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An Exploration of the Psychometric Properties of the Self-Sufficiency Matrix Among Individuals and Families Currently or At Risk of Experiencing Homelessness

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An Exploration of the Psychometric Properties of the Self-Sufficiency Matrix Among

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Abstract

The homeless service sector has moved toward the implementation of assessment tools to better understand the support service needs of individuals and families. While a variety of assessment tools are available, their psychometric evidence base is limited. The Self-Sufficiency Matrix (SSM) is one assessment that holds promise with regard to its reliability, validity, and potential use as an instrument for triaging services. However, research examining the factor structure of the SSM has been inconsistent across samples. Moreover, it has never been tested among a broad population of both those currently experiencing and at-risk of experiencing homelessness, or examined unaccompanied adults and families with minor children independently. The current study sought to explore the factor structure of the SSM using exploratory and confirmatory factor analysis among a sample of unaccompanied individuals ($N = 427$) and families ($N = 428$) experiencing or at-risk of experiencing homelessness. Data were derived from the Homeless Management Information System (HMIS) from a Midwestern metropolitan area and included all individuals and families who participated in the Homelessness Prevention and Rapid Re-Housing Program. Results suggest the SSM is multidimensional and the relation between its items and latent constructs differs across individual and family subgroups. Further, study findings indicate the SSM holds promise with regard to its invariance across racial and gender groups. Results suggest further development and testing of the SSM is necessary to better serve individuals experiencing homelessness.

Introduction

On a given night, there are approximately 369,081 single adults and 184,661 people in families with children experiencing street or shelter homelessness in the United States (U.S. Department of Housing and Urban Development, 2017). The U.S. government has prioritized $11 billion in housing vouchers and rapid rehousing over the next 10 years to address the needs of people who are housing insecure (Office of Management and Budget, 2017). As such, implementation and evaluation of strategies that effectively address the needs of homeless individuals and families is a top priority in many communities. Correspondingly, there has been an increased focus on the development and application of assessment measures to guide housing policy and individual service allocation (U.S. Department of Housing and Urban Development, 2015). Multidimensional measures are intended to provide a standardized procedure for assessing an individual or family's level of vulnerability and support service needs to efficiently match them to the appropriate services in a fair, uniform, and equitable way. Prior to current policy mandates in which assessment instruments are utilized to guide prioritization and allocation of housing resources throughout a community, many organizations and localities developed assessments to guide their own practices and procedures. Some of these existing instruments have now been adopted for communitywide housing prioritization despite limited psychometric research (U.S. Department of Housing and Urban Development, 2015). This study examines the psychometric properties of one assessment measure—the Self-Sufficiency Matrix (SSM)—among single adult and family populations.

Extant assessments measure a person's or family's circumstances and level of functioning in order to determine whether they should have high priority for housing services, or to inform the configuration of housing plus services necessary to support housing stability. Measuring an

individual or family's level of functioning is typically composed of multiple indicators; which can include an assessment of their housing and economic status and history, health issues, family functioning, among others. Theoretically, currently-available assessment tools were informed by key constructs aligning with their intended use. For instance, some assessment tools, such as the Vulnerability Assessment Tool (VAT; Downtown Emergency Service Center, 2003) aim to prioritize housing units based on *vulnerability*, or the likelihood a person would experience harm or death if they remained homeless. In contrast, other assessments, such as the SSM aim to determine one's housing support service needs based upon their *self-sufficiency*, or the capability and achievement of an acceptable level of functioning either by oneself or by adequately organizing the help and support of care providers (Lauriks et al., 2014).

With current homelessness service policies emphasizing allocation of housing resources offering higher and lower levels of support services (U.S. Department of Housing and Urban Development, 2014), self-sufficiency may be an informative construct by which to develop assessment measures. Conventional discourse purports that self-sufficiency is the ability to fulfill one's needs without external assistance. Yet, given the complex economic and psychosocial factors associated with individual and family homelessness, the conceptualization of self-sufficiency as applied to these populations is more expansive. Therefore, self-sufficiency is the degree to which individuals and families have mobilized all resources available to them and are striving toward achieving greater stability with as few support services as necessary (Shlay, 1993). For single adults and families experiencing homelessness, housing is often the primary focus for policy and service delivery aimed toward realizing self-sufficiency. However, to address the complex needs of people experiencing homelessness, housing is merely one ingredient in the array of support services offered.

The Self-Sufficiency Matrix

The SSM is a measure of self-sufficiency across a number of life domains. The groundwork for the SSM was conducted by Pearce et al. (1996) and was extended by the Snohomish County Self-Sufficiency Task Force in 2004, by transforming the measure into a multidimensional matrix aimed to measure client self-sufficiency (Fassaert et al., 2014). Level of self-sufficiency is determined by the individual or family's ability to provide for oneself within each SSM domain without professional help. In this way, self-sufficiency is considered an outcome variable with the aim to organize, retain, and/or reduce professional help within each domain (Fassaert et al., 2014). Each life domain is measured by a single item rated on a 5-point likert scale, from (1) "in crisis", (2) "vulnerable", (3) "stable", (4) "safe", and (5) "thriving". This study aims to assess the dimensionality of the SSM version with 16 domains: income, employment, housing, food, childcare, children's education, adult education, legal involvement, healthcare, life skills, mental health, substance use, family relations, mobility, community involvement, and safety.

Multiple versions of the SSM have been used in research and applied settings, with items ranging from 15 to 17 life domains. In their review, Culhane and colleagues (2007a) compared the 17-item SSM to 10 other instruments with regard to their test-retest reliability, internal reliability, construct validity, and factor structure and found the SSM was superior to all other measures examined among the tests employed. Factor analytic procedures revealed a 2-factor solution, composed of client function/dysfunction and independent life skills. Their findings also demonstrated good reliability among both factors, as well as an overall self-sufficiency score, comprising the sum total of both factor scores. An investigation of the psychometric properties of a translated and modified version, or the Self-Sufficiency Matrix- Dutch (SSM-D), was conducted

among a sample of 81 Assertive Community Treatment (ACT) clients and 107 chronic psychiatric patients in mental health care treatment (Fassaert et al., 2014). Their results suggest the SSM-D has excellent internal consistency and convergent validity with other well validated mental health outcome measures. Using principal component analysis, their findings indicate a 1-factor solution. In their sample, they found that participants with greater scores on the SSM-D were less likely to display a need for care; indicating that it may be an effective tool for service provision allocation. Additional research revealed all domains included in the SSM-D were found to be necessary and nonredundant for the construct of self-sufficiency (Lauriks et al., 2014). Taken together, their findings provide further evidence for the use of the SSM-D as a decision support tool for public mental health care and housing services.

Previous psychometric studies of the SSM have shown inconsistent results across samples. Items on the SSM-D were found to comprise a single underlying construct of self-sufficiency when utilized with individuals diagnosed with serious mental illness (Fassaert et al., 2014), while two domains emerged when tested in a broader sample of individuals and families experiencing homelessness (Culhane et al., 2007a). Further, Fassaert and colleagues (2014) examined only single adults with a modified Dutch version of the SSM, highlighting the need for an examination of a U.S. specific SSM in a broader sample of both individuals and families. While Culhane and colleagues (2007a) included a sample of individuals and families, they analyzed these groups together, with the inclusion of child-related items in the unaccompanied adult sample. No research to date has examined the SSM among a broad population of both those at risk of homelessness and currently experiencing homelessness despite the wide-spread use of the measure among such populations. Finally, there is a paucity of research on measurement invariance, or the extent to which assessment results can be compared across groups (Schmitt &

Kuljanin, 2008) for any measure used within the coordinated entry system, despite the fact that in practice, individual scores are compared and result in ones' rank priority for housing resources. Thus, it is important for such assessment measures, including the SSM, to have measurement invariance.

Characteristics of Single Adults and Families Experiencing or At-Risk of Homelessness

Self-sufficiency assessment tools may apply differently to subgroups within the homeless and housing insecure population who may present with varying support service needs and risk factors for homelessness. In general, the population of people experiencing homelessness is composed mostly of single adults without children (67% of the overall homeless population), and of that, unaccompanied men (71%) were the largest demographic while other subgroups such as single, unaccompanied women, transgender, and nonbinary individuals comprised only 29% in total. Families with children comprised 33% of the total homeless population and among individuals homeless as part of a family, 60% are female (U.S. Department of Housing and Urban Development, 2017). Single adults and individuals in families present with unique risk factors and service needs. For instance, unaccompanied individuals are more likely to be unsheltered (48%) than are people experiencing homelessness as a part of a family with children (less than 10%) (U.S. Department of Housing and Urban Development, 2017). Culhane, Metraux, Byrne, Stino, and Bainbridge (2013) demonstrated that poor single parents, predominantly families headed by females, have consistently shown the highest likelihoods of homelessness when both they and their children are relatively young; for mother's their greatest risk is between the ages of 21 and 24 and for their infant or toddler aged children (Culhane et al., 2013). It is important to consider that among both single adults and heads of family households, racial minorities such as Black/African American, Native American or Alaskan Native, Pacific Islander, and Multiple-

Race individuals are disproportionately represented among the homeless population. Similarly, females disproportionately comprise families experiencing homelessness, while males disproportionately comprise single adults (Colby & Ortman, 2017; U.S. Department of Housing and Urban Development, 2017). This suggests intersectional aspects of identity are shaping individual experiences in a way that impacts the likelihood and shape of homelessness. As such, it is crucial to examine how evidence-based instruments perform across racial and gender groups.

There is evidence to suggest homeless single adults and families can be grouped into typologies based on shelter-stay patterns, including groups that are: transitionally homeless, episodically homeless, and chronically homeless (Kuhn & Culhane, 1998; Culhane, Parker, Poppe, Gross, & Sykes, 2007b; Aubry, Farrell, Hwang, & Calhoun, 2013). A similar proportion of single adults (78-81%) fall into the transitionally homeless group as families (72-80%). A greater percentage of single adults (9.1-11.7%) are categorized as episodically homeless subgroup compared with families (2.1-7.8%). Further, a much greater percentage of single adults (9.8%) are categorized as episodically homeless subgroup compared with families (1.0-1.4%) (Culhane et al., 2007b; Kuhn & Culhane, 1998). Although single adults and families experiencing homelessness exhibit similar proportions with regard to their shelter utilization typologies, it should be noted that they display different characteristics within these typological groupings in terms of demographic, health, and mental health indicators (Culhane et al., 2007b).

Single adults. Chronically homeless single adults tend be older in age, and have some kind of disability, substance use, or behavioral health problem (Kuhn & Culhane, 1998). Episodically homeless single adults tend to be younger, and about half have potentially disabling behavioral health problems. Transitionally homeless single adults are more likely to be younger and suffer the lowest occurrences of mental health, substance use, and behavioral health

problems. Whereas, chronic and episodic family shelter use is not associated with more intensive

service needs or personal barriers to housing stability compared to the transitionally homeless

subgroup, as is the case with single adults (Culhane et al., 2007b). Risk factors for long-term

homelessness among single adults include older age and a history of criminal justice involvement

(Caton et al., 2005). Mental health and substance use problems impact overall functioning and

coping skills, which have also been found to predict a longer duration of homelessness (Caton et

al., 2005). Their results indicate that for single adults better psychosocial adjustment, recent or

current employment, the presence of income, family support, no current treatment for substance

use, and no arrest history are predictors of a shorter duration of homelessness and service use

(Caton et al., 2005).

Families. The extant literature indicates considerable distinctions from unaccompanied,

single adults and families with children experiencing homelessness. Demographic divergences

suggest that homeless families with children are typically headed by females and these individuals

are considerably younger than their single, unaccompanied counterparts (Burt & Cohen 1989;

Culhane et al., 2007b; Metraux & Culhane, 1999). Additionally, homeless families are

disproportionately with preschool aged children, where the risk of homelessness is higher the

younger children are, and the risk of homelessness is highest for infants under 1 year of age

(Shinn et al., 2005). Compared to single adults, the adults in homeless families are less likely to

have mental health and substance abuse issues (Culhane et al., 2007b; Shinn et al., 2005) while

possessing more economic resources (Shinn et al., 2005) a greater likelihood to have completed

high school, recently have been in the labor force, and have greater contact with people in their

social support (Burt, 2001; Burt & Cohen, 1989; Culhane et al., 2007b; Fischer & Breakey, 1991;

North & Smith, 1993; Rog & Buckner, 2007). These findings illustrate a marked difference in the

precipitating factors that lead to homelessness that may indicate the need for a different

interventional approach and service array for families.

