Living Form (for coping behavior)</p>	<p>Homeless mothers had a greater amount of depression (F(1,109)=19.6, p<0.001) and stress (F(1,109)=9.69, p=0.002) than poor, housed mothers. No statistically significant difference in coping (F(1,109)=0, 0.003; p>0.05). The measure of stress correlated with depressed mood (0.4, p<0.01) which correlated with avoidant coping behavior (0.35, p<0.01). Stress predicted depression in homeless (Beta 0.36, p<0.001) but not in housed mothers (0.25, p>0.05).</p>
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<p>Wagner, J., & Menke, E. M. (1991). Stressors and coping behaviors of homeless, poor, and low-income mothers. <i>Journal of Community Health Nursing</i>, 8(2), 75-84.</p>	<p>Measure difference b/t the life events and coping behaviors of homeless, poor/housed, and low-income/housed families.</p>	<p>28 homeless mothers, 23 poor/housed mothers (income<\$10,000/yr), 35 low-income/housed mothers (income>\$10,000/yr but below poverty line)</p>	<p>Interview Tools = Family Inventory of Life Events and Changes [FILE] (71 items, reviews last 12 months, alpha 0.81; McCubbin & Patterson, 1987; McCubbin, Patterson, & Wilson, 1985), Family Crisis Oriented Personal Evaluation Scales [F-COPES]</p>	<p>Homeless mothers (mean 16.85) had statistically significantly more life events than housed mothers (12.65 & 10.29; p<0.001). Coping strategies were not significantly different across the groups.</p>
<p>Kissman, K. (1999). Respite from stress and other service needs of homeless families. <i>Community Mental Health Journal</i>, 35(3), 241-249.</p>	<p>Describe gaps in services as reported during outdoor camp for homeless mothers</p>	<p>42 mothers from 118 families</p>	<p>Interviews; qualitative</p>	<p>Camp was satisfactory in providing relaxation; most families very satisfied (no numbers) comments included “beautiful” “like coming home” “spiritual” “a great way to relax”. Service gaps = childhood sexual abuse treatment, interventions that prepare women to use</p>

				community support groups
Williams, J. K. (2007). Traumatic stress among mothers experiencing homelessness (Doctoral dissertation, University of Iowa, 2007). <i>Dissertation Abstracts International</i> , 68(06), 117. (UMI No. 3266012).	Identify the relationships between past traumatic events and current traumatic stress in homeless mothers.	80 homeless mothers from Humility of Mary Housing, Inc. in Davenport Iowa	Interview; Tools = Global Assessment of Individual Needs – Quick, Williams Life History Calendar of Traumatic Events, Davidson Trauma Scale, Traumatic Stress Index (internally consistent 0.96)	66% of sample experiencing PTSD. 50%+ reported that causal event occurred prior to being homeless. The greater the number of prior traumatic event, the more likely a homeless mother was experiencing current traumatic stress. Describes literature on helping those who experienced traumatic event – psychological first aide

