ABSTRACT

MATSON, AMANDA ELIZABETH. Gendered Mobility: Personal Control in Mobility, Difficulty of Meeting Needs, and Quality of Life in a Sample of Homeless Women. (Under the direction of Roger E. Mitchell).

For low-income women, limited control over their transportation options (i.e., mobility) can act as a barrier to obtaining needed services and negatively impact their psychological well-being. Mobility plays an important role in shaping people’s daily lives, but becomes a major determining factor in the quality of life of marginalized populations. In particular, standard measures of mobility (i.e., degree of access to a car; number of trips by car) do not adequately capture the circumstances of homeless women who rely on a mix of transportation options (walk, bus, assistance from social networks, etc.). Although anecdotal work suggests wide variation in how women confront these transportation challenges, measurement options have been limited. Furthermore, research on the transportation needs of low-income women more generally is also lacking. The current study sought to integrate the perspectives of community psychology, feminism, and mobility studies in order to address the issue of mobility among low-income women from a community- and strengths-based approach.

In this study, Personal Control in Mobility is defined as women’s perceived ability to take action to satisfy their transportation needs, drawing upon a variety of sources of mobility (i.e. bus, walking, ride-sharing) and recognizing the women’s resourcefulness and resilience. The current study examines the relationship between Personal Control in Mobility, difficulty of meeting needs, and psychological well-being among a sample of women (N = 89), most of whom were homeless or at-risk of homelessness. The current study predicted that participants who responded with a high sense of Personal Control in Mobility would tend to
respond with lower difficulty of meeting needs and higher psychological well-being, with difficulty of meeting needs mediating the relationship between the Personal Control in Mobility and psychological well-being. The study produced a PCMS measure with high internal consistency (alpha) of .88 and a one-factor solution once complex and low-loading items were dropped. Regression analyses indicated that the PCMS was a significant predictor of difficulty of meeting needs, with age, income, and PCMS scores explaining 26% of the variability in difficulty of meeting needs, and that the PCMS was a significant predictor of psychological well-being, with age, income, and PCMS scores explaining 15% of the variability in well-being. A mediation analysis found that difficulty of meeting needs significantly mediated the relationship between the PCMS and well-being, with PCMS and difficulty of meeting needs accounting for 25% of the variability in well-being.

Results suggest the value of a mobility measure that accounts for the complexity of individual’s daily lived mobility experiences. Results also suggest the value of this measure in predicting important outcomes, including one’s ability to meet basic needs and one’s sense of psychological well-being. Additionally, the PCMS was found to be more predictive of both difficulty of meeting needs and well-being than measures of car access and number of trips by car, variables that are often used in traditional transit literature. Furthermore, the data were collected for the current study in the midst of a major economic downturn, possibly making conditions for participants much more difficult than indicated by similar research in the mid-2000s. The study is therefore shaped by the current economic conditions, better equipping it to inform policies and interventions within the midst of these conditions. Implications for future research, policy, and intervention are discussed.
Gendered Mobility: Personal Control in Mobility, Difficulty of Meeting Needs, and Quality of Life in a Sample of Homeless Women

by
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DEDICATION

To my family and friends for their continued support and to the women and staff of the Center for making this research possible.
BIOGRAPHY

Amanda Matson grew up in Canton, Ohio. She graduated magna cum laude with her undergraduate degree in Psychology from the University of Mount Union in Alliance, Ohio. Experiences during her time there inspired her to pursue a graduate education in community research and action, particularly to advocate for low-income women. Amanda is currently working toward her doctoral degree through North Carolina State’s Psychology in the Public Interest program. She has interned and conducted research with the Women’s Center of Wake County throughout her time there.
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# TABLE OF CONTENTS

LIST OF TABLES ................................................................................................................ x
LIST OF FIGURES .............................................................................................................. xi
INTRODUCTION ................................................................................................................. 1