Taken together, these findings suggest that families exhibit patterns homelessness as a

function of both their and their children's ages but then continue to exit homelessness and

maintain housing stability (Culhane et al., 2013). Whereas single unaccompanied adults

demonstrate a pattern where their homelessness demonstrates a sustained risk as they age

suggesting qualitatively different precipitating factors (Culhane et al., 2013). In stark contrast to

single adults, families with housing subsidies consistently do well with respect to housing tenure

and stability, regardless of their shelter stay duration; whereas single adults tend to have more

variable housing stability even with the presence of a subsidy (Culhane et al., 2007b). For

families experiencing homelessness, it appears that a housing subsidy is both a necessary and

sufficient condition for achieving housing stability (Shinn, Baumohl, & Hopper, 2001). The

diversity between unaccompanied adults and families with minor children with regard to

presentation of characteristics as well as precipitating factors for their homelessness provides the

impetus to examine these groups separately.

Rationale

Given the diversity of concepts measured within the items of the SSM it is important to

examine the dimensionality of the assessment. The importance of unidimensionality, or the idea

that all items in a measure are assessing one common construct is championed by Hattie (1985).

Considering the domains within the SSM, one might consider which items conceptually go

together; such as income, employment, education, and housing for their commonality regarding

economic status; health care, life skills, mental health, and substance use for their congruity

regarding overall health and wellness; and, childcare, children's education, and safety for their

affiliation with parental functioning. It is reasonable to suspect that complex behavioral health

needs are operating differently than economic hardship and unaffordable housing as precipitating

factors as well as reinforcers for continued residential instability (Culhane et al., 2007b; Kuhn &

Culhane, 1998; Shinn et al., 1998; Shinn et al., 2005). For example, those with behavioral health

needs tend to require more services to maintain housing, whereas those for whom poverty and

affordable housing scarcity are the biggest catalysts for their homelessness may be sufficiently

served by just a housing subsidy (Culhane et al, 2007b; Shinn et al., 2001). As such, one might

hypothesize three overarching factors, comprising economic status, health, and parental

functioning. Considering the unique characteristics differentiating single adults and families

experiencing homelessness, this research will test these groups separately. Finally, given the over-

representation of racial minorities and the disproportionate distribution of males and females

across single adult and family populations, it is essential to examine measurement invariance

across groups.

Hypotheses and Research Questions

Research Question I: How many factors emerge on a 14-item version of the Self-Sufficiency

Matrix among a sample of single adults experiencing or at-risk of homelessness?

Research Question II: How many factors emerge on a 16-item version of the Self-Sufficiency

Matrix among a sample of families experiencing or at-risk of homelessness?

Research Question III: How does the factor solution found in the EFAs and CFAs perform across

racial and gender groups?

Hypothesis I: The factor structure of the 14-item version of the Self-Sufficiency Matrix will be

supported in a second sample of single adults experiencing or at-risk of homelessness.

Hypothesis II: The factor structure of the 16-item version of the Self-Sufficiency Matrix will be supported in a second sample of families experiencing or at-risk of homelessness.

Method

This cross-sectional study utilized Homeless Management Information System (HMIS) administrative data from the Homelessness Prevention and Rapid Rehousing Program (HPRP) implemented in Indianapolis, IN. HPRP was a federally-funded program operating from 2009-2012 offering time-limited financial and support services to individuals and families to secure permanent housing. Those currently experiencing homelessness received rapid rehousing assistance and those at-risk of homelessness received homelessness prevention assistance.

Sample

The sample included all single adults and families with children who participated in HPRP in Indianapolis. For this study, families were defined as a household made up of one or more adults presenting with minor child(ren). Eligibility for HPRP services was determined by a consultation meeting with a service provider and requirements included income at or below the Area Median Income (AMI), a housing status of either homeless or at risk of losing housing, and the presence of the following situational characteristics: no appropriate housing options identified, household lack of financial resources to maintain existing housing or obtain immediate housing, and household lack of support networks to facilitate housing maintenance or attainment (U.S. Department of Housing and Urban Development, 2011). The Indianapolis area served 2,477 adults and children in HPRP; of these, 515 were single adults and 512 were families.

There were 88 single adults and 84 heads of family households who did not complete the SSM and were therefore excluded from the sample. An independent samples t-test revealed no significant differences regarding participant age at program entry between those with missing data

and those with complete data for either single adults or heads of household. Chi-squared tests of independence determined significant differences between those included and excluded from the sample with regard to services received among both single adults and families, as well as race for heads of household. Specifically, both single adults and families receiving rapid-rehousing services, and therefore currently experiencing homelessness, were more likely to be excluded due to missing data whereas those receiving housing prevention services (at-risk of experiencing homelessness) were more likely to have complete data. Further, heads of families excluded from the sample were more likely to identify as African-American/Black or report not knowing their race than those included in the sample; no significant differences among race were identified among single adults. The remainder of demographic variables did not exhibit any significant differences among those included and excluded from the study sample. Both samples were screened for outliers among their SSM item responses, defined as any one item score falling greater than 3.2 standard deviations away from the mean, resulting in 16 outliers in the single adult sample and 8 outliers in the family sample. However, after running preliminary EFAs comparing both samples with and without outliers, the observed outliers did not influence the results; thus outliers were retained throughout the analyses.

Materials

All data was derived from HMIS, a federally mandated database for tracking demographic and homeless service utilization information for individuals and families experiencing homelessness within a specific geographic area. Demographic variables included: age at enrollment, gender, ethnicity, race, household income at program entry, highest level of educational attainment, and disability status. The disability status data element was the presence of a disabling condition, which was very broadly defined (i.e., could include a mental health

issue, substance use disorder, physical disability, or other chronic health condition) due to federally mandated reporting requirements (Housing and Urban Development, 2011).

The SSM (Appendix A) is a 16-item Likert-type assessment instrument administered to individuals and families at risk of or currently experiencing homelessness by case managers or other homeless service providers. The SSM has 16 items including housing, employment, income, food, education, health care, life skills, family relations, mobility, community involvement, legal involvement, mental health, substance use, safety, and for families, there are additional items regarding childcare, and children's education. The items related to childcare and children's education are not applicable and therefore were omitted from the single, unaccompanied adult sample, equating to a 14-item questionnaire for single adults. The SSM is administered in interview format, and each domain is rated on a 1 to 5 scale, where 1 is *in crisis*, 2 is *vulnerable*, 3 is *stable*, 4 is *safe*, and 5 is *thriving* (Fassaert et al., 2014). There are other options for *don't know* or *not applicable* for all item responses as well which are scored as a 5. Additionally, there are mutually exclusive qualitative descriptions for each score within a domain for greater standardization of scoring (i.e., Housing: 1 = *Homeless or threatened with eviction*, 5 = *Household is safe, adequate, unsubsidized housing*; Food: 1 = *No food or means to prepare it. Relies to a significant degree on other sources of free or low-cost food*, 5 = *Can choose to purchase any food household desires*). Items are added to calculate a sum total score ranging from 14-70 for unaccompanied adults and 16-90 for families with minor children. This total score can be used to approximate a person's level of self-sufficiency, whereby the greater the score, the more self-sufficient that person is. Therefore, a lower score on the SSM indicates more support services needed and suggests greater service allocation.

Procedure

Information was collected via case management staff who met with participants in person to collect demographic and assessment information, verify program eligibility, and document HMIS mandated data elements (Officer & Sauer, 2011). The SSM was administered by a service provider upon admission to the HPRP program and participants. As outlined in their evaluation report of the HPRP program (Officer & Sauer, (2011), administrative collaborators and funders worked to create training standardized materials and terminated partnerships with non-compliant agencies to ensure program fidelity. Obligatory monthly meetings and trainings were instituted to enforce standards regarding eligibility, information collection, and data entry into the HMIS system. Additionally, funders implemented monitoring strategies for documentation compliance (e.g., file checklists) and conducted site visits where they audited filed for compliance. Among these procedures, auditors would check to see if program participants had complete data and would exclude them if they had any missing data.

Data Analysis

The individual and family samples were each divided into two subsamples: those currently experiencing homelessness (i.e., rapid rehousing recipients) and those at-risk of homelessness (i.e., homelessness prevention assistance). Each subsample was randomly divided in half to ensure a balanced number of individuals and families currently experiencing and at-risk of homelessness in the exploratory and confirmatory analyses. The samples were randomly selected, and the sizes were as follows: the exploratory factor analysis (EFA) included 214 individuals and 214 families, and the sample sizes for the confirmatory factor analysis (CFA) included 213 individuals and 214 families. While there is much disagreement regarding recommendations for appropriate sample sizes in both EFA (MacCallum, Widaman, Zhang, & Hong, 1999) and CFA

(Marsh et al., 1988), conventional literature does make general suggestions: (1) that the ratio of

participants to items should be 10:1 (MacCallum et al., 1999), and/or (2) CFA methods should be

used cautiously in sample sizes less than 200 (Marsh, Balla, & McDonald, 1988). Thus, the

sample sizes included in the analyses were sufficient.

Previous studies examining the factor structure of the SSM (Fassaert et al., 2014) have

utilized principal component analysis (PCA). However, as recommended by Costello and

Osborne (2005), EFA was utilized in the present study to determine the number of factors within

the SSM and to explore the relationships among the variables within the measure. With regard to

the EFA rotation method, it was assumed that variables will be correlated and therefore an

oblique rotation method was employed to examine the correlations among factors. A greater than

10% overlap in variance among factors provided the impetus for oblique rotation (Tabachnick &

Fidell, 2007). A variety of sources of information was utilized to determine factor retention.

Specifically, factors with eigenvalues higher than 1.0 were retained, a visual examination of scree

plots for sharp drop offs in plotted eigenvalues were conducted, and the total percent of variance

explained (e.g., the variance of the original variable vs. the variance explained by each factor) was

examined (Pett, Lackey, & Sullivan, 2003). Finally, parallel analysis using the Monte Carlo

simulation technique was used, which generates a random artificial data set to compare to the

original dataset to determine the number of factors (Çokluk & Koçak, 2016). Parallel analysis

determines the number of factors to retain by going above and beyond simply retaining factors

with eigenvalues above 1.0, which can retain an excessive number of factors, by instead retaining

factors in which the eigenvalue in the simulated sample is greater than the corresponding

eigenvalue in the actual data (Çokluk & Koçak, 2016; Ledesma & Mora, 2007). Parallel analyses

were carried out in IBM SPSS version 21.0.

Factor loadings were determined by including items with absolute values greater than .35 and dropping the items with values lower than that cutoff score (Pett et al., 2003). If items did not load on any factor, had low communality, or its contribution to the overall instrument was not substantive the item was excluded (Pett et al., 2003). Additionally, recognizing the items were correlated, there was a possibility that items would load significantly on multiple factors. While some theorists recommend eliminating multiple-loading items (Kline, 2000), others contend that multiple-loading items are still important to maintain despite the difficulty in interpretation and assignment of factor labels (Hair, Black, Babin, Anderson, Tatham, 1998). As is suggested by Pett and colleagues (2003), multiple-loading items were assigned to the factor most conceptually related; then that factor's internal consistency was evaluated to confirm the placement for the item.

CFA was employed to validate the factor structure found in the exploratory factor analysis. To examine model fit, maximum-likelihood (ML) derived fit indices were used as recommended by Hu and Bentler (1998). These data also violated the assumption of multivariate normality and some theorists suggest ML is robust against these violations and is superior in reducing bias in parameter estimates (Vieira, 2011). As noted by the authors, ML based fit indices such as the Tucker Lewis Index (TLI) and Comparative Fit Index (CFI) are sensitive to simple and complex model misspecification and are recommended for sample sizes less than 250 (Hu & Bentler, 1998). The determination of model fit was based on a comparison of the fit indices obtained from the four CFAs with the suggested cutoff values frequently cited in the literature for the TLI (i.e., ≥ 0.95) CFI (i.e., ≥ 0.90), Root Mean Square Error of Approximation (RMSEA $<$ 0.08), and Standardized Root Mean Square Residual (SRMR $<$ 0.08) indices (Kline, 2005). A model was determined to exhibit "good," "marginal," or "poor" fit based on the comparisons. A

designation of "good" was based on three-four fit indices meeting the minimum threshold for fit.

Models categorized as "marginal" fit had any two of the four fit indices meet the minimum

threshold for fit. In cases where all four fit indices failed to exceed the minimum threshold for fit,

the model was determined to exhibit "poor" fit. IBM SPSS Statistics for Windows, version 21.0

were utilized for the exploratory factor analyses whereas confirmatory factor analyses were

carried out in Mplus version 6.12. Non-normal distributions and skewness were observed in the

Income and Employment variables (e.g., the sample skewed heavily toward the lower end of the

scale, indicating lower self-sufficiency with regard to income and employment) in the single adult

sample during measurement invariance analyses. For this reason, the CFA for single adults was

re-run after making collapsing the variable scales and weighted least squares means and variance

(WLSMV) estimator was used rather than ML, as it has been found to be a robust estimator for

non-normally distributed variables (Brown, 2006).

Measurement invariance procedures were employed to examine the factor structure of the

SSM across racial and gender groups for the single adult sample. As per aforementioned

recommendations regarding sample size (i.e., insufficient sample sizes being < 200 or a ratio of <

10 participants per item) for factor analyses (MacCallum et al., 1999; Marsh, Balla, & McDonald,

1988), the family sample racial and gender subgroups measurement invariance analyses were

attempted but should be interpreted with caution. Results are described for gender invariance

among families but the racial invariance analyses were discontinued due to too few respondents

across variable groups resulting from unbalanced group sizes.