<p>Meadows-Oliver, M., Sadler, L. S., Swartz, M. K., & Ryan-Krause, P. (2007). Sources of stress and support and maternal resources of homeless teenage mothers. <i>Journal of Child and Adolescent Psychiatric Nursing</i>, 20(2), 116-125.</p>	<p>Descriptive study of homeless teenage mothers</p>	<p>17 homeless teenage mothers of 47 teenage mothers from larger study</p>	<p>Cross-sectional descriptive study, secondary data analysis from larger study; Questionnaires ; Tools = Norbeck Life Events Questionnaire [NLEQ], Parenting Daily Hassles Scale [PDHS], Norbeck Social Support Questionnaire [NSSQ], Beck Depression Inventory II [BDI II], Rosenberg Self-Esteem Scale, Maternal Self-Report Inventory; PDHS measures parenting stress with alpha 0.81 to 0.90 (East & Felice, 1996), this study alpha 0.72 to 0.75.</p>	<p>Homeless teen mothers (1.88) had more negative life events than housed teen mothers (0.42; $t=237$, $p=0.022$). Social networks were not SS b/t homeless and housed teen mothers. Homeless teen mothers (16) had SS more depression symptoms than housed teen mothers (10.35, $t=2.11$, $p=0.041$), but there was no SS difference regarding self-esteem and perceived parenting ability. Parenting stress was not SS b/t homeless and housed teen mothers.</p>
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<p>de Vincente, A., Munoz, M., Perez-Santos, E., & Santos-Olmo, A. B. (2004). Emotional disclosure in homeless people: A pilot study. <i>Journal of Traumatic Stress, 17</i>(5), 439-443.</p>	<p>Measure effect of traumatic disclosure protocol</p>	<p>8 from a day center for the homeless</p>	<p>Assess at baseline, 1 week FU, and 6 weeks FU; 4 one-hours sessions over 2 weeks. Tools – Perceived Effectiveness Variables, Section K of CIDI 2.1, Impact of Event Scale, Beck Depression Inventory, Beck Anxiety Inventory, Perceived Stress Scale, Reading Span Test, Wechsler Adult Intelligence Scale-III. Digit Span Test; PSS = 10 item; response about stress during prior month on scale 0, never, to 4, very often; alpha 0.78 (Cohen, Kamarck, & Mermelstein, 1983; Remor & Carrobles, 2001).</p>	<p>Moderate distress levels, decreased from pre-intervention (4.5-5.5) to post-intervention (3.2-5.1). PSS at 1 week FU = $z = -2.36$ ($p < 0.05$), PSS at 6 week FU = $z = -2.20$ ($p < 0.05$). At 6 week FU, all measures except anxiety improved significantly.</p>
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<p>Lester, K. M., Milby, J. B., Schumacher, J. E., Vuchinich, R., Person, S., & Clay, O. J. (2007). Impact of behavioral contingency management intervention on coping behaviors and PTSD symptom reduction in cocaine-addicted homeless. <i>Journal of Traumatic Stress, 20</i>(4), 565-575.</p>	<p>Measure posttrauma symptom change differences in cocaine-addicted homeless who use either low intensity or high intensity management interventions</p>	<p>118 homeless from Birmingham HC</p>	<p>Assessments at baseline, 2, 6, 12, & 18 month FU (baseline and 6 month used for article) Tools = DSM-IV, Brief COPE(28 item, 4pt Likert)</p>	<p>High intensity management (F=5.73, p<0.05) decreased symptoms greater than low intensity (F=2.92, p=0.09).</p>
<p>Wong, Y. I., & Piliavin, I. (2001). Stressors, resources, and distress among homeless persons: A longitudinal analysis. <i>Social Science and Medicine, 52</i>, 1029-1042.</p>	<p>Measure stressors and distress in homeless in relation to model of stress process</p>	<p>458 homeless from Alameda County, CA</p>	<p>Interviews at 2; Tools = 2 indices of stressful life events, 2 indices of social network, CES-D</p>	<p>64% of homeless experienced high levels of distress (possibly depressed). Housing status predicted distress at T2 (R² = 0.24, p<0.001). Health problems (0.28, p<0.001), victimization (0.22, p<0.001), childhood stressful</p>

				<p>events (0.10, $p<0.1$), and lack of education (0.23, $p<0.001$) predicted distress at T1. Increased numbers of close relationships (0.07, $p<0.1$), distress at T1 (0.41, $p<0.001$), and lack of education (0.27, $p<0.001$) predicted distress T2.</p>
<p>Waldrop-Valverde, D., & Valverde, E. (2005). Homelessness and psychological distress as contributors to antiretroviral nonadherence in HIV-positive injecting drug users. <i>AIDS Patient Care and STDs</i>, 19(5), 326-334.</p>	<p>Measure the effect of homelessness and distress on treatment adherence – uses variables housing status, depression, anxiety, perceived stress, self-reported adherence</p>	<p>58 HIV+ Injection drug users; 16 were homeless</p>	<p>Interviews and blood samples; Tools = Beck Depression Inventory, State-Trait Anxiety Inventory, Perceived Stress Scale</p>	<p>Homeless had greater anxiety ($F(1,56)=4.663$, $p=0.035$) and perceived stress ($F(1,57)=9.897$, $p=0.003$) than nonhomeless. Depression not different between groups ($F(1,57)=1.605$, $p=0.211$). Depression level associated with level of adherence (Spearman</p>