Context and Problem Explication ....................................................................................... 3
  Prevalence of homelessness ............................................................................................ 3
  Persistent gender inequality ............................................................................................ 4
  Transportation and inequality ......................................................................................... 5
  Transportation policies ................................................................................................... 9
Theoretical Model ............................................................................................................ 10
  Feminist perspective ..................................................................................................... 10
  Ecological community perspective ............................................................................. 11
  Community psychology and feminist perspectives ....................................................... 12
  Mobility studies perspective ......................................................................................... 16
Homelessness and Mobility .............................................................................................. 18
Mobility and Control ........................................................................................................ 24
  Importance of control ................................................................................................... 24
  Mobility as control ....................................................................................................... 26
  Interdependent mobility as a means of coping .............................................................. 29
  Conservation of resources theory and control .............................................................. 31
Gender and Mobility ........................................................................................................ 33
  Safety ........................................................................................................................... 33
  Childcare and domestic responsibilities ...................................................................... 34
  Complexity .................................................................................................................. 35
  Employment ................................................................................................................ 37
  Public transportation .................................................................................................... 39
The Current Study .......................................................................................................... 40
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty of meeting needs</td>
<td>41</td>
</tr>
<tr>
<td>Psychological well-being</td>
<td>44</td>
</tr>
<tr>
<td>Measuring mobility</td>
<td>46</td>
</tr>
<tr>
<td>Defining mobility</td>
<td>46</td>
</tr>
<tr>
<td>Operationalizing mobility</td>
<td>48</td>
</tr>
<tr>
<td>Existing Measures of Mobility</td>
<td>49</td>
</tr>
<tr>
<td>Traditional transit</td>
<td>49</td>
</tr>
<tr>
<td>Women and transport</td>
<td>50</td>
</tr>
<tr>
<td>Aging</td>
<td>52</td>
</tr>
<tr>
<td>Mobility studies</td>
<td>54</td>
</tr>
<tr>
<td>Homelessness</td>
<td>55</td>
</tr>
<tr>
<td>Shortcomings of Existing Measures</td>
<td>56</td>
</tr>
<tr>
<td>Lived experience</td>
<td>56</td>
</tr>
<tr>
<td>Modal bias</td>
<td>58</td>
</tr>
<tr>
<td>Complexity</td>
<td>59</td>
</tr>
<tr>
<td>Perceived mobility</td>
<td>60</td>
</tr>
<tr>
<td>Agency</td>
<td>61</td>
</tr>
<tr>
<td>Social networks</td>
<td>62</td>
</tr>
<tr>
<td>Development of the Personal Control in Mobility Scale</td>
<td>62</td>
</tr>
<tr>
<td>Research Questions and Hypotheses</td>
<td>64</td>
</tr>
<tr>
<td>METHOD</td>
<td>64</td>
</tr>
<tr>
<td>Design</td>
<td>64</td>
</tr>
<tr>
<td>Participants</td>
<td>65</td>
</tr>
<tr>
<td>Recruitment</td>
<td>65</td>
</tr>
<tr>
<td>Eligibility</td>
<td>65</td>
</tr>
<tr>
<td>Sampling</td>
<td>65</td>
</tr>
<tr>
<td>Site</td>
<td>66</td>
</tr>
</tbody>
</table>
APPENDIX.................................................................................................................................................. 121
LIST OF TABLES

Table 1  Descriptive measures of sample ................................................................. 109
Table 2  Descriptives for Regression Variables......................................................... 112
Table 3  Correlations for variables used in regression analyses ............................... 113
Table 4  Factor loadings, Personal Control in Mobility Scale, two-factor, Varimax-
  Rotated solution .................................................................................................. 114
Table 5  Results of a multiple regression analysis predicting NDQ scores .................. 116
Table 6  Results of a multiple regression analysis predicting VOL scores ................. 117
Table 7  Results of a hierarchical multiple regression analyses predicting VOL scores ... 118
Table 8  Results of a hierarchical multiple regression analysis predicting VOL scores
  with I-NDQ as a mediator ..................................................................................... 119
LIST OF FIGURES

Figure 1    Mobility, needs difficulty, and perceived quality of life ........................... 120
Gendered Mobility: Personal Control in Mobility, Difficulty of Meeting Needs, and Psychological Well-Being in a Sample of Homeless Women

For low-income women, limited control over their own mobility can act as a barrier to obtaining the services they need and therefore negatively impact their perceived quality of life. Mobility plays an important role in shaping all people’s daily lives but becomes a major determining factor in the quality of life of marginalized populations. One’s control over her own mobility is important because mobility is a key factor in determining an individual’s access to services and ability to meet daily needs. The extent to which one’s needs are met can then in turn impact her perceived quality of life, an important component of psychological well-being. The study of control over mobility is particularly pertinent to marginalized populations because those populations already lacking resources are more vulnerable to the impact of a loss of resources in other areas (Hobfoll & Schumm, 2002). Homeless women and women at-risk of homelessness are among those most vulnerable to a loss of resources in any area and are especially underserved by transportation polices and options, limiting their control over their own mobility.

Women who are homeless or at-risk of homelessness have generally been ignored by transportation planners, policy makers and researchers alike. Such research and policies will be discussed at length below. The experiences of male and housed populations have dominated the literature, being portrayed as the “universal” experience, and women’s unique transportation needs and coping strengths have not been examined. Approaching the issue of
mobility from a fusion of feminist and community psychology perspectives demands attention to the ways in which differences in the daily lived experiences of mobility fall along lines of age, ability, income, race, and gender, among other things, resulting in unique travel needs and behaviors among women who are homeless or at risk of becoming homeless. Women’s transportation needs and behaviors are different from those of men, and the transportation needs and behaviors of the homeless are different from those of the homed. Not only does little research exist that recognizes the unique mobility needs and experiences of women who are homeless or at-risk of homelessness, what does exist does little to recognize the sense of agency that these marginalized women demonstrate by taking steps to have some control over their mobility even in the face of constraints and a lack of transportation options. Research on the mobility of women who are homeless or at risk of homelessness must recognize the uniqueness of their needs and behaviors as well as value the ability of these women to construct their own mobility.