In the family sample gender models, only males and females were compared as no

respondents in this sample reported being in a different category (e.g., transgender male to female

or female to male). Similarly, in the single adult race sample, only White and Black categories

were compared due to insufficient sample size for other racial categories (i.e., Asian = 2, Multi-racial = 13, American Indian or Alaskan Native = 3, or the client reported not knowing their race = 3). Non-normal distributions and skewness were observed in the Income and Employment variables in both samples, however it should be noted that each sample had opposite patterns of skewness. The single adult sample skewed low (e.g., the sample skewed heavily toward the lower end of the scale, indicating lower self-sufficiency with regard to income and employment) whereas the family sample skewed high (e.g., indicating the presence of governmental assistance, earned income wages, employment, and jobs with no benefits or security). Thus, in the single adult sample, the Income and Employment variables were collapsed to three categories (i.e., 1-3 on the Likert-type scale) whereby individuals with scores of four or five were incorporated in category three; and the family sample the categories were collapsed in the opposite direction (i.e., individuals scoring a 1 or 2 were counted with 3's and all other categories remained the same). The transformation to categorical variables provided the impetus for the use of weighted least squares means and variance (WLSMV) estimator rather than ML (Brown, 2006). Finally, after examining the modification indices, it was observed that Family Relations and Substance Abuse were negatively correlated and therefore these variables were specified to correlate across all models across all groups.

Results

Excluding missing data, the final sample of single adults ($N = 427$) included in the current study consisted of 190 (44.5%) females, 234 (54.8%) males, and three (.7%) unidentified gendered participants. The average age for single adults was 44 years old ($SD = 11.5$). Among the single adult sample, 419 (98.1%) identified as Non-Hispanic/Latinx, while seven (1.6%) identified as Hispanic/Latinx; with regard to race, 282 (66.0%) identified as Black or African

American, 124 (29.0%) as White, 13 (3.0%) as Multiracial, three (.7%) as American Indian or

Alaskan Native, two (.5%) as Asian, and three (.7%) reported not knowing. The single adult

sample consisted of 191 (44.7%) in the homelessness prevention intervention (i.e., at risk of

homelessness), whereas 236 (55.3%) in the rapid re-housing prevention intervention (i.e.,

currently experiencing homelessness).

The sample of families with minor children ($N = 428$) was based on the adult family

member who was the primary HPRP service recipient, referred to here as the "head of

household." The family sample was composed of 352 (82.2%) female and 76 (17.8%) male

participants. The mean age for head of the household was 34 years old ($SD = 8.5$). Among the

family sample, 417 (97.4%) identified as Non-Hispanic/Latinx, while 11 (2.6%) identified as

Hispanic/Latinx; with regard to race, 306 (71.5%) identified as Black or African American, 109

(25.5%) as White, 10 (2.3%) as Multiracial, and three (.7%) as Asian. The families with minor

children sample consisted of 315 (73.6%) in the homelessness prevention intervention (i.e., at risk

of homelessness) whereas 113 (26.4%) in the rapid re-housing prevention intervention (i.e.,

currently experiencing homelessness).

Exploratory Factor Analyses

Results for the single adult and family samples EFAs are presented in Table 1.

Single adults. The factorability of the 14 SSM items was examined. Two items were

eliminated (i.e., Adult Education and Legal) because they did not meet a minimum measure of

sampling adequacy (MSA) criteria of $\geq$ .5. The Kaiser-Meyer-Olkin measure of sampling

adequacy was .70, above the commonly recommended value of .6, and the Bartlett's test of

sphericity was significant (χ^2 (66) = 418.06, $p < .001$), together suggesting good factorability.

A two-factor solution was identified (Table 2), explaining a total of 28.97% of the variance. Factor 1 was composed of three items related to "Financial Security" (i.e., Income, Employment, and Food) and explained 15.09% of the variance. Factor 2, "Psychosocial Health," was composed of six items (i.e., Mental Health, Community Involvement, Life Skills, Family Relations, Substance Use, and Safety) and explained 12.88% of the variance. Cronbach's alphas for Factor 1 and Factor 2 were .63 and .66, respectively. The omega total for Factors 1 and 2 were both .68, indicating acceptable internal consistency. The factor correlation between Factors 1 and 2 is .188 indicating a weak positive linear relationship.

Families. The factorability of the 16 SSM items was examined. One item was eliminated (i.e., Adult Education) because it did not meet a minimum MSA criteria of $\geq$ .5. The items demonstrated good factorability, as the Kaiser-Meyer-Olkin measure of sampling adequacy was .65, and Bartlett's test of sphericity was significant (χ^2 (105) = 385.00, p <.00).

A three-factor solution emerged (Table 3), accounting for a total of 25.82% of the variance. Factor 1 comprised two items related to "Community Integration" (i.e., Community Involvement and Family Relations) and explained 11.6% of the variance. Factor 2 was composed of three items related to "Financial Security" (i.e., Income, Employment, and Food) and explained 8.88% of the variance. Factor 3, "Psychosocial Health" was composed of three items (i.e., Substance Use, Mental Health, and Legal) and explained 5.3% of the variance. Cronbach's alphas for Factors 1, 2, and 3 were .62, .64 and .53, respectively. The omega totals for Factors 1, 2, and 3 were .62, .66, and .55, suggesting poor to acceptable internal consistency. The factor correlation between factors 1 and 2 is .087, indicating a weak positive linear relationship. The factor correlation between Factors 1 and 3 is -.24, and factors 2 and 3 is -.23, indicating weak negative linear relationships.

Confirmatory Factor Analyses

Results of the CFAs can be found in Tables 4 and 5 for the single adults and families, respectively. A summary of the measurement model findings based on the CFAs of single adults and families can be found in Table 6. A summary of standardized factor loading for single adults and families can be found in Tables 7 and 8, respectively. CFA results marginally support the hypotheses regarding the factor structure found in the EFA. None of the model fit indices for the single factor model for either single adults or families met the recommended cutoffs, demonstrating a poor model fit for a single-factor solution. Two of the four model fit indices met the recommended cutoff (TLI = .83; CFI = .87; RMSEA = .06; SRMR = .06) for the two-factor model in the single adult sample, demonstrating marginal model fit. After making a change based on the modification indices produced by Mplus (i.e., to allow Family Relations to correlate with Substance Abuse) and collapsing Income and Employment as in the measurement invariance analyses, model fit was improved (TLI = .91; CFI = .94; RMSEA = .04) and was considered to demonstrate adequate model fit. In the family sample, all four model fit indices met the recommended cutoff (TLI = .94; CFI = .96; RMSEA = .05; SRMR = .04) and the chi-square test of model fit was non-significant for the three-factor model, achieving good model fit.

Measurement Invariance Models

A series of increasingly restrictive multigroup analyses were performed to test the invariance of model parameters across racial and gender groups in the single adult and family samples. In a simple two-factor model based on EFA and CFA results the factor variances were fixed to one and all factor loadings were freely estimated, the model converged and did not demonstrate any non-positive definite issues, indicating the model is appropriate to test measurement invariance further. When assessing configural invariance across gender groups, a

model estimating both factor models simultaneously resulted in adequate model fit (TLI = .92; CFI = .93; RMSEA = .05). A model constraining all factor loadings to equivalence across groups (i.e., metric invariance) demonstrated adequate model fit (TLI = .91; CFI = .92; RMSEA = .05) and the chi-square test for difference testing was non-significant indicating that imposing constraints on the models did not significantly decrease model fit. Building on the metric invariance model, scalar equivalence was then tested by constraining the item intercepts to equivalence. The scalar model resulted in an adequate model fit (TLI = .91; CFI = .92; RMSEA = .05) with a non-significant difference statistic indicating partial invariance across gender groups, suggesting the factor structure does not vary based on gender.

When assessing configural invariance across racial groups, a model estimating both factor models simultaneously resulted in adequate model fit (TLI = .93; CFI = .95; RMSEA = .05). A model of metric invariance demonstrated adequate model fit (TLI = .95; CFI = .95; RMSEA = .04) and the chi-square test for difference testing was non-significant indicating that imposing constraints on the models did not significantly decrease model fit. As metric invariance was supported, the item intercepts were constrained to be equal to test for scalar invariance. The scalar model resulted in an adequate model fit (TLI = .95; CFI = .95; RMSEA = .04) with a non-significant difference statistic indicating partial invariance across racial groups, suggesting the factor structure of the SSM also does not vary based on racial identity for Black and White individuals.

The racial invariance models in the family sample were discontinued due to small sample size. However, among the gender invariance models, configural invariance resulted in good model fit (TLI = .94; CFI = .96; RMSEA = .04), metric invariance demonstrated good model fit (TLI = .97; CFI = .97; RMSEA = .03) and the chi-square test for difference testing was non-

significant indicating that imposing constraints on the models did not significantly decrease

model fit. The scalar model also resulted in an good model fit (TLI = .96; CFI = .97; RMSEA =

.03) with a non-significant difference statistic indicating partial invariance across racial groups,

suggesting the factor structure of the SSM does not vary based on racial identity for Black and

White heads of family households.

Discussion

This study examined the factor structure of the SSM in a community sample of individuals

and families currently and at-risk of experiencing homelessness. A reliable and valid measure of

self-sufficiency is needed to keep pace with the growing reliance on assessment for the

prioritization of individuals and families for scarce housing resources. The current study extends

previous conceptual advances (Culhane et al., 2007a; Fassaert et al., 2014; Lauriks et al., 2014)

and resulted in a clearer understanding of what is meant by self-sufficiency as measured by the

SSM and how it is used across individuals and families currently or at-risk of experiencing

homelessness.

For single adults, the SSM appears to measure self-sufficiency on two domains—financial

security and psychosocial health, while for families there were three domains (i.e., financial

security, psychosocial health, and community integration). Results suggest that several items are

related to psychosocial health items such as substance use or mental health for single adults (i.e.,

community integration and family relations) while they function differently and apart from

psychosocial functioning for families. Findings consistently suggest the SSM is a

multidimensional construct, rather than unidimensional. Several items were removed in one or

both samples after the EFAs because they did not load highly on any factor (e.g., Adult

Education, Children's Education, Child Care, Mobility, Legal, and Housing/Shelter). It is

possible that either these domains may not be pertinent to the construct of self-sufficiency, or there was too little variability observed in this sample. After modifications to the two-factor model in the adult sample, it demonstrated good model fit and was better fitting than the one-factor solution. In the single adult sample, collapsing Income and Employment and allowing some items to correlate with one another improved model fit. These modifications might indicate that for single adult populations, the full one-to-five Likert scale is not necessary to capture financial self-sufficiency among individuals at risk of or currently experiencing homelessness and that several domains are highly related (e.g., Family Relations and Substance Abuse). Further, the family sample results indicated the three-factor structure model was a better fit than the single-factor solution and demonstrated good model fit. It is noteworthy that several items demonstrated contradictory skewness on the Income and Employment variables indicating these domains may be functioning as risk factors for single adults and protective factors for families.

The SSM was designed to measure many different concepts across a range of domains whereby each item, and only one item, is a different domain thought to be pertinent to the construct of self-sufficiency. Additionally, while the response scale is standardized as a 1-5 Likert-type scale, the qualitative descriptors create differences in the response scale across items. Similar to findings from previous investigations of the dimensionality of the SSM in administrative datasets, findings consistently revealed a multi-factor solution rather than unidimensionality (Culhane et al., 2007a) for the construct of self-sufficiency. In their study, Culhane et al.'s (2007b) factor solution domains comprised different aspects of the measure (i.e., client dysfunction/function and independent life skills) than what was found in this investigation (i.e., financial security, psychosocial health, and for families, and an additional dimension of community integration). It should be noted their study utilized a 17-item version among a sample

of 150 homeless individuals in contrast to the 14- and 16- item versions and notably more

heterogeneous (e.g., among single adults and families, and also in terms of their status as

currently- or at risk of- experiencing homelessness) sample observed in this investigation.

In contrast to previous research demonstrating a one-factor solution (Fassaert et al., 2014)

using the SSM-Dutch version (SSM-D), the unidimensional model was poor-fitting in this

sample. This discrepancy may be due to the differences of the measure itself, the assessment

administration, differences in the population demographics and context of their study, and

methodological differences between their use of PCA, which does not partition unique and error

variance. However, despite the differences between the SSM and SSM-D, the domains that

emerged as important in this study (i.e., income, employment, food, mental health, community

involvement, life skills, family relations, substance use, safety, and legal) were relatively

consistent with the key domains in their study (i.e., income, daytime activities, housing, family

relations, mental health, physical health, addiction, activities of daily living skills, social

networks, social participation, and justice). These findings show promise regarding the construct

validity of the SSM. Taken together, the present study provides further evidence for the

multidimensionality of the SSM and highlights the limitations of using multiple versions of a

measure in practice with regard to assessing its research utility and evidence-base.