				<p>correlation, $p < 0.1$). Housing status, substance use, and demographics were not associated with adherence ($p > 0.1$). Homeless have high adherence to treatment regimens ($\chi^2 = 6.127$, $p = 0.047$).</p>
<p>Davis, A. (1999). Post-traumatic stress disorder symptoms in homeless people living in shelters (Masters thesis, University of Alaska Anchorage, 1999). <i>Masters Abstracts International</i>, 37(6), 1817. (UMI No. 1395360).</p>	<p>Descriptive study of PTSD symptomatology in homeless shelter users.</p>	<p>54 homeless people</p>	<p>Secondary data analysis; Tools = Crime-related PTSD Scale</p>	<p>90% of participants with PTSD had persistent thoughts, mental exhaustion, and perceived barriers. Participants with PTSD were different in symptoms from those without PTSD ($t = 2.30$, $p = 0.026$).</p>

<p>Farrell, S. J. (2000). An examination of homelessness from a stress perspective (Doctoral dissertation, University of Ottawa, 2000). <i>Dissertation Abstracts International</i>, 63(5), 2580B.</p>	<p>Describe the stressful experience of being homeless. Identify the factors that contribute to a person's wellbeing when experiencing homelessness.</p>	<p>230 homeless persons from shelters or community services</p>	<p>Interviews; Tools = General Health Questionnaire, Satisfaction with Life Scale, Psychological State of Stress Measure [PSSM] (Lemyre & Tessier, 1988), Coping Responses Inventory, Stressful Life Events Scale, Social Provisions Scale, Social Network Assessment, Coping Responses Inventory, NEO Personality Inventory; PSSM = 25 item, 8pt Likert; concomitant validity (compared to dental students); alpha 0.90; test-retest $r = 0.69$; convergent/discriminant validity (Lemyre & Tessier, 1988).</p>	<p>Personal and environmental factors were associated with SLEs ($R^2=0.35$, 0.13, 0.2) and stress response (0.27, 0.26)/appraisal (0.14, 0.24). Personal empowerment and stress response/appraisal were associated with wellbeing (0.19) and psychopathology (0.10, 0.61). [$p < 0.01$ for each of above]</p>
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<p>Munoz, M., Vazquez, C., Bermejo, M., & Vazquez, J. J. (1999). Stressful life events among homeless people: Quantity, types, timing, and perceived causality. <i>Journal of Community Psychology</i>, 27(1), 73-87.</p>	<p>Compare housed and homeless regarding anxiety, depression, and stressful life events</p>	<p>262 homeless adults in Madrid, Spain</p>	<p>Interview; Tools = List of Threatening Experiences</p>	<p>Homeless have more stressful life events, depression, anxiety, and victimization than the general population. 45% SLEs occur prior to homelessness; 39% occur during homelessness.</p>
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<p>Wong, Y. I. (2002). Tracking change in psychological distress among homeless adults: An examination of the effect of housing status. <i>Health & Social Work</i>, 27(4), 262-273.</p>	<p>Measure patterns of distress among homeless SMI, SA, DD, and none; homelessness examined as cause of distress</p>	<p>Time 1 = 564, Time 2 = 458</p>	<p>Interviews Tools = DIS R Version III-R from DSM-III-R, housing status at time 2 (dummy variables = 1 own, 2 temporary), CES-D (for distress) CES = 20 item, 0-3 for symptom frequency; alpha 0.89 at time 1&2, other studies demonstrated high internal consistency (Radloff, 1977), some test-retest reliability (Ensel, 1986), high predictive validity (Boyd, Weissman, Thompson, Myers, 1982; Myers & Weissman, 1980; Weissman, Scholomskas, Pottenger, Prusoff, & Locke, 1977), reliability in homeless sample alpha 0.89 (La Gory, Ritchey, & Mullis, 1990).</p>	<p>Distress prevalence = 90% SMI, 61% SA, 54.1% None; noted decreases across the board at time 2. None diagnosis = obtaining own residence showed marked decrease in CES-D score. None = age, health, health changes, own home, CES-D time 1 predicted decrease in CES. SMI = age (Beta=0.187, p<0.001), Caucasian (0.051), HS edu+ (0.041), low CES-D time 1 (0.514, p<0.001) score predicted decrease in CES. SA = health (0.486, p<0.001), health changes,(0.233, 0.388; p<0.001) temporary</p>
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				residence (0.110, p<0.05), CES- D time 1 (0.517, p<0.001) predicted decrease CES. DD = SA did not effect SMI predictors (0.123, not SS).