The current study seeks to approach the unique mobility experiences of women who are homeless or at-risk of homelessness by examining the extent to which Personal Control in Mobility predicts access to resources and quality of life. Personal Control in Mobility is one’s sense of agency in satisfying one’s transportation needs. The Perceived Control in Mobility Scale (PCMS) goes beyond traditional measures of mobility (i.e, trips made, distance of trips, owning a car, etc. to be discussed at length below) by assessing women’s overall access to transportation options. Perceived Control in Mobility incorporates both the impact of environmental constraints on individual behavior as well as personal adaptations to
those constraints. This approach avoids portraying the individual as a passive recipient of transportation services or as someone to be blamed for his/her own predicament (i.e., victim-blaming). In order for mobility to be meaningful, research must examine mobility in the context of its relationship to outcomes that are important to the daily lived experiences of the population of interest. The current study seeks to examine mobility in relation to both difficulty of meeting needs and perceived quality of life. One’s mobility can act as either a barrier or a facilitator to an individual accessing services and meeting daily needs. For the current study, women with higher levels of Personal Control in Mobility are predicted to report less difficulty in meeting needs. The extent to which one’s needs are met can impact her perceived quality of life, an important component of psychological well-being. In the current study, women with higher levels of Personal Control in Mobility are predicted to report higher levels of perceived quality of life. In order to begin to understand the unique needs and experiences of women who are homeless or at-risk of homelessness, first an awareness of the context and problems of homelessness and gender inequality and how they relate to mobility is necessary.

Context and Problem Explication

As noted above, individuals who are already lacking resources, including our nation’s growing population of women who are homeless or at risk of becoming homeless, are more vulnerable to a dearth of resources in other areas, such as transportation. Homelessness is a problem at the national, state, and local levels, and the prevalence of homelessness illustrates
the importance of addressing mobility issues for this population in particular, though research and policy on the mobility needs of this population thus far has been lacking.

*Prevalence of homelessness.* At the national level, approximately 744,000 Americans are homeless in the United States on any given night (The National Alliance to End Homelessness, n.d.). Over the course of one year, between 2.5 to 3.5 million Americans will experience homelessness (The National Alliance to End Homelessness, n.d.). About half of the individuals that experience homelessness over the course of the year live in family units, and 38% of people who are homeless in the course of a year are children (The National Alliance to End Homelessness, n.d.). In North Carolina, homeless shelters and transitional programs serve 46,000 people annually. From an annual point-in-time survey, 12,746 North Carolinians were identified as homeless, including 3,621 people in families, 2,245 of whom were children (North Carolina Interagency Council for Coordination Homeless Programs, 2009). Over the course of a year, approximately 3,300 people are homeless in Wake County, North Carolina, with 29% being children. In Raleigh and Wake County, the typical homeless family is a mother and two young children (Ending Homelessness: The 10-Year Action Plan, 2005). In addition to those who are currently homeless, individuals and families who are cost burdened (paying 35% or more of their income for rent or mortgage payments) are at risk of becoming homeless. In Wake County, 31% of lower income households are cost burdened (Wake County Human Services, 2006). The increasing prevalence of families, generally single women with children, among the homeless illustrates the importance of research on meeting the needs of homeless women specifically. Homeless women must face
the barriers of experiencing homelessness in addition to the persistent gender inequality that they already face in the United States today.

*Persistent gender inequality.* The persistent gender inequality that exists at the societal level illustrates the unique barriers that homeless women must face in comparison to their male counterparts. As the information below will illustrate, women tend to have less access to resources in general, making them more vulnerable to limited mobility. Women are more likely to be among the low-income, unemployed, and under-employed, making them more likely to be among those spending the highest proportion of their income on transportation needs. Although women’s full-time income increased at a higher percentage (5%) in comparison to that of men (3.8%) from 2006 to 2007, full-time working women’s income was still only 78% of that of men in 2007 (DeNavas-Walt, Proctor, & Smith, 2008). These figures do not include the unemployed or underemployed population, which also tends to include more women than men. Additionally, the average household income for a female-headed household in 2007 was $33,370 in comparison to $72,785 for married households and $49,839 for male-headed households (DeNavas-Walt et al., 2008). Similarly, 28.3% of female-headed households were below the federal poverty line in 2007 in comparison to 4.9% of married households and 13.6% of male-headed households (DeNavas-Walt et al., 2008). Low-income single mothers face significantly more barriers in achieving economic self-sufficiency and comprise a large proportion of those receiving long-term welfare support or those who have left welfare and are without stable employment, those who Blank and Kovak (2008) term, “the disconnected.” Women are disproportionately among the nation’s
poor, and therefore disproportionately experience transportation-related costs as a burden as outlined below.