The multidimensional models fit the data well in this community sample although its

structure functioned differently among families and single adults. The fit to the data differed

across the family and single adult sample, which may have been impacted by the relative

homogeneity in the family sample versus the diversity observed in the single adult sample.

However, there were systematically different response patterns observed between the single adult

and family samples which is congruent with the literature indicating different etiologies for their

homelessness, differences in service use patterns, and service needs (Culhane et al., 2007b; Kuhn & Culhane, 1998). Overall, results provide further support for different and targeted service approaches for serving single adults and families.

Study hypotheses were supported, and further research is needed to determine the dimensionality of the SSM. When testing measurement invariance across both racial and gender groups, it appears this model of measuring self-sufficiency is stable across female, male, Black, and White groups among single adults; and is stable across female and male heads of family households. Future research is needed to explore further racial and gender diversity, as well as explore measurement invariance across racial groups in family samples. Study results suggest the SSM holds promise as a tool with at least partial measure invariance indicating racial and gender groups are responding in conceptually similar ways.

The two- and three- factor solutions resulted in poor to moderate internal consistency which may be due to (1) multidimensionality, as the indicators are not measuring the same underlying construct, (2) the factor loadings are not equal, or they are contributing to the overall factor to varying degrees, and (3) the distribution of item correlations were affected by skewness in this sample. Findings revealed questionable internal consistency among the latent factors, which was likely due to the wide scope of items measured by the SSM. However, overlap among items or measurement error cannot be ruled out as possible reasons. In contrast, previous studies (Culhane et al., 2007a; Fassaert et al., 2014; Lauriks et al., 2014) demonstrated good internal consistency for their one- and two-factor solutions, respectively. Future development of the SSM should focus on reducing the conceptual overlap of items.

There are some important limitations to note in this study. First, this sample was derived from an administrative data set in a community context, rather than a controlled setting, which

may influence the generalizability of findings to other settings. Additionally, the EFA and CFA

analyses yielded factors that incorporated only nine of the 14 SSM items for single adults and

eight of the 16 SSM items for families. This might suggest that there are additional factors

involved in the construct of self-sufficiency that were not found in this study. This study was

cross-sectional and therefore does not speak to the SSMs reliability or sensitivity to change over

time. Finally, this study sample was very diverse with regard to race, gender, and the status of at-

risk-of or currently-experiencing homelessness which is deeply important to reflect the population

of individuals seeking homeless services. However, this study sample size could have been larger

to better reflect the amount of variability within racial, gender, or status subgroups. Future

research, including large-scale demonstrations of administrative data or community samples are

recommended to explore validity concerns and measurement invariance among diverse

populations, and to fully appreciate the within-group differences that likely exist in real life.

Implications for Practice

   Implications for researchers. Efforts to prioritize housing resources based on

vulnerability and support service needs depends on the quality of the measures designed to assess

self-sufficiency or vulnerability. Evidence-based assessment tools with sound psychometric

properties are needed to ensure accurate prioritization of vulnerable individuals and families to

housing resources. Future research should further develop the SSM, including generating new and

rewriting existing items. Study results indicate future development of the SSM should focus on

domains related to (1) income and employment; (2) psychosocial functioning (i.e., mental health,

substance use, life skills/activities of daily living skills, and; (3) community integration or

family/social support. It is recommended that future iterations of the SSM seek multiple sources

of information rather than relying solely on self-report which may decrease measurement error.

More research is needed to better understand additional sources of measurement error such as individual response style, environmental conditions impacting responses, and measurement invariance issues.

Future research should further specify the relation between self-sufficiency and its domains as measured in the SSM. Additionally, future investigations should examine the SSM's convergent validity with other evidence-based assessment tools of self-sufficiency or vulnerability and conduct other psychometric analyses such as test-retest and inter-rater reliability. Additional research is needed to examine how scores on the SSM relate to housing outcomes among single adults and families. There is a dearth of research on the SSM, and this study offers important considerations regarding the multidimensionality of the SSM, cautions its use for allocating housing resources, and provides recommendations for strengthening its evidence-base and psychometric properties.

Implications for service providers. The SSM likely maintains utility for service providers to assess client strengths and targets of service delivery at the item-level of the measure. Whereas caution should be used for its use in prioritizing housing, determining the level of support needed to maintain housing, and more broad-scale systems planning or accountability purposes. While the SSM is typically used by tallying a sum total of item scores, study results tended toward multidimensionality, indicating that sum-totaling subdomains might provide greater unique variance and predictive power that is missed when using only a total score. In essence, more specific (i.e., subdomain) scores allow for more specific recommendations regarding housing and service allocation decisions. The low variability and reliability found in this study suggests using an overall sum score might provide inconsistent rankings of scores in community settings (e.g., the process utilized in the Coordinated Entry System). However, the

low variability and reliability provide helpful information regarding ways to develop the instrument. For example, future iterations of the SSM might include multiple items to measure each domain.

The SSM can be used as a case management tool by documenting client progress, identifying specific strengths and deficits to focus service delivery aims. The SSM can act as a clinical decision support system to assist the triage and allocation of service provision based on client self-sufficiency. Further, organizations can use client SSM outcomes to examine and assess their service array, what is and is not working, and to identify any client needs that are not supported through their programming. Organizations or community level coordination efforts, such as Continuums of Care (CoCs), may use aggregate client SSM outcomes to identify primary interests or specific intervention points to build capacities within service delivery. Finally, the SSM can be used as a communication tool to demonstrate needs and strengths to the general public, policymakers, and funders. These data might illuminate what barriers exist for individuals and families experiencing homelessness, what successes system-level efforts have attained, and what additional resources are needed.

This study sought to address the limitations in the current literature on the SSM among families and single adults at risk of or currently experiencing homelessness. Given the scarcity of housing and other resources that serve people experiencing homelessness, it is critical to ensure people are receiving the most appropriate and cost-effective array of services in addition to prioritizing based on need. The use of widely-used assessment tools is a step in the right direction to capture the resources and needs of individuals and families experiencing homelessness; but for this model to be truly effective, we must first focus on bolstering the psychometric properties of existing measures and ensure their equitable use among diverse populations.

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Table 1.

Correlation Matrix, Means, and Standard Deviations for the Exploratory Factor Analyses among Single Adult and Family Samples

SSM Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	M	SD
1. Income	1																2.07	.92
	1																3.94	.74
2. Employment	.55**	1															1.63	.87
	.46**	1															4.29	.97
3. Shelter	.22**	.17*	1														1.40	.92
	.14*	.25**	1														4.41	1.30
4. Food	.31**	.19**	.29**	1													1.99	.82
	.34**	.35**	.11	1													3.92	.65
5. Adult Education	.06	.09	.09	.07	1												3.29	1.081
	.04	-.01	.05	-.01	1												3.04	.31
6. Legal	.04	-.05	-.04	.07	-.08	1											4.38	.99
	.01	-.09	-.13	-.06	.02	1											3.85	1.75
7. Health	.18**	.04	.11	.16*	.04	.17*	1										2.92	1.25
	.08	.02	.08	.08	-.07	-.02	1										2.68	1.29
8. Life Skills	-.04	.11	.10	.01	.16*	-.08	-.19**	1									3.80	.61
	-.17*	-.01	.01	-.09	.02	-.01	-.11	1									2.42	.95
9. Mental Health	.13	.25**	.13	.02	-.03	.06	-.14*	.35**	1								4.39	1.05
	.05	-.04	.01	.08	.15*	.26**	-.05	.09	1								4.32	1.28
10. Substance Use	.15*	.15*	.11	-.01	.01	.13	.05	.17*	.44**	1							4.77	.65
	-.05	-.13	-.15*	.05	-.06	.32**	-.06	.02	.29	1							4.63	1.12
11. Family Relations	.08	.14*	.08	.08	.09	-.01	-.13	.27**	.28**	.13	1						2.64	1.06
	-.06	.21**	.28**	-.03	.04	-.20**	.03	.16	-.07**	-.12**	1						3.27	1.16
12. Mobility	.22**	.22**	.16*	.31**	.20**	-.13	-.10	.18*	.14*	-.00	.28**	1					3.04	1.18
	.17*	.24**	.19**	.17*	.03	-.18**	.07	-.04*	-.04**	-.10**	.24*	1					2.86	1.18
13. Community Involvement	.04	.13	.18**	.04	.08	-.06	-.10	.30**	.39**	.19**	.31**	.27**	1				3.40	1.08
	-.09	.14*	.04	-.03	.07	-.07	.01	.08	-.18*	-.02	.45	.18	1				2.76	1.16
14. Safety	.10	.10	.15*	.00	-.00	.09	-.08	.28**	.14*	.15*	.28**	.05	.21**	1			4.07	1.07
	.00	.16*	.18**	.03	.20**	-.04	-.02	.18	-.03*	-.11**	.28	.11**	.07	1			1.62	1.09
15. Childcare	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
	.16*	.23**	-.05	.10	.08	.004	-.12	.03*	.00**	-.03	.04	.07	-.04	.001	1		3.99	1.27
16. Children's Education	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	.06	.04	.14*	-.04	.05	-.02	-.03	-.04	-.10	-.15*	.19	.15	.15	.068	.074	1	2.08	1.69

Note: SSM = Self-Sufficiency Matrix. Single Adults coefficients are listed on top and Family coefficients are listed on bottom. *p < .05, **p < .01

Table 2. *Oblique Rotated Pattern and Structure Matrices from Maximum Likelihood Factor Analysis of SSM Items among Single Adults*

	Factor			
	Financial Security		Psychosocial Health	
SSM Item	Pattern	Structure	Pattern	Structure
Income	.892	.881		
Employment	.596	.626		
Food	.374	.373		
Mental Health			.623	.637
Community Involvement			.602	.597
Life Skills			.584	.562
Family Relations			.492	.498
Substance Abuse			.363	.385
Safety			.357	.366

Table 3. *Oblique Rotated Pattern and Structure Matrices from Maximum Likelihood Factor Analysis of SSM Items among Families*

	Factor					
	Community Integration		Financial Security		Psychosocial Health	
SSM Item	Pattern	Structure	Pattern	Structure	Pattern	Structure
Community Involvement	.865	.871				
Family Relations	.497	.503				
Income			.698	.677		
Employment			.697	.717		
Food			.532	.504		
Substance Abuse					.629	.620
Mental Health					.535	.497
Legal					.478	.494

Table 4. *Correlation Matrix, Means, and Standard Deviations for the Confirmatory Factor Analysis among Single Adults*

SSM Item	1	2	3	4	5	6	7	8	9	*M*	*SD*
1. Income	1									1.94	.95
2. Employment	.50**	1								1.54	.83
3. Food	.35**	.25**	1							2.01	.81
4. Life Skills	.02	.07	.04	1						3.81	.64
5. Mental Health	.12	.21**	.06	.11	1					4.29	1.13
6. Substance Use	.12	.113	.14*	.09	.24**	1				4.69	.79
7. Family Relations	.07	.10	.16*	.19**	.08	.01	1			2.53	1.14
8. Community Involvement	-.00	.04	.11	.27**	.32**	.19**	.38**	1		3.29	1.11
9. Safety	.03	.06	.11	.25**	.15*	.19**	.26**	.27**	1	4.06	1.11

Note. *p < .05, **p < .01

Table 5. *Correlation Matrix, Means, and Standard Deviations for the Confirmatory Factor Analysis among Families*

SSM Item	1	2	3	4	5	6	7	8	*M*	*SD*
1. Income	1								3.89	.77
2. Employment	.51**	1							4.29	.97
3. Food	.29**	.29**	1						3.86	.65
4. Legal	-.08	-.11	-.04	1					3.95	1.65
5. Mental Health	-.01	-.00	-.10	.237**	1				4.21	1.37
6. Substance Use	-.03	-.02	.04	.416**	.28**	1			4.56	1.18
7. Family Relations	-.08	.06	.04	-.087	-.16*	-.169*	1		3.26	1.17
8. Community Involvement	.07	.14*	-.01	-.087	-.169*	-.019	.390**	1	2.73	1.13

Note. *p < .05, **p < .01

Table 6. *CFA Model Comparison Summary for the SSM among samples of Single Adults and Families*

Model	χ^2	df	CFI	TLI	RMSEA	RMSEA CI	SRMR
Single Adults							
Single Factor	202.94***	77	.58	.51	.09	.07-.10	.08
Two-Factor Model	62.83**	34	.87	.83	.06	.04-.09	.06
Two-Factor with modifications	47.23*	31	.94	.91	.06	.02-.07	N/A
Families							
Single Factor	263.52***	77	.41	.32	.09	.07-.97	.09
Three-Factor Model	24.41	17	.96	.94	.05	.00-.08	.04