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<p>Toro, P. A., Tulloch, E., & Ouellette, N. (2008). Stress, social support, and outcomes in two probability samples of homeless adults. <i>Journal of Community Psychology</i>, 36(4), 483-498.</p>	<p>Measure effect of social support on decreasing stress in homeless adults.</p>	<p>468 homeless adults from Wayne County, MI (Detroit)</p>	<p>Longitudinal, assess at different times during 8 yr period; Tools = Social Network Inventory, Interpersonal Support Evaluation List, Modified Life Events Inventory [MLEI], Diagnostic Interview Schedule, Brief Symptom Inventory, Physical Health Symptoms Checklist; MLEI = homeless specific, 85 item, reviews prior 6 months, seeks stressful events, test-retest reliability (r=0.84), alpha = 0.84 to 0.89 (Toro, Goldstein, et al., 1999; Toro, Wolfe, et al., 1999)</p>	<p>Quantity of stressful life events was associated with the presence of psychological (F=33.66, p<0.001), health (F=36, p<0.001), and substance abuse (F=4.43, 21.67; p<0.05, 0.001) symptoms. Symptoms on BSI as relates to measure of stress (= to number of reported stressful events) were consistently less and different between levels of social support measured as Low and High ISEL scores (difference of at least 0.2).</p>
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<p>Davey, T. L., & Neff, J. A. (2001). A shelter-based stress-reduction group intervention targeting self-esteem, social competence, and behavior problems among homeless children. <i>Journal of Social Distress and the Homeless</i>, 10(3), 279-291.</p>	<p>Measure interventions effect on development in homeless children Homelessness = stressor</p>	<p>52 elementary school aged children from family shelters</p>	<p>Nonequivalent comparison group design, intervention and comparison group (received homework club); baseline, 1, and 6 wk FU; Tools = Child Behavior Checklist, Coopersmith Self-Esteem Inventory</p>	<p>Nonsignificant increases in self-esteem and competence/decreases in internalizing and externalizing; no statistically significant results</p>
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<p>Menke, E. M. (2000). Comparison of the stressors and coping behaviors of homeless, previously homeless, and never homeless poor children. <i>Issues in Mental Health Nursing</i>, 21(7), 691-710.</p>	<p>Measure the difference in stressors and coping between homeless, previously homeless, and never homeless children Components of homelessness as stressors</p>	<p>134 children b/t 8-12 y.o.</p>	<p>Cross-sectional, secondary data analysis Tools = Homeless Child Interview Schedule (identifies stressors and coping behaviors; 35 item; does not address stress specifically, focus is on antecedents and treatment).</p>	<p>No statistically significant difference in types of stressors between homeless, previously homeless, and never homeless children except for stressors = homeless kids reported more homeless stress-ors (67%, $p=0.001$), i.e. not having home, rules related to shelter or transiti-onal housing, no privacy, no free-dom, people, environment, future uncert-ainty, and school. Previously homeless and never homeless had significantly higher perceived social support ($\chi^2=16.23$, $p=0.001$) and less violence</p>
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				<p>behavior (chi2=6.78, p=0.03) than homeless.</p> <p>Menke (2000) argues health care providers must assess stressors and coping behaviors of children in order to prevent detrimental effects to their development.</p>
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<p>Huang, C. Y. (2001). School-aged sheltered homeless children's stressors and coping strategies (Doctoral dissertation, Ohio State University, 2001). <i>Dissertation Abstracts International</i>, 62(4), 1805B. (UMI No. 3011074).</p>	<p>Identify the stressors, coping methods, behavior, and gender differences of homeless children.</p>	<p>90 children and mothers from shelters</p>	<p>Cross-sectional; Tools = Child Behavior Checklist, Homeless Sheltered Children Interview Schedule</p>	<p>Greatest amount of stressors were family (n=325), 2nd shelter (235), 3rd school (231). Few stressors were friend (90) or self related (49). Females (528) reported more stressors than males (402) [p=0.014]. Stressor modification was the most used coping strategy (98.9% of sample).</p>
<p>Swick, K. J., & Williams, R. D. (2006). An analysis of Bronfenbrenne r's bio-ecological perspective for early childhood educators: Implications for working families experiencing stress. <i>Early Child-hood Edu. Jou-rnal</i>, 33(5), 371-378.</p>	<p>Apply Bronfenbrenne r's approach to family stress with homelessness highlighted as a stressor.</p>	<p>NOT A STUDY</p>	<p>NOT A STUDY</p>	<p>Reviews ways to help families experiencing homelessness to deal with the stressor.</p>