*Transportation and inequality.* Rapidly increasing transportation-related costs are a major burden to many Americans, but disproportionately so for America’s poor. Many of the poorest Americans either cannot afford to own a car or spend a disproportionate amount of their income on owning and maintaining a car in comparison to those with higher incomes. One third of Americans do not have access to a car, which includes 90% of former welfare recipients nation-wide who must depend upon transit, paratransit, or expensive private transportation services (The Surface Transportation Policy Project, 2003). The poorest fifth of Americans spend 42% of their annual household budget on the purchase, operation, and maintenance of automobiles, more than twice the national average (The Surface Transportation Policy Project, 2003). The working poor, those with incomes less than twice the federal poverty threshold comprising 20.9% of all households in the United States, spend a higher proportion of their income on commuting (6.1%) than those of higher income levels (3.8%) (Sanchez & Sweitzer, 2008). Societal dependence upon the personal automobile exacerbates this problem, as working poor who drive a car spend the highest percentage of their income on commuting (8.4%) (Sanchez & Sweitzer, 2008). On average, transportation is the second highest household expense (North Carolina Citizens for Transportation Alternatives, 2006). In a study of the workers in the twelve largest metropolitan areas in the United States, Roberto found that transportation generally cost as much as food and healthcare combined (2008). An inability to afford transportation costs can contribute to an
inability to meet other needs and therefore be a contributing cause of homelessness.

According to the Raleigh 10-Year Plan to End and Prevent Homelessness (2005), one of the general factors contributing to homelessness is “lack of accessible and affordable transportation,” because people require transportation to get to work as well as to access a broad range of services (housing, health and mental health care, substance abuse treatment, and social services). The Raleigh 10-Year Plan to End and Prevent Homelessness (2005) cites transportation as one of the services missing in Raleigh and Wake County in order to support people who are homeless to regain stability and independence.

Although the transportation burden outlined above presents a seemingly insurmountable financial burden alone, transportation costs cannot be understood in isolation. Transportation, housing, and employment policies interact to form a barrier to low-income individuals balancing the costs of employment, housing, and transportation. The two biggest household expenses, housing and transportation, are inextricably linked. As will be outlined below, the combined costs of commuting and housing make up a larger portion of household budgets of the working poor (25%) than other higher-income households (15.3%) (Sanchez & Sweitzer, 2008). When caught between the expenses of housing and transportation, households might attempt a “trade-off” between housing and transportation costs, spending more on housing near jobs which reduces commuting costs or spending less on housing far from jobs which increases commuting costs (Sanchez & Sweitzer, 2008). However, according to national-level data, for every dollar a working family saves on housing, it will spend $.77 more on transportation costs, and once a commute reaches 12-15 miles, the
increase in transportation costs outweighs the savings on housing (Roberto, 2008). An inability to balance commuting and housing costs can in turn contribute to limited employment opportunities.

The availability of affordable housing and transportation options often determines the feasibility of employment within a certain geographical area. According to the Federal Transit Administration (1998), two-thirds of all new jobs are in the suburbs while three-quarters of welfare recipients live in central cities and rural areas. Furthermore, if people living in areas outside of walking distance to available employment do not have access to a vehicle, public transportation options are not likely to meet their commuting needs. Nationally, three in every five jobs suitable for welfare-to-work participants are not accessible by public transit (The Surface Transportation Policy Project, 2003).

The interrelationship between transportation, housing, and employment can be seen at the state level as well. In North Carolina, existing subsidized housing is generally located far from employment opportunities, requiring long commutes for those who need to live in subsidized housing but still find employment (North Carolina Citizens for Transportation Alternatives, 2006). Problems with transportation can often contribute to one’s inability to find or maintain employment. According to a 2002 study of unemployed respondents who had left and were still off of welfare, 14% cited transportation problems as the most important reason for not working, and 30% of unemployed recipients leaving work first thought that transportation would be a barrier to getting a new job (Richardson, Schoenfeld, & LaFever, 2002). Among employed respondents, 20% reported that they often or
sometimes were late for work or missed work as a result of transportation problems (Richardson et al., 2002). About half of respondents who were still off welfare owned a vehicle, but almost 40% of the vehicles were more than 10 years old (Richardson et al., 2002). Therefore even among those individuals surveyed who did own cars, transportation was likely to be a problem due to the cost and instability related to relying on an older automobile.