Note. CFI = Comparative Fit Index, TLI = Tucker Lewis Index, RMSEA = Root Mean-Square Error of Approximation, SRMR = Standardized Root Mean Square. *$p < .05$, **$p < .01$, ***$p < .001$

Table 7. *Single Adults- Confirmatory factor analysis standardized factor loadings*

| | Two-factor model | |
	Factor 1: Financial Security	Factor 2: Psychosocial Health
Items		
Income	.80***	
Employment	.63***	
Food	.44***	
Shelter		
Life Skills		.43***
Mental Health		.40***
Substance Use		.28***
Family Relations		.48***
Community Involvement		.68***
Safety		.46***

*p <.05, **p<.001, ***p<.0001

Table 8. *Families- Confirmatory factor analysis standardized factor loadings*

	Three-factor model		
	Factor 1: Community Integration	Factor 2: Financial Security	Factor 3: Psychosocial Health
Items			
Income		.71***	
Employment		.72***	
Food		.40***	
Legal			.59***
Mental Health			.41***
Substance Use			.69***
Family Relations	.90		
Community Involvement	.44		

*p <.05, **p<.001, ***p<.0001

Appendix A

Self-Sufficiency Matrix for Single Unaccompanied Adult

Domain	1	2	3	4	5
Housing	Homeless or threatened with eviction.	In transitional, temporary or substandard housing; and/or current rent/mortgage payment is unaffordable (over 30% of income).	In stable housing that is safe but only marginally adequate.	Household is in safe, adequate subsidized housing.	Household is safe, adequate, unsubsidized housing.
Employment	No job.	Temporary, part-time or seasonal; inadequate pay, no benefits.	Employed full time; inadequate pay; few or no benefits.	Employed full time with adequate pay and benefits.	Maintains permanent employment with adequate income and benefits.
Income	No income.	Inadequate income and/or spontaneous or inappropriate spending.	Can meet basic needs with subsidy; appropriate spending.	Can meet basic needs and manage debt without assistance.	Income is sufficient, well managed; has discretionary income and is able to save.
Food	No food or means to prepare it. Relies to a significant degree on other sources of free or low-cost food.	Household is on food stamps.	Can meet basic food needs, but requires occasional assistance.	Can meet basic food needs without assistance.	Can choose to purchase any food household desires.
Adult Education	Literacy problems and/or no high school diploma/GED are serious barriers to employment.	Enrolled in literacy and/or GED program and/or has sufficient command of English to where language is not a barrier to employment.	Has high school diploma/GED.	Needs additional education/training to improve employment situation and/or to resolve literacy problems to where they are able to function effectively in society.	Has completed education/training needed to become employable. No literacy problems.
Health Care Coverage	No medical coverage with immediate need.	No medical coverage and great difficulty accessing medical care when needed. Some household members	Some members (e.g. Children) have medical coverage.	All members can get medical care when needed, but may strain budget.	All members are covered by affordable, adequate health insurance.

		may be in poor health.			
Life Skills	Unable to meet basic needs such as hygiene, food, activities of daily living.	Can meet a few but not all needs of daily living without assistance.	Can meet most but not all daily living needs without assistance.	Able to meet all basic needs of daily living without assistance.	Able to provide beyond basic needs of daily living for self and family.
Family/Social Relations	Lack of necessary support form family or friends; abuse (DV, child) is present or there is child neglect.	Family/friends may be supportive, but lack ability or resources to help; family members do not relate well with one another; potential for abuse or neglect.	Some support from family/friends; family members acknowledge and seek to change negative behaviors; are learning to communicate and support.	Strong support from family or friends. Household members support each other's efforts.	Has healthy/expanding support network; household is stable and communication is consistently open.
Mobility	No access to transportation, public or private; may have car that is inoperable.	Transportation is available, but unreliable, unpredictable, unaffordable; may have care but no insurance, license, etc.	Transportation is available and reliable, but limited and/or inconvenient; drivers are licensed and minimally insured.	Transportation is generally accessible to meet basic travel needs.	Transportation is readily available and affordable; car is adequately insured.
Community Involvement	Not applicable due to crisis situation; in "survival" mode.	Socially isolated and/or no social skills and/or lacks motivation to become involved.	Lacks knowledge of ways to become involved.	Some community involvement (advisory group, support group), but has barriers such as transportation, childcare issues.	Actively involved in community.
Legal	Current outstanding tickets or warrants.	Current charges/trial pending, noncompliance with probation/parole.	Fully compliant with probation/parole terms.	Has successfully completed probation/parole within past 12 months, no new charges filed.	No active criminal justice involvement in more that 12 months and/or no felony criminal history.
Mental Health	Danger to self or others; recurring suicidal ideation; experiencing severe difficulty in	Recurrent mental health symptoms that may affect behavior, but not a danger to self/others; persistent	Mild symptoms may be present but are transient; only moderate difficulty in	Minimal symptoms that are expectable responses to life stressors; only	Symptoms are absent or rare; good or superior functioning in wide

	day-to-day life due to psychological problems.	problems with functioning due to mental health symptoms.	functioning due to mental health problems.	slight impairment in functioning.	range of activities; no more than every day problems or concerns.
Substance Use	Meets criteria for severe abuse/dependence; resulting problems so severe that institutional living or hospitalization may be necessary.	Meets criteria for dependence; preoccupation with use and/or obtaining drugs/alcohol; withdrawal or withdrawal avoidance behaviors evident; use results in avoidance or neglect of essential life activities.	Use within last 6 months; evidence of persistent or recurrent social, occupational, emotional or physical problems related to use (such as disruptive behavior or housing problems); problems have persisted for at least one month.	Client has used during last 6 months, but no evidence of persistent or recurrent social, occupational, emotional, or physical problems related to use; no evidence of recurrent dangerous use.	No drug use/alcohol abuse in last 6 months.
Safety	Home or residence is not safe; immediate level of lethality is extremely high; possible CPS involvement.	Safety is threatened/temporary protection is available; level of lethality is high.	Current level of safety is minimally adequate; ongoing safety planning is essential.	Environment is safe, however, future of such is uncertain; safety planning is important.	Environment is apparently safe and stable.

Appendix B
Self-Sufficiency Matrix for Head of Family with Minor Children

Domain	1	2	3	4	5
Housing	Homeless or threatened with eviction.	In transitional, temporary or substandard housing; and/or current rent/mortgage payment is unaffordable (over 30% of income).	In stable housing that is safe but only marginally adequate.	Household is in safe, adequate subsidized housing.	Household is safe, adequate, unsubsidized housing.
Employment	No job.	Temporary, part-time or seasonal; inadequate pay, no benefits.	Employed full time; inadequate pay; few or no benefits.	Employed full time with adequate pay and benefits.	Maintains permanent employment with adequate income and benefits.
Income	No income.	Inadequate income and/or spontaneous or inappropriate spending.	Can meet basic needs with subsidy; appropriate spending.	Can meet basic needs and manage debt without assistance.	Income is sufficient, well managed; has discretionary income and is able to save.
Food	No food or means to prepare it. Relies to a significant degree on other sources of free or low-cost food.	Household is on food stamps.	Can meet basic food needs, but requires occasional assistance.	Can meet basic food needs without assistance.	Can choose to purchase any food household desires.
Adult Education	Literacy problems and/or no high school diploma/GED are serious barriers to employment.	Enrolled in literacy and/or GED program and/or has sufficient command of English to where language is not a barrier to employment.	Has high school diploma/GED.	Needs additional education/training to improve employment situation and/or to resolve literacy problems to where they are able to function effectively in society.	Has completed education/training needed to become employable. No literacy problems.
Health Care Coverage	No medical coverage with immediate need.	No medical coverage and great difficulty accessing medical care when needed. Some household members	Some members (e.g. Children) have medical coverage.	All members can get medical care when needed, but may strain budget.	All members are covered by affordable, adequate health insurance.

		may be in poor health.			
Life Skills	Unable to meet basic needs such as hygiene, food, activities of daily living.	Can meet a few but not all needs of daily living without assistance.	Can meet most but not all daily living needs without assistance.	Able to meet all basic needs of daily living without assistance.	Able to provide beyond basic needs of daily living for self and family.
Family/Social Relations	Lack of necessary support form family or friends; abuse (DV, child) is present or there is child neglect.	Family/friends may be supportive, but lack ability or resources to help; family members do not relate well with one another; potential for abuse or neglect.	Some support from family/friends; family members acknowledge and seek to change negative behaviors; are learning to communicate and support.	Strong support from family or friends. Household members support each other's efforts.	Has healthy/expanding support network; household is stable and communication is consistently open.
Mobility	No access to transportation, public or private; may have car that is inoperable.	Transportation is available, but unreliable, unpredictable, unaffordable; may have care but no insurance, license, etc.	Transportation is available and reliable, but limited and/or inconvenient; drivers are licensed and minimally insured.	Transportation is generally accessible to meet basic travel needs.	Transportation is readily available and affordable; car is adequately insured.
Community Involvement	Not applicable due to crisis situation; in "survival" mode.	Socially isolated and/or no social skills and/or lacks motivation to become involved.	Lacks knowledge of ways to become involved.	Some community involvement (advisory group, support group), but has barriers such as transportation, childcare issues.	Actively involved in community.
Legal	Current outstanding tickets or warrants.	Current charges/trial pending, noncompliance with probation/parole.	Fully compliant with probation/parole terms.	Has successfully completed probation/parole within past 12 months, no new charges filed.	No active criminal justice involvement in more that 12 months and/or no felony criminal history.
Mental Health	Danger to self or others; recurring suicidal ideation; experiencing severe difficulty in	Recurrent mental health symptoms that may affect behavior, but not a danger to self/others; persistent	Mild symptoms may be present but are transient; only moderate difficulty in	Minimal symptoms that are expectable responses to life stressors; only	Symptoms are absent or rare; good or superior functioning in wide

	day-to-day life due to psychological problems.	problems with functioning due to mental health symptoms.	functioning due to mental health problems.	slight impairment in functioning.	range of activities; no more than every day problems or concerns.
Substance Use	Meets criteria for severe abuse/dependence; resulting problems so severe that institutional living or hospitalization may be necessary.	Meets criteria for dependence; preoccupation with use and/or obtaining drugs/alcohol; withdrawal or withdrawal avoidance behaviors evident; use results in avoidance or neglect of essential life activities.	Use within last 6 months; evidence of persistent or recurrent social, occupational, emotional or physical problems related to use (such as disruptive behavior or housing problems); problems have persisted for at least one month.	Client has used during last 6 months, but no evidence of persistent or recurrent social, occupational, emotional, or physical problems related to use; no evidence of recurrent dangerous use.	No drug use/alcohol abuse in last 6 months.
Safety	Home or residence is not safe; immediate level of lethality is extremely high; possible CPS involvement.	Safety is threatened/temporary protection is available; level of lethality is high.	Current level of safety is minimally adequate; ongoing safety planning is essential.	Environment is safe, however, future of such is uncertain; safety planning is important.	Environment is apparently safe and stable.
Child Care	Needs childcare, but none is available/accessible and/or child is not eligible.	Childcare is unreliable or unaffordable, inadequate supervision is a problem for childcare that is available.	Affordable subsidized childcare is available, but limited.	Reliable, affordable childcare is available, no need for subsidies.	Able to select quality childcare of choice.
Children's Education	One or more school-aged children not enrolled in school.	One or more school-aged children enrolled in school, but not attending classes.	Enrolled in school, but one or more children only occasionally attending classes.	Enrolled in school and attending classes most of the time.	All school-aged children enrolled and attending on a regular basis.

Appendix C

Original Thesis Proposal

Introduction

According to the annual homeless assessment report to Congress (U.S. Department of Housing and Urban Development, 2017), there were 369,081 single adults and 184,661 people in families with children experiencing street or shelter homelessness. Additionally, the U.S. government has prioritized $11 billion in housing vouchers and rapid rehousing over the next 10 years to address that need (Office of Management and Budget, 2017). Consequently, the implementation and evaluation of programs that effectively address the needs of homeless individuals and families is a top priority in many communities. Research trends have focused on identifying subpopulations of individuals and families experiencing homelessness based on their characteristics and service utilization; and results indicate that these subgroups have differential individual and service use characteristics suggesting a great deal of heterogeneity with regard to service needs (Culhane & Metraux, 2008). Such diversity among homeless individuals and families provides the impetus for well validated assessment instruments to inform service provision. Correspondingly, there has been an increased focus on the development and application of measures used to guide housing policy and individual service allocation (Housing and Urban Development, 2015). Multidimensional measures are intended to be a standardized tool to consistently assess an individual or family's situation and all relevant information in order to efficiently match them to the appropriate services in a fair, uniform, and equitable way. Given the scarcity of housing and other resources that serve people experiencing homelessness, it is important to ensure people are receiving the most appropriate and most cost effective array of services in addition to prioritizing based on need.