APPENDIX G
PERMISSIONS

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Thursday, January 6, 2011 11:44 AM

From: "permissions (US)" <permissions@sagepub.com>

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To: "'Henry Cheung'"

Dear Henry,

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From: Henry Cheung

To: permissions (US)

Subject: request permission for use of table from ISBN 0-8039-3163-8

Dear Sir or Madam,

I am writing in reference to Shirlynn Spacapan and Stuart Oskamp's (editors) *The Social Psychology of Health* (1988; ISBN 0-8039-3163-8). In particular, I am requesting permission to reproduce components of Table 3.2 (entitled "Mean PSS14, PSS10, and PSS4 Scores and Standard Deviations for Demographic Categories") located in Part I, Chapter 3 (entitled "Perceived Stress in a Probability Sample of the United States", authored by Sheldon Cohen & Gail M. Williamson) on pages 48, 49, and 50.

I am a Ph.D. student in nursing at Loyola University Chicago who is working on his dissertation. My research used the Perceived Stress Scale among a homeless population in Chicago, Illinois, and I would like to make comparisons in stress scores between my sample and the national sample depicted in Table 3.2. If given permission, my intention is to reproduce parts of Table 3.2 in a new table in my dissertation that depicts a comparison between my sample and the national sample as delineated by categories available in Table 3.2, i.e. sex, age, race, marital status, etc.

May I please have permission to reproduce Table 3.2 in this way?

Please feel free to contact me if you have any questions regarding my request.

Thank you for your consideration.

Sincerely,

Henry Cheung

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VITA

Henry Christian Cheung completed his undergraduate studies at the University of Chicago with an emphasis on Biology and Philosophy. In order to pursue his interest in healthcare and working with people, he further completed a master's degree in nursing from DePaul University in Chicago, Illinois. While pursuing his master's degree, he volunteered with DePaul Nursing Services, a free clinic serving the homeless of Lincoln Park, Illinois. After identifying an interest in homeless healthcare and completing a related thesis, he entered the Ph.D. program at the Niehoff School of Nursing at Loyola University Chicago. His Ph.D. studies focused on research methods and program evaluation with an emphasis on homelessness, homeless healthcare, and stress among the homeless. He completed a research internship at the Veterans Affairs VIREC, which focused on evaluating the origin and quality of a homelessness variable within one of their databases. He also volunteered at the Center for Urban Research and Learning where he helped in the performance of data collection for multiple studies with homeless and at risk people. While working on the Ph.D., Henry Cheung also worked at Loyola University Medical Center in Maywood, Illinois, as a medical-surgical staff nurse, nurse educator, and clinical resource nurse. He also participated in multiple committees focused on patient care including pain control, falls and restraints, nursing research, and magnet designation. He also taught as a clinical instructor for nursing students at DePaul University, Chicago.