Locally, people of Wake County also struggle to find a balance between affordable housing, employment, and transportation. Wake County households would need to earn $16.35 per hour to afford the fair market rent of $850 for a two-bedroom apartment (Wake County Human Services, 2006). The disparity between cost of housing and the minimum wage income of many service workers leaves many people living in substandard conditions or homeless, living outside of Wake County and commuting in for work, and needing more basic services from the county because they can’t afford housing and other necessities (Wake County Human Services, 2006). An inability to find a balance between housing, employment, and transportation is a major contributing cause of homelessness in the Raleigh area. The Raleigh 10-Year Plan to End and Prevent Homelessness (2005) lists working “to expand public and other transportation to individuals returning to work, including providing subsidies, increasing availability of public transportation on nights and weekends, and providing reverse commute rides (from urban areas to the suburbs)” as one of their proposed action steps to fund services that support employment. Although planning and policies that
recognize and attempt to minimize the impact of transportation costs are needed,
transportation policies that do so are lacking.

*Transportation policies.* Policies that disproportionately fund the construction ofoads over the development of modes of public transportation are a means of subsidizing the
wealthy at the expense of the poor (Garau, Sclar, & Carolini, 2005). Furthermore, current
transportation policies in the United States illustrate a societal bias toward the personal
automobile over more cost-effective modes, such as public transportation. Federal
transportation funding is done through large spending bills, most recently reauthorized in
2009 as the Reauthorization of the Safe, Accountable, Flexible, Efficient Transportation
Equity Act: A Legacy for Users (SAFETEA-LU). Of the $286 billion dollars authorized for
SAFETEA-LU, $241 billion is spent on highways, and $52.6 billion is spent on transit
programs, an 80/20 split (U.S. Department of Transportation). This disproportionate
spending trickles down to the state level as well. Of the money allocated to the state highway
budgets by SAFETEA-LU, states spend only 25% on maintenance, whereas 48% goes to
highway expansion and new construction (U.S. Department of Transportation). Changes in
such policies in order to alleviate the burden of transportation costs on the nation’s most
vulnerable will require further research on the transportation needs of such vulnerable
populations, including the homeless. Although traditional psychological literature has
emphasized the importance of research on the needs of homeless individuals that can be used
to inform and shape policies related to homelessness, this literature has failed to recognize
many structural and environmental barriers such as transportation (Kiesler, 1991; Foscarinis,
The current study draws upon the following theoretical perspectives in order to further illuminate the way that transportation can act as a barrier to women who are homeless or at-risk of homelessness in meeting their basic needs.

Theoretical Model

The current research study approaches the topic from a fusion of the feminist, community psychology, and mobility studies perspectives. The values of these three perspectives offer unique contributions in many ways, but also overlap a great deal, coming together in a theoretical model that guides the approach to the current study from theory to methodology.

**Feminist perspective.** A feminist perspective guides the goals, theory, and methods of the current research. Although there is no one feminism, the current research attempts to follow the definition provided by Cosgrove and McHugh (2000) of feminist research as research that “examines the gendered context of women’s lives, exposes gender inequalities, empowers women, advocates for social change, and/or improves the status or material reality of women’s lives” (p. 817). The current study is an attempt to challenge traditional andocentric research within transportation and mobility studies that has marginalized the experiences of women. Rather than essentializing masculinity and femininity (Cosgrove & McHugh, 2000) by examining group differences between men and women, the current study seeks to further illuminate the experiences of women and develop measures that fully address the complexities of their lived experience. Women’s experience of mobility as measured in
this study will not be seen as neutral or universal, but will place the intersection of race, gender, and class at the center of the analysis, approaching the research process as an attempt to add patches to an ever-evolving quilt rather than to fill particular gaps in the research relating to specific groups (Bond, 1997). Although the idea of “differences” between groups is often presented as static, dualistic comparisons of differences located within the individual, “differences” will be understood within the socially constructed ecological context, seeing differences as “varied options for adapting to varied conditions” (Bond, 1997, p. 741). The ecological community psychology perspective can further illuminate the interaction between individual and context.

**Ecological community perspective.** An ecological community psychology perspective shapes the theoretical approach to the current research topic. Recent literature addresses the way that housing, employment, and transportation interact at a systems level, advocating for an awareness of the importance of “supportive environments” for community well-being, particularly for the community’s most vulnerable populations, including individuals who are homeless (Janzen, Nelson, Hausfather, & Ochocka, 2007). An ecological approach to the study of homelessness is necessary to understand the context in which homeless individuals live and the interaction between the individual and her environment (Toro, Trickett, Wall, & Salem, 1991). This perspective has shaped the development of the current study.