Characteristics of Single Adults and Families Experiencing or At-Risk of Homelessness

In general, the population of people experiencing homelessness is composed mostly of single, unaccompanied men (61%), and other subpopulations include single, unaccompanied women (15%), families with children (15%), and families consisting of various configurations of adults (9%; Nelson, 2001). Unaccompanied men and women and individuals in families who experience homelessness present with unique homelessness risk factors and service needs. For instance, unaccompanied individuals are more likely to be unsheltered (48%) than are people experiencing homelessness as a part of a family with children (less than 10%) (U.S. Department of Housing and Urban Development, 2017). Additionally, research has consistently demonstrated marked differences between the individual characteristics and service use patterns between single adults and families experiencing homelessness (Burt & Cohen, 1989; Metraux & Culhane, 1999). For example, in their sample, Burt and Cohen (1989) found that women with children were the youngest subgroup and single men were the oldest. Concurrently, their results also indicated that women with children had the shortest duration of homelessness ($M = 15$ months) while the unaccompanied men had the longest duration ($M = 43$ months) with unaccompanied women falling in between ($M = 34$ months). Additionally, the authors reported that women with children were much less likely to have had a history of psychiatric hospitalization (8%), inpatient substance use treatment (7%), and criminal justice involvement (13%) compared to single men in their sample with a greater likelihood of reporting a history of psychiatric hospitalization (19%), inpatient substance use treatment (37%), and criminal justice involvement (40%) (Burt & Cohen, 1989). Moreover, Metraux and Culhane (1999) noted that women with children more often reported domestic violence as a precipitating factor in their current episode of homelessness. Notably, these differences between unaccompanied single adults and families experiencing

homelessness has remained unchanged over time (Culhane, Metraux, Byrne, Stino, & Bainbridge, 2013). In their review, Culhane and colleagues (2013) found there to be a cohort effect for unaccompanied adults whereby despite the changing dynamics across time, there has been one cohort of people that have remained at the highest risk of homelessness. However, their study also demonstrated that poor single parents, predominantly families headed by females, have consistently shown the highest likelihoods of homelessness when both they and their children are relatively young; for mother's their greatest risk is between the ages of 21 and 24 and for their infant or toddler aged children (Culhane et al., 2013).

There is evidence to suggest that both single adults and families can be grouped into typologies based on shelter-stay patterns, whereby they are categorized into three groups based on homeless experience: transitionally homeless, episodically homeless, and chronically homeless (Kuhn & Culhane, 1998; Culhane, Parker, Poppe, Gross, & Sykes, 2007b; Aubry, Farrell, Hwang, & Calhoun, 2013). According to Kuhn and Culhane (1998), people in the transitionally homeless subgroup are those who enter the shelter system for only one stay and for a short period of time. Both single adults and families exhibit similar proportions where the largest subgrouping constitutes this transitionally homeless service use pattern, with 78-81% of single adults (Kuhn & Culhane, 1998) and 72-80% of families across their sample (Culhane et al., 2007b). People in the episodically homeless subgroup are those who frequently vacillate in and out of homelessness or between institutions; single adults considered episodically homeless comprised 9.1-11.7% of their sample (Kuhn & Culhane, 1998), whereas homeless families in this subgrouping totaled 2.1-7.8% of of their sample (Culhane et al., 2007b). Finally, the chronically homeless subgrouping are those that are enmeshed in the shelter system and rely on it for their long-term housing rather than as an emergency safety-net (Kuhn & Culhane, 1998). Within this subcategory, single adults

composed 9.8% of the sample (Kuhn & Culhane, 1998) and families amounted to only 1.0-1.4%

across the sample (Culhane et al., 2007b). Although single adults and families experiencing

homelessness exhibit similar proportions with regard to their shelter utilization, it should be noted

that they display different characteristics within these typological groupings in terms of

demographic, health, and mental health indicators (Culhane et al., 2007b).

      Single adults. Kuhn and Culhane's (1998) landmark paper identified the aforementioned

typological groups for single adults experiencing homelessness and examined the characteristics

affiliated with each group. They found that the chronically homeless group, comprising 10% of

their sample, tended to be older in age, and the majority had some kind of disability, substance

use, or behavioral health problem. The episodically homeless group, constituting 10% of their

sample, tended to be younger, but about half of this group had potentially disabling behavioral

health problems. Whereas the transitionally homeless group, amounting to 80% of their sample,

were more likely to be younger and suffer the lowest occurrences of mental health, substance use,

and behavioral health problems. Kuhn and Culhane's (1998) results for single adults indicate that:

(1) among the transitionally homeless group, 40.4% reported a substance abuse problem and

14.5% reported a mental health issue; (2) among the episodically homeless group, 59.1% reported

a substance abuse problem and 17% reported a mental health problem; and, (3) among the

chronically homeless group, 70.2% reported a substance use problem and 21.3% reported a

mental health problem.

      With regard to service needs, a greater focus on service utilization research has helped

researchers and policymakers better understand the impacts on other agencies outside of the

homeless service sector. Single adults experiencing homelessness encounter a range of service

systems, such as law enforcement, courts, correctional facilities, behavioral and mental health

treatment systems, emergency medical services, and public health care systems (Culhane et al., 2008). Risk factors for long-term homelessness among single adults include older age and a history of criminal justice involvement (Caton et al., 2005). Mental health and substance use problems impact overall functioning and coping skills, which have also been found to predict a longer duration of homelessness (Caton et al., 2005). Their results also indicate that better psychosocial adjustment, recent or current employment, the presence of income, family support, no current treatment for substance use, and no arrest history were predictors of a shorter duration of homelessness and service use (Caton et al., 2005).

Families. According to the McKinney-Vento Act Homeless Assistance Act (1987), as amended by the The Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH) Act (2009), family homelessness is defined as (a) any household made up of one or more adults presenting with minor child(ren); or (b) two or more adults that present as a family regardless of relationship, marital status, and actual or perceived sexual orientation or gender identity. However, for this thesis will be defining families as a household made up of one or more adults presenting with minor child(ren). The extant literature indicates considerable distinctions from unaccompanied, single adults and families with children experiencing homelessness. Demographic divergences suggest that homeless families with children are typically headed by females, whereas single adults are overwhelmingly male (Culhane et al., 2007b). Looking more closely at females, the heads of families with children are considerably younger than their single, unaccompanied counterparts (Burt & Cohen 1989; Culhane et al., 2007b; Metraux & Culhane, 1999). Additionally, homeless families are disproportionately with preschool aged children, where the risk of homelessness is highest for children under the age of 6 (Shinn, Rog, & Culhane, 2005). This trend continues, whereby the risk is higher the younger

children are and the risk of homelessness is highest for infants under 1 year of age (Shinn et al., 2005). Shinn and colleagues (2005), describe how family homelessness is not a permanent state, but rather one part in a larger pattern of residential instability associated with frequent moves and doubling up with relatives and friends.

Compared to single, unaccompanied adults experiencing homelessness, the adults in homeless families are less likely to have mental health and substance abuse issues (Culhane et al., 2007b; Shinn et al., 2005) while possessing more economic resources (Shinn et al., 2005) and exhibiting a greater likelihood to have completed high school, recently been in the labor force, and have greater contact with people in their social support (Burt, 2001; Burt & Cohen, 1989; Culhane et al., 2007b; Fischer & Breakey, 1991; North & Smith, 1993; Rog & Buckner, 2007). Comparing families experiencing homelessness with their poor-but-housed counterparts, homeless families have higher rates of domestic violence and are more likely to have had separations of mothers from children and other family (Bassuk, Buckner, Weinreb, Browne, Bassuk, Dawson, & Perloff, 1997; Shinn et al., 1998). Yet, families experiencing homelessness are akin to their poor-but-housed counterparts with regard to parental mental health, substance use, educational attainment, work, and criminal history (Culhane et al., 2007; Shinn et al., 2005). These findings illustrate a marked difference in the precipitating factors that lead to homelessness among families compared to those that catalyze homelessness for single adults. At the same time, these critical differences in characteristics and experiences indicate the need for a different interventional approach and service array for families.

Culhane and colleagues (2007b) endeavored to explore homeless typologies in families employing cluster analytic procedures within an administrative data set of shelter utilization records; examining the number of homeless episodes and number of cumulative shelter days

during the 2-3 year study duration. As in their single adult typology study, they also examined

public service and behavioral health care use. Findings suggest that while families experiencing

homelessness do fall into the same pattern of transitionally, episodically, and chronically

homeless with regard to their shelter use as found in their study of single adults (Kuhn &

Culhane, 1998); the author's interpretation of antecedents and needs was different than that of

single adults. More specifically, Culhane et al. (2007b), reported the following family service use

patterns: (1) among the transitional or temporary subgroup 4.6-14.6% had a history of psychiatric

inpatient treatment, 4.7-11.8% had a history of substance use inpatient treatment, and 12.2-19.1%

had a history of foster care involvement; (2) among the episodic subgroup 10.0-30.8% had a

history of psychiatric inpatient treatment, 8.5-20.0% had a history of substance use inpatient

treatment, and 20.0% had a history of foster care involvement; and, (3) among the chronic or

long-stay group 2.0-8.3% had a history of psychiatric inpatient treatment, 3.7-7.1% had a history

of substance use inpatient treatment, and 12.2-15.7% had a history of foster care involvement.

Their findings indicate that chronic and episodic family shelter use is not associated with more

intensive service needs or personal barriers to housing stability compared to the transitionally

homeless subgroup, as is the case with single adults. For single adults, chronic and episodic group

membership poses much greater mental health and substance use treatment service needs than

those belonging to the transitionally homeless subgroup (Kuhn & Culhane, 1998).

Taken together, these findings suggest that single adults' chronicity of homelessness is

attributable to inadequate housing resources available to support individuals with disabilities or

behavioral health concerns, which is not the case for families. Further, there is evidence to

suggest that families exhibit a "burst" of homelessness, where they display similar patterns of

shelter use and homelessness as a function of both their and their children's ages but then

continue to exit homelessness and maintain housing stability (Culhane et al., 2013). On the other

hand, single unaccompanied adults demonstrate an entirely different pattern where their

homelessness and shelter use exhibits a sustained risk as they age suggesting qualitatively

different precipitating factors (Culhane et al., 2013). As is mentioned by Culhane and colleagues

(2007b), the chronically homeless subgroup of families has the lowest proportion of intensive

service users on some measures. However, episodically homeless families did exhibit more

intensive service use; such as psychiatric and substance use inpatient treatment and having their

children placed in foster care (Culhane et al., 2007b). Notably, their results suggest that despite

having significantly fewer barriers to housing stability compared to single adults, families are

disproportionately represented in the chronically homeless subgrouping. The authors attribute this

finding primarily to the service array available to families rather than characteristics of families

themselves (Culhane et al., 2007b). In stark contrast to single adults, families with housing

subsidies consistently do well with respect to housing tenure and stability, regardless of their

shelter stay duration; whereas single adults tend to have more variable housing stability even with

the presence of a subsidy (Culhane et al., 2007b). Similarly, individual characteristics of families

at shelter entry did not prevent most families from becoming rehoused and the presence of a

housing subsidy was essentially the only predictor of housing stability after shelter (Shinn et al.,

1998). Shinn and colleagues (1998) characterize family homelessness as being precipitated by the

combination of persistent poverty, a lack of affordable housing, and disruptive social experiences

(e.g., domestic violence, abuse and/or separation from family of origin). For families experiencing

homelessness, it appears that a housing subsidy is both a necessary and sufficient condition for

achieving housing stability (Shinn, Baumohl, & Hopper, 2001).

To summarize, unaccompanied single adults and homeless family households navigate the same systems and tend to exhibit relatively similar patterns of shelter use. In contrast, they have drastically different characteristics and concurrently necessitate different service provisions. For example, families may fare well with only a housing subsidy, in comparison to single adults that may require more behavioral health interventional supports to maintain housing regardless of whether or not they have a subsidy. In either case, people experiencing homelessness whether unaccompanied or as a part of a family require some kind of appraisal of their unique characteristics and dimensions of functioning in order to triage them into appropriate service options.

Housing Plus Services Interventions

Housing plus services is an umbrella term that refers to an approach that provides a combination of permanent housing and supportive services. Interventions to address homelessness among individuals and families at risk of or currently experiencing homelessness vary in terms of service intensity and duration. Single adults experiencing homelessness have a complex constellation of behavioral health and personal barriers to housing stability and may therefore need more intensive and interlinked care to support their housing tenure and recovery, while families are primarily faced with economic and familial barriers to housing. Two primary types of permanent housing services that individuals and families experiencing homelessness might be triaged into are permanent supportive housing (PSH) and rapid re-housing.