An individual’s perception of her environmental constraints is a key component of the current study. Lewin’s (1951) Psychological Ecology can be a helpful way to conceptualize
the way that individual- and structural-level forces interact in the way that transportation access impacts the everyday lives of low-income women as well as how changes in the transportation system and/or individual transportation habits might alleviate some of this impact. Lewin (1951) defines psychological ecology as “the relation between psychological and nonpsychological factors” with the goal of “analyzing a field for the purpose of changing cultural habits” and clarifying “exactly where and how psychological and nonpsychological problems overlap” (p. 170). The extent to which an individual can access needed resources in the community is a result of a dynamic interaction between forces in the individual and her life space. This interaction is not a “frozen linkage” between processes. Therefore, the presence of needed resources in the geographical community is not enough to ensure that they can be accessed or will be used. When applied to transportation, the notion of “access” must not only address environmental constraints such as the characteristics of the transportation systems available, but must also address individual constraints such as an individual’s perception of the transportation system and her perceived control over her use of it. Although the two perspectives above, feminist and community ecological psychology, both offer unique contributions to the current study, they also hold many values in common. For this reason, the current study approaches the topic of women’s mobility from a fusion of the two perspectives of feminism and community psychology.

Community psychology and feminist perspectives. Both synergies and tensions exist between the visions and values of community psychology and feminism, but community psychology has yet to fully embrace feminist principles (Bond et al., 2000). A growing body
of research attempts to combine the perspectives of feminism and community psychology in order to address the needs of marginalized groups of women (Bond, Belenky, & Weinstock, 2000; Campbell, Sefl, Wasco, & Ahrens, 2004; Cosgrove & McHugh, 2000). The current study attempts to follow in this theoretical tradition by embodying the following values which are common between the two.

**Context.** Both perspectives agree that context matters, and ignoring it supports the status quo (Cosgrove & McHugh, 2000). In an effort to “give voice” to participants and contextualize the experiences of participants as is advocated by both perspectives (Cosgrove & McHugh, 2000), information on the local, state, and national context is highlighted throughout this paper, and many references are made to how previous qualitative interviews with women from the same site as the current study have shaped this study\(^1\). An emphasis on the context of women’s daily lives “provide us with opportunities to focus on a social contextual analysis of our experience, as well as strategies for modifying these conditions” (Bond et al., 2000, p. 721). One reason why context is particularly important in studying the needs of marginalized populations, such as women who are homeless or at-risk of homelessness, is that the power inequalities that place such groups at a disadvantage in our society must be considered when researching these populations.

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\(^1\) Twelve currently or recently homeless women were interviewed about their experience of homelessness, their daily travel activities, perceived barriers to their desired life, and various sociodemographic characteristics. The mobility of homeless women was explored within the larger context of its effect on need-resource congruence and desired life outcomes, including independent living and well-being. Emerging themes reveal the importance of access to transportation in order for needs to be fulfilled by existing resources as well as the desire for a sense of autonomy and control embodied in the “mobility paradox” of the homeless.
Power. Both community psychology and feminism place power inequalities at the
center of their analysis and advocate embracing a diversity of experiences, yet, community
psychology as a whole has failed to produce analyses with gender-based inequalities at their
centers (Bond et al., 2000). Ignoring such power inequalities fails to recognize the way that
such societal factors influence the individual. The current study attempts to put gender-based
power inequalities at the center of its analysis, highlighting such inequalities and their impact
throughout. However, in recognizing existing inequalities, the individuals of interest are not
seen as passive victims to their circumstances, but rather, an individual’s agency in the face
of such circumstances is put at the center of analysis through a focus on empowerment.

Empowerment. Both perspectives advocate for an emphasis on empowerment in
both the theoretical approaches to and methods of research. Restriction of one’s mobility is a
means of disempowering those unable to complete simple daily tasks because “safe,
convenient, and reliable mobility is necessary for routine activities of daily living” (Garau et
al., 2005, p. 57). If one’s mobility is limited, one’s ability to meet daily needs is inhibited,
resulting in a most basic form of disempowerment. Empowerment is not a concept separate
from that of power described above, but rather, “empowerment must address the relationship
between knowledge, social power, and social control and welcome open participation in the
construction of truth and knowledge” (Bond et al., 2000, p. 701).

Even in the definition of empowerment, we must be careful not to define being
“empowered” as synonymous with an andocentric vision of power that excludes the
importance of community. Bond et al. (2000) are critical of social values in which women
have been “encouraged to cultivate autonomy, individuation, and competition at the expense of connection, community, interdependence, and collaboration” (p. 722). Emphasis on having equal access to and control over resources and control over one’s life is a critical component of empowerment. However, empowerment should not be synonymous solely with autonomy, but rather should incorporate the importance of community (Cosgrove & McHugh, 2000). Bond et al. (2000) describe the way that empowerment is embodied from a feminist perspective:

“In line with feminist perspectives, we emphasize that the process of empowerment is not confined to gaining control over oneself, others, and resources. Autonomy is not the goal nor should power be equated with authority. Rather we look toward personal and interpersonal development within a context that also prioritizes ‘growth in connection’ with others and the skills to cultivate and maximize the development emerging from such growth” (Bond et al., 2000, p. 701).

The current study attempts to move beyond traditional definitions of mobility that equate it with independence, moving toward a mobility that can embrace community and interdependence with others as a viable means of mobility. As illustrated through this definition of empowerment as well as through the other values listed above, these two perspectives do not shy away from a value-laden approach to research, but rather recognize the bias in all research.

Bias. Both community psychology and feminism recognize the influence that the biases of the researcher can have over his or her research and have made this a focus of their
analyses (Cosgrove & McHugh, 2000). Because of the commitment to community-based social change at the core of both feminism and community psychology, this research is driven by the values rooted in these perspectives (Campbell et al., 2004) and motivated by “a commitment to address inequalities that have denied women access to resources and opportunities that would otherwise support their own development, well-being and potential for sponsoring their own and others’ growth” (Bond et al., 2000, p. 721-2). Additionally, in recognition of the existence of such biases and assumptions, the current study recognizes that there is no one “women’s voice,” and that the socio-political biases of the research will influence the way the research is conducted and interpreted (Cosgrove & McHugh, 2000). As recommended by Cosgrove and McHugh (2000), attempts have been made and will be made throughout to situate the researcher less as a “universal spokesperson” and more as a “cultural worker” attempting to lift barriers that prevent participants from speaking for themselves. These attempts include a previous qualitative pilot study used to shape the focus and design of the research as well as several “check-ins” with staff and clients throughout the research process to ensure the appropriateness of the research questions and design.

Mobility studies perspective. The emerging field of mobility studies has moved towards an understanding of mobility that embodies many of the above-listed values of both community psychology and feminism. This understanding of mobility focuses upon the unique mobility experiences of different populations, particularly those populations with constrained mobility, rather than representing one experience of mobility as universal. The field of mobility studies has begun to examine the way that the interrelationship between
human movements and needs represent “geographies of power” in which space and time are shaped by and embody specific meanings and power relations. Cresswell (1999) contends that “just as abstract space can be transformed into social space (or place) by taking power seriously, so it is possible to think of human movements as a social phenomenon—as a human geographical activity imbued with meaning and power” (p. 196). For Cresswell, mobility is to movement, as space is to place. Furthermore, the study of feminist geography contends that mobility is not embodied universally, but rather the embodiment of mobility is determined, in part, by gender (Cresswell, 1999). The idea of mobility as an embodiment of power is highly compatible with both community psychology and feminism.

Within aging and mobility literature, much effort has been made to connect mobility to one’s ability to access needed resources. Carp (1988) developed an ecological-congruence model of mobility of the aging that is helpful when adapted to the mobility experiences of women who are homeless or at-risk of homelessness. In Carp's model, mobility was seen as a key determinant of the degree of fit between need and resource, as “existence of facilities is meaningless without access to them” (Carp, 1988, p. 3). Fit between needs and resources then predicts well being and independent living. Cвиткович and Wister (2001) use a similar model in which person-level characteristics moderate a person’s level of mobility which in turn predicts the extent to which a person’s needs are met and how the individual prioritizes her needs, which in turn predicts well-being. This ecological model is highly compatible with both the community ecological psychology perspective and feminist perspective.
However, in applying the model to homeless women, careful attention must be paid not to generalize the experiences of one group to another. Within the homelessness literature, Patterson and Tweed (2009) identified eight facilitators to individuals escaping homelessness based upon past literature, including both lower-order life-maintenance needs and several higher-level social and esteem needs very similar to those needs outlined by Carp's model. Overall, the application of the Carp model of mobility was found to be helpful in organizing the relationships between mobility, difficulty of meeting needs, and desired outcomes among a sample of homeless women from a previous qualitative study with the center that is the site of the current study. One important distinction when applying this model to homeless women is that, for aging populations, the outcome of “independent living” must only be maintained (i.e. it is preventative), whereas for homeless populations, it must be obtained. By approaching the Carp (1988) mobility model from the combined perspectives of feminism, community psychology, and mobility studies, the values embodied in those three perspectives can shape it into a model that can be used to address the ways that mobility is related to need-resource congruence and well-being among a sample of women who are homeless or at-risk of homelessness.

The current study draws upon both the unique and intersecting values of all three of the above perspectives, feminism, community psychology and mobility studies in order to develop a model of mobility that can be applied to women who are homeless or at-risk of homelessness. In order to embody these values, a universal mobility cannot be assumed. Rather, in order to begin to explore the mobility of women who are homeless or at-risk of
homelessness, an explication is needed of the ways in which individuals experiencing homelessness and women both have unique experiences of mobility. The following sections of the proposal will address the existing literature on the mobility experiences of the homeless and of women.