PSH is an intervention that combines low barrier, affordable rental housing with separately operated, individually tailored, voluntary, community-based supportive services (National Health Care for the Homeless Council, 2017). These services may be accessed 24 hours a day, 7 days a week and might include case management services, mental health, and substance

use recovery services; although their particular array of services may be flexible over time to match their individual need. People experiencing homelessness are eligible for PSH if they have serious and long-term disabilities (i.e., serious mental illness [SMI], developmental disabilities, physical disabilities, or chronic health conditions) and/or have an income below 30% Area Median Income (Substance Abuse and Mental Health Services Administration, 2010). For individuals with SMI there is also a subset of PSH called Housing First (HF), which is an evidence based housing intervention that endeavors to separate mental health and substance use treatment from housing (Tsemberis, 2010). HF programs rank safe and stable housing as the top priority for homeless individuals with complex behavioral health needs, shifting focus away from the focus of abstinence or treatment compliance, thus adopting a harm reduction approach (Padgett, Gulcur, & Tsemberis, 2006).

Rapid rehousing is an intervention that aims to reduce the amount of time that individuals and families experience homelessness by rapidly connecting them to permanent housing. This intervention provides time limited assistance (typically six months or less) and tries to resolve immediate challenges and barriers to housing in the mainstream market. This assistance is also tailored to that individual or family's needs, and may include a short-term rental subsidy, move-in costs, case management services to address barriers to housing, and referrals to other non-time-limited support services (United States Interagency Council on Homelessness, 2015). A core tenet of this intervention is that people experiencing homelessness are not receiving assistance beyond their level of need, but rather are receiving an appropriate level of services to recover from homelessness with regard to their intensity and duration. Rapid re-housing also aims to negotiate manageable lease agreements for program recipients and to recruit landlords to provide appropriate housing opportunities for individuals and families experiencing homelessness. Rapid

re-housing is not meant to be a full service intervention, but rather intends to provide links to mainstream and community resources that are already in place in the community (United States Interagency Council on Homelessness, 2014).

In addition to housing plus service interventions for individuals and families experiencing homelessness, interventions have been developed to prevent homelessness among those at-risk of becoming homeless. Since the appropriation of $1.5 billion for the Homelessness Prevention and Rapid Rehousing Program (American Recovery and Reinvestment Act, 2009), there has been an increased focused on programming geared toward preventing people from becoming homeless. Prevention efforts aim to be effective in stopping people from entering homelessness and efficient in terms of targeting people who would become homeless without the intervention (Burt, Pearson, & Montgomery, 2007; Shinn, Greer, Bainbridge, Kwon, & Zuiderveen, 2013). Homelessness prevention efforts generally follow selective prevention strategies which target people at risk of becoming homeless, such as people considered low-income or coming out of institutions like jails or rehabilitation programs (Shinn et al., 2001).

One example of a nationwide prevention and rapid re-housing intervention for both individuals and families is the Supportive Services for Veteran Families (SSVF) Program implemented in 2011 (Byrne, Treglia, Culhane, Kuhn, & Kane, 2016). The aim of this intervention was to help veteran households either currently experiencing or at risk of homelessness through a short-term, flexible, and tailored service provision. Results from Kaplan-Meier survival estimates of intervention participants' re-entry to homelessness within a 2-year follow-up after intervention completion indicate that among rapid re-housing participants: 15.5% of families re-entered homelessness, and 26.6% of single adults re-entered homelessness. For homelessness prevention participants: 10.9% of families re-entered homelessness and 17.9% of

single adults re-entered homelessness (Byrne et al., 2016). In their sample, participants with

minor children experienced lower rates of homelessness after program completion than did the

single unaccompanied adults (Byrne et al., 2016). However, both groups fared better with regard

to housing stability after the prevention and rapid re-housing interventions than results from other

studies suggest examining single adults (Culhane & Kuhn, 1998) and families (Wong, Culhane, &

Kuhn, 1997) homelessness rates after exiting emergency shelters. Other prevention approaches

include discharge planning or "critical time intervention" that target people about to be released

from an institutional arrangement (i.e., prison, jail, psychiatric or substance use inpatient facility,

foster care, etc.) although there is a paucity of evidence for the long term success of such

programs (Shinn et al., 2001).

Measuring Characteristics and Service Needs: Key Constructs

Assessment tools typically measure a person's or family's circumstances and level of

functioning in order to determine the configuration of housing plus services necessary to support

housing stability. Measuring an individual or family's level of functioning is typically composed

of multiple indicators; which can include their housing status (e.g., street or shelter homelessness,

precarious housing, permanent housing), economic functioning (e.g., employment, income,

sources of support, expenses, education or ability to find employment), mental and physical

health, legal and criminal justice involvement, substance use issues, credit and eviction history,

parenting skills, and childcare or education for dependents. Assessing these domains of

functioning in addition to others can give service providers a snapshot of what type of support

people will need in order to find and maintain a housing situation that will be a good fit for them.

One multidimensional construct is self-sufficiency, which is defined as the capability and

achievement of an acceptable level of functioning either by oneself or by adequately organizing

the help and support of care providers (Lauriks et al., 2014). Conventional discourse purports that self-sufficiency is the ability to fulfill one's needs without external assistance. Yet, given the array of economic and psychosocial factors associated with individual and family homelessness, the conceptualization of self-sufficiency as applied to these populations is more expansive. Therefore, self-sufficiency is the degree to which individuals and families have mobilized all resources available to them and are striving toward achieving greater stability with as few support services as necessary (Shlay, 1993). For single adults and families experiencing homelessness, housing is often the primary focus for policy and service delivery aimed toward realizing self-sufficiency. However, to address the complex needs of people experiencing homelessness, housing is merely one ingredient in the array of support services offered.

Self-sufficiency is a strengths-based approach to measuring level of functioning, but another common construct used to inform multidimensional measures is vulnerability, which is based in a deficit-orientation. Within the context of people experiencing homelessness, vulnerability typically means one's vulnerability to continued instability or their risk of mortality if they were to remain homeless (Downtown Emergency Service Center, 2003). The construct of vulnerability, as with self-sufficiency, typically aims to assess a person's limitations in meeting their own needs. Limitations in meeting one's needs consist of functioning within different domains, such as ability to meet basic needs (i.e., food, clothing, hygiene), risk of mortality (e.g., recent hospitalizations, elderly, the presence of various medical conditions, and the presence of psychiatric, substance use, and/or chronic medical conditions), ability to communicate with others, chronicity of homelessness, and mental health and cognitive functioning.

Overview of Extant Assessment Tools

Though the overall rate of homelessness has declined in the past decade (U.S. Department of Housing and Urban Development, 2016), the rising scarcity of affordable housing (Urban Institute, 2015) highlights an urgent need to develop and systematize assessments to effectively allocate homelessness prevention and intervention services. Existing tools used to assess the self-sufficiency and vulnerability of homeless individuals and families have emerged including the Vulnerability Index-Service Prioritization Decision Assistance Tool (VI-SPDAT; OrgCode, 2015), Vulnerability Assessment Tool (VAT; Downtown Emergency Service Center, 2003), the Self-Sufficiency Matrix (Abt Associates Inc., 2006), and the Multnomah Community Ability Scale (MCAS; Barker, Barron, McFarland, & Bigelow, 1994).

The VI-SPDAT is a 50-item assessment including mostly self-report, dichotomous response options within four domains: History of Housing and Homelessness, Risks, Socialization and Daily Functions, and Wellness while also including some surveyor-rated items related to visible signs of poor hygiene or daily living skills, a serious health condition, alcohol or substance abuse, or mental illness (OrgCode, 2015). The VI-SPDAT is typically administered by trained volunteers or service providers. Brown and colleagues assessed the VI-SPDAT in an administrative sample of single adults and their results indicate the instrument's test-retest and inter-rater reliability were poor. Additionally, their results suggest the VI-SPDAT was not a good predictor of re-entry to services which was used as a proxy for residential stability. Taken together, these findings highlight the questionable reliability and validity of the tool. The Department of Housing and Urban Development has asserted the evidence base for this instrument is not strong enough to warrant its recommendation (U.S. Department of Housing and Urban Development, 2015).

The VAT (Downtown Emergency Service Center, 2003) is a 10-item homeless service provider administered assessment composed of 1-5 Likert-type response options indicating level of functioning or severity of condition across ten domains: Survival Skills, Basic Needs, Indicated Mortality Risks, Medical Risks, Organization/Orientation, Mental Health, Substance Use, Communication, Social Behaviors, and Homelessness. While the evidence base for the VAT is modest, initial findings are promising; results indicate questionable internal reliability after removing outlier scores, good inter-rater reliability, and strong test-retest reliability. Results from bivariate correlations with narrative assessments of client presentations suggested strong convergent and concurrent validity (Downtown Emergency Service Center, 2003).

The MCAS (Barker et al., 1994) is a 17-item assessment designed to assess the symptomatology and functioning of adults with psychiatric disabilities on a 1-5 Likert-type scale. This assessment tool has two versions: a self-report version and a clinical rated version. The MCAS has four domains, covering Health (i.e., physical, mental, and emotional symptoms that impede daily functioning), Adaption (i.e., coping and community living skills), Social Skills (i.e., social interaction skills), and Behavior (i.e., behavior that might impact residential stability and service outcomes) (Network Ventures Inc., 2017). Although this tool has ample evidence suggesting sound psychometric properties, its intended use is for persons with serious mental illness (Barker et al., 1994; Hendryx, Dyck, McBride, & Whitbeck, 2001). Therefore it has limited applicability in a broader sample of people experiencing homelessness.

While the use of these tools has proliferated throughout the homeless service sector, their psychometric and evidence base is limited. Unfortunately, there has been little convergence and uniformity around which tool is best; leaving community and organization adoption of assessments largely up to their own discretion.

Self-Sufficiency Matrix. The Self-Sufficiency Matrix (SSM) is a measure of functioning across a number of life domains. The groundwork for the SSM was conducted by Pearce et al. (1996) in the mid-1990s as an economic self-sufficiency standard for individuals and families. The original measure calculated a self-sufficiency standard, or the amount of money that it would take for a family of a given size and composition to provide for themselves without public assistance at a particular point in time. The original measure utilized a "market basket" approach in order to calculate the consumer price (e.g., fair market housing) in a particular geographic region or city. This measure was then extended by the Snohomish County Self-Sufficiency Task Force in 2004, by developing 25 domains or dimensions in addition to the standardized outcome scale (i.e., the 1-5 response options and corresponding qualitative descriptions) and their corresponding internal indicators or qualitative descriptors. This expansion of the measure created a multidimensional matrix aimed to measure client self-sufficiency over time to monitor individual client progress and using aggregate responses, monitoring program performance (Fassaert et al., 2014).

Level of self-sufficiency is determined by the individual or family's ability to provide for oneself within each SSM domain without professional help. In this way, self-sufficiency is considered an outcome variable with the service provider aim to organize, retain, and/or reduce professional help within each domain (Fassaert et al., 2014). Each life domain is measured by a single item rated on a 5-point likert scale, from (1) "in crisis", (2) "vulnerable", (3) "stable", (4) "safe", and (5) "thriving". This thesis will explore a version of the SSM with 16 domains, namely: income, employment, housing, food, childcare, children's education, adult education, legal involvement, healthcare, life skills, mental health, substance use, family relations, mobility, community involvement, and safety.

Multiple versions of the SSM have been used in research and applied settings, with items ranging from 15 to 17 life domains, including in Arizona (with the Arizona Self-Sufficiency Matrix; ASSM;Abt Associates Inc., 2006), and the Public Health Service Amsterdam (with the Self-Sufficiency Matrix- Dutch; SSM-D; Lauriks et al., 2012). Culhane et al. (2007a), provides a collection of case examples of communities that use client and program data to measure program performance toward the goal of making programs more accountable to stakeholders. The authors describe many issues with using administrative data, but highlight its potential for systems-level planning and analysis. In their review, Culhane and colleagues (2007a) examined ten different assessment tools with a sample of 150 homeless clients for each tool; testing the assessment measures with regard to their test-retest reliability, internal reliability, construct validity, and factor structure. Their results indicated that a 17-item version of the SSM was superior to all other measures examined among all of the tests that were employed. Culhane and colleagues (2007a) then piloted the SSM for six months in a number of different homeless service provider organizations. Their results suggest that the SSM is more efficacious if administered by service providers rather than as a self-report instrument. Factor analytic procedures revealed a 2-factor solution, composed of client function or dysfunction and independent life skills. Their findings also demonstrated good reliability among both factors, as well as an overall self-sufficiency score, comprising the sum total of both factor scores. The authors advocate for the SSM as an example of a widely used program accountability tool; however noting that the use of various versions of the instrument create limitations around reliability, validity, and research utility (Culhane et al., 2007a).

An investigation of the psychometric properties of the SSM-D was conducted by Fassaert and colleagues (2014). The SSM-D is a Dutch modified version of the SSM that omitted eight

domains of the original SSM to better represent societal factors in The Netherlands. For example, the "health care coverage" domain was omitted as there is a universal basic coverage supplied by the government in the Netherlands, and the "food" domain was omitted because they do not have the same notion of food stamps as is the case in the U.S. The SSM was then translated and revised based on input from various stakeholders to create the SSM-D. This psychometric exploration of the SSM-D included a sample of 81 Assertive Community Treatment (ACT) clients (i.e., individuals with serious mental illness participating in a wraparound service program) and 107 chronic psychiatric patients in mental health care treatment. Their results suggest that the SSM-D has excellent internal consistency and convergent validity with two other well validated mental health outcome measures (the Camberwell Assessment of Need Short Appraisal Schedule [CANSAS] and Health of the Nation Outcome Scale [HoNOS]). Additionally, using principal component analysis, their findings indicate a 1-factor solution, suggesting all items comprise a single underlying construct of self-sufficiency. Most importantly, in their sample, they found that participants with greater scores (more self-sufficiency) on the SSM-D were less likely to display a need for care; indicating that it may be an effective tool for service provision allocation.

Additional research on the SSM-D by Lauriks and colleagues (2014) provides further support for the use of this instrument to inform service provision decisions. This analysis included 612 participants composed of people experiencing homelessness in the Netherlands seeking services through their Public Mental Health Care (PMHC) program. This study employed logistic regression and receiver operating characteristic-curve analyses to establish decision categories and compare these against professional decisions with regard to PMHC service provision or a referral to mainstream health care services. Their results reveal that the decision categories found within the SSM-D accurately and reliably predicted professional decisions. Further, all domains

included in the SSM-D were found to be necessary and nonredundant for the construct of self-sufficiency. Finally, this tool exhibited satisfactory inter-rater reliability and internal consistency in their sample. These findings provide further evidence for the use of the SSM-D as a decision support tool for public mental health care and housing services.

Limited extant research has sought to examine the construct of self-sufficiency as measured by the SSM. Although there have been some pursuits to identify the factor structure of the SSM, there has been a lack of consistency across studies. For example, Fassaert and colleagues (2014) found a 1-factor solution in a sample of adults with serious mental illness using an adapted version of the SSM; where results from a study with a combined sample of adults and families utilizing a U.S. version of the SSM suggest a 2-factor solution (Culhane et al., 2007a). Further, existing research on the SSM has included the child-related items with single unaccompanied adult samples which does not account for the diversity of characteristics between individuals and families with minor children. Finally, no research to date has examined the SSM among a broad population of both those at risk of homelessness and currently experiencing homelessness.

Application. The SSM has many different applications as an assessment within the homeless service sector. First, the SSM can be used as a case management tool in a number of ways; it can facilitate case management efficacy by operationalizing and documenting client progress throughout treatment and service delivery; by identifying specific strengths to mobilize client resources, and identifying deficits to focus service delivery aims. The SSM can act as a clinical decision support system to assist the triage and allocation of service provision based on client self-sufficiency. Second, the SSM can be used as a measurement tool on both the organizational and systems level. Organizations can use client SSM outcomes to examine and

assess their service array, what is and is not working, and to identify any client needs that are not supported through their programming. Additionally, organizations or community level coordination efforts, such as Continuums of Care (CoCs), may use aggregate client SSM outcomes to identify primary interests or specific intervention points to build capacities within service delivery. Moreover, communities or organizations may use these data to articulate needs to funders in order to serve their clients better. Finally, the SSM can be used as a communication tool to demonstrate needs and strengths to the general public and policymakers. These data might illuminate what barriers exist for individuals and families experiencing homelessness, what successes system-level efforts have attained, and what additional resources are needed.

Rationale

Based on the diversity of characteristics and needs of people experiencing homelessness, multidimensional measures of self-sufficiency are needed to inform service provision. Though other researchers have examined the factor structure of the SSM, there were a number of limitations. Previous psychometric studies of the SSM have shown inconsistent results across samples. Items on the SSM-D were found to comprise a single underlying construct of self-sufficiency when utilized with individuals diagnosed with serious mental illness (Fassaert et al., 2014), while two domains emerged when tested in a broader sample of individuals and families experiencing homelessness (Culhane et al., 2007a). Further, Fassaert and colleagues (2014) examined only single adults with a modified Dutch version of the SSM, highlighting the need for an examination of a U.S. specific SSM in a broader sample of both individuals and families. While Culhane and colleagues (2007a) included a sample of individuals and families, they analyzed these groups together, with the inclusion of child-related items in the unaccompanied adult sample. The diversity between unaccompanied adults and families with minor children with

regard to presentation of characteristics as well as precipitating factors for their homelessness

provides the impetus to examine these groups separately. Finally, no other research to date has

tested the SSM within such a varied sample of both those currently experiencing homelessness

and those at-risk of becoming homeless.

Given the diversity of concepts measured within the items of the SSM it is crucial to

examine the dimensionality of the assessment. The importance of unidimensionality, or the idea

that all items in a measure are assessing one common construct is championed by Hattie (1985).

Looking more closely at the domains within the SSM, one might consider which items

conceptually go together; such as income, employment, education, and housing for their

commonality regarding economic status; health care, life skills, mental health, and substance use

for their congruity regarding overall health and wellness; and, childcare, children's education, and

safety for their affiliation with parental functioning. With the literature in mind, it appears that

complex behavioral health needs are operating differently than economic hardship and

unaffordable housing as precipitating factors as well as reinforcers for continued residential

instability (Culhane et al., 2007b; Kuhn & Culhane, 1998; Shinn et al., 1998; Shinn et al., 2005).

For example, those with behavioral health needs tend to require more services to maintain

housing, whereas those for whom poverty and affordable housing scarcity are the biggest

catalysts for their homelessness may be sufficiently served by just a housing subsidy (Culhane et

al, 2007b; Shinn et al., 2001). Further, families simply have more varied needs with regard to the

well-being of their minor children and their ability to parent which do not apply to

unaccompanied adults (Shinn et al., 1998). As such, one might hypothesize three overarching

factors, comprising economic status, health, and parental functioning. Considering the unique

characteristics differentiating single adults and families experiencing homelessness, this research

will uniquely contribute to the literature in testing these groups separately.

Hypotheses and Research Questions

Research Question I: How many factors emerge on a 14-item version of the Self-Sufficiency

Matrix among a sample of single adults experiencing or at-risk of homelessness?

Research Question II: How many factors emerge on a 16-item version of the Self-Sufficiency

Matrix among a sample of families experiencing or at-risk of homelessness?

Hypothesis I: The factor structure of the 14-item version of the Self-Sufficiency Matrix will be

supported in a second sample of single adults experiencing or at-risk of homelessness.

Hypothesis II: The factor structure of the 16-item version of the Self-Sufficiency Matrix will be

supported in a second sample of families experiencing or at-risk of homelessness.

Method

This cross-sectional study will utilize Homeless Management Information System (HMIS)

administrative data from the Homelessness Prevention and Rapid Rehousing Program (HPRP)

implemented in Indianapolis, IN. HPRP was a federally-funded program operating from 2009-

2012 offering time-limited financial and support services to individuals and families currently

experiencing homelessness and those at-risk of homelessness to secure permanent housing.

Sample

The sample included all single adults and families with children who participated in HPRP

in Indianapolis. Eligibility for HPRP services was determined by a consultation meeting with a

service provider and requirements included income at or below the Area Median Income (AMI), a

housing status of either homeless or at risk of losing housing, and the presence of the following

situational characteristics: no appropriate housing options identified, household lack of financial

resources to maintain existing housing or obtain immediate housing, and household lack of support networks to facilitate housing maintenance or attainment (U.S. Department of Housing and Urban Development, 2011). The Indianapolis area served 2,477 adults and children in HPRP; of these, 515 were single adults and 512 were families.

There were 88 single adults and 84 heads of family households who did not complete the SSM and were therefore excluded from the sample. An independent samples t-test revealed no significant differences regarding participant age at program entry between those with missing data and those with complete data for either single adults or heads of household. Chi-squared tests of independence determined significant differences between those included and excluded from the sample with regard to services received among both single adults and families, as well as race for heads of household. Specifically, both single adults and families receiving rapid-rehousing services, and therefore currently experiencing homelessness, were more likely to be excluded due to missing data whereas those receiving housing prevention services (at-risk of experiencing homelessness) were more likely to have complete data. Further, heads of families excluded from the sample were more likely to identify as African-American/Black or report not knowing their race than those included in the sample; no significant differences among race were identified among single adults. The remainder of demographic variables did not exhibit any significant differences among those included and excluded from the study sample.

Excluding missing data, the final sample of single adults ($N = 427$) included in the current study will consist of 190 (44.5%) females, 234 (54.8%) males, and 3 (.7%) unidentified gendered participants. The average age for single adults was 44 years old ($SD = 11.5$). Among the single adult sample, 419 (98.1%) identified as Non-Hispanic/Latinx, while 7 (1.6%) identified as Hispanic/Latinx; with regard to race, 282 (66.0%) identified as Black or African American, 124

(29.0%) as White, 13 (3.0%) as Multiracial, 3 (.7%) as American Indian or Alaskan Native, 2

(.5%) as Asian, and 3 (.7%) reported not knowing. The single adult sample consisted of 191

(44.7%) in the homelessness prevention intervention (i.e., at risk of homelessness), whereas 236

(55.3%) in the rapid re-housing prevention intervention (i.e., currently experiencing

homelessness).

The sample of families with minor children ($N = 428$) is based on the adult family member

who was the primary HPRP service recipient, referred to here as the "head of household." The

family sample was composed of 352 (82.2%) female and 76 (17.8%) male participants. The mean

age for head of the household was 34 years old ($SD = 8.5$). Among the family sample, 417

(97.4%) identified as Non-Hispanic/Latinx, while 11 (2.6%) identified as Hispanic/Latinx; with

regard to race, 306 (71.5%) identified as Black or African American, 109 (25.5%) as White, 10

(2.3%) as Multiracial, and 3 (.7%) as Asian. The families with minor children sample consisted of

315 (73.6%) in the homelessness prevention intervention (i.e., at risk of homelessness) whereas

113 (26.4%) in the rapid re-housing prevention intervention (i.e., currently experiencing

homelessness).

Materials

All data will be derived from HMIS, a federally mandated database for tracking

demographic and homeless service utilization information for individuals and families

experiencing homelessness within a specific geographic area. Demographic variables included:

age at enrollment, gender, ethnicity, race, household income at program entry, highest level of

educational attainment, and disability status. The disability status data element was the presence

of a disabling condition, which was very broadly defined (i.e., could include a mental health

issue, substance use disorder, physical disability, or other chronic health condition) due to

federally mandated reporting requirements (Housing and Urban Development, 2011).

The Self-Sufficiency Matrix (Appendix A) is a 16-item Likert-type assessment instrument

administered to individuals and families at risk of or currently experiencing homelessness by case

managers or other homeless service providers. The SSM has 16 items including housing,

employment, income, food, education, health care, life skills, family relations, mobility,

community involvement, legal involvement, mental health, substance use, safety, and for families,

there are additional items regarding childcare, and children's education. The items related to

childcare and children's education are not applicable and therefore omitted from the single,

unaccompanied adult sample, equating to a 14-item questionnaire for single adults. The SSM is

administered in interview format, and each domain is rated on a 1 to 5 scale, where 1 is *in crisis*, 2

is *vulnerable*, 3 is *stable*, 4 is *safe*, and 5 is *thriving* (Fassaert et al., 2014). There are other options

for *don't know* or *not applicable* for all item responses as well which are scored as a 5.

Additionally, there are mutually exclusive qualitative descriptions for each score within a domain

for greater standardization of scoring (i.e., Housing: 1 = *Homeless or threatened with eviction*, 5 =

Household is safe, adequate, unsubsidized housing; Food: 1 = *No food or means to prepare it.*

Relies to a significant degree on other sources of free or low-cost food, 5 = *Can choose to*

purchase any food household desires). Items are added to calculate a sum total score ranging from

14-70 for unaccompanied adults and 16-90 for families with minor children. This total score can

be used to approximate a person's level of self-sufficiency, whereby the greater the score, the

more self-sufficient that person is. Therefore, a lower score on the SSM indicates more support

services needed and suggests greater service allocation. Using only the items pertinent to each

group (14-items for unaccompanied adults and 16-items for families) the internal consistency in

the single adult sample was poor (α = .60) and unacceptable for families (α = .42). These results

provide greater rationale for examining the dimensionality of the SSM, as the internal consistency

would suggest it is not unidimensional.

Procedure

Information was collected via case management staff who met with participants in person

to collect demographic and assessment information, verify program eligibility, and document

HMIS mandated data elements (Officer & Sauer, 2011). The SSM was administered by a service

provider upon admission to the HPRP program and participants. As outlined in their evaluation

report of the HPRP program (Officer & Sauer, (2011), administrative collaborators and funders

worked to create training standardized materials and terminated partnerships with non-compliant

agencies to ensure program fidelity. Obligatory monthly meetings and trainings were instituted to

enforce standards regarding eligibility, information collection, and data entry into the HMIS

system. Additionally, funders implemented monitoring strategies for documentation compliance

(e.g., file checklists) and conducted site visits where they audited filed for compliance. Among

these procedures, auditors would check to see if program participants had complete data and

would exclude them if they had any missing data.