*Homelessness and Mobility*

The research that exists on the mobility of homeless individuals demonstrates the ways in which individuals experiencing homelessness have a unique experience of mobility that has profound effects on their daily lives. However, research on the daily mobility patterns of the homeless is highly limited. Past psychological research on or about homeless individuals has tended to emphasize mental health concerns and inadequate affordable housing while ignoring many other important factors like transportation (Foscarinis, 1991; Kiesler, 1991; Kondratas, 1991; Rosenberg et al., 1991; Sylvestre, Nelson, Sabloff, & Peddle, 2007). Some past research has examined the long-term mobility of individuals experiencing homelessness by describing the migration patterns of homeless individuals (Cloke, Milbourne, & Widdowfield, 2003; Lindquist, Lagory, & Ritchey, 1999; Rahmian, Wolch, & Koegel, 1992). Much of the research that exists on the daily mobility patterns of the homeless has only addressed the topic in passing. Often, mobility is only addressed by studies of homeless samples by including “transportation” as a need or barrier to be measured among a list of many. Although such studies do not address transportation in depth, they do begin to address the idea of transportation as a barrier for the homeless. Acosta and Toro (2000) found that transportation was rated as the third most important need among a list of
20, a more important need than affordable housing, yet was also rated among the most
difficult to meet with the resources provided in the community. Patterson and Tweed (2009)
found that transportation was rated high among resources to help escape homelessness
among both currently homeless and previously homeless participants. This research
indicates that mobility can be an important, but hard to obtain, resource. A small body of
literature has begun to explore the day-to-day (rather than long-term) mobility of the
homeless.

The research that does examine the daily mobility of homeless individuals
specifically indicates that individuals who are homeless tend to experience a “mobility
paradox”. A high level of mobility is inherent in our common understanding of the homeless
as illustrated by terms such as tramp, transient, and drifter often applied to them, and this
labeling is a way we categorize the homeless as “other,” setting them apart from the homed
(Lindquist et al., 1999; Rahmian et al., 1992; Wolch, Rahmian, & Koegel, 1993). However,
contrary to this common understanding, the mobility of homeless individuals is actually
highly constrained by the time and space of the local context, including available means of
transportation and location of needed services (Rowe & Wolch, 1990, Wolch et al., 1993;
Wolch & Rowe, 1992). Similar to results from previous qualitative interviews with staff and
clients at the site of the current study, in a study of homeless individuals in the Skid Row
area of Los Angeles found that the mobility of the homeless individuals interviewed was
subject to severe time-space constraints because most participants were limited to either
walking or obtaining highly restricted bus tokens from local agencies (Wolch et al., 1993).
Rowe and Wolch (1990), again in the Skid Rowe area of Los Angeles, found the impact of homelessness caused a disruption (a “time-space discontinuity”) in the social network formation, daily paths, life paths, personal identity and self-esteem among a sample of homeless women. Snow and Mulcahy (2001) conducted a content analysis of local newspapers in Tucson, Arizona to illuminate the way urban physical space interacts with homelessness, particularly how homeless individuals negotiate the constraints imposed upon them by the space and the community, finding a great deal of variation in the application of control strategies and homeless individuals’ responses to them. The above research illustrates the ways in which the mobility of homeless individuals is constrained by their own financial situation, location of needed resources in the community, access to transportation, and community control policies. However, further research begins to explore the ways in which homeless individuals are not just passive recipients of mobility, but also use mobility to cope with their difficult circumstances.

Individuals vary on how they use mobility to cope with the hardships of homelessness, and such coping movements in turn shape the mobility of the homeless. Due to a national trend toward government service reductions, homeless individuals are forced to increase their daily mobility to find alternative income and service sources (Wolch et al., 1993). Individuals who are homeless move around the city (Wolch et al., 1993) and between cities (Rahmian et al., 1992) in order to meet their daily needs. However, more recent research is necessary to determine whether this still holds true today. Movement is also used to access social ties that can facilitate resource sharing in order to cope, but relocating close
to services in the downtown area can put strains on one’s ability to rely upon homed social network members (Wolch et al., 1993; Wolch & Rowe, 1992). Homeless women have been found to use social networks to cope with their situation and to reestablish a stable routine (e.g. “time-space continuity”) (Rowe & Wolch, 1990). Patterson and Tweed (2009) cite transportation as an area of instrumental support from others that can facilitate escape from the street. Because mobility is not only a resource in and of itself, but also a facilitator of access to most other needed resources, it is critical to an individual’s ability to meet basic and higher order needs, maintain well-being and possibly escape homelessness. However, research on homeless men cannot be generalized to the experiences of homeless women, but rather, any existing research on homeless women must be addressed in order to further illuminate the unique mobility experiences of homeless women.

Although few studies examine the mobility of homeless women specifically, some studies have compared homeless men and women (Gelberg, Browner, Lejano, & Arangua, 2004; Milburn & D’Ercole, 1991; North & Smith, 1993). In studies that have compared homeless men and homeless women, results indicate that the two populations have many common experiences of homelessness but tend to differ in many ways as well. The following more general differences between homeless men and women could have implications for their service and mobility needs. Past research has indicated that homeless women are at more of a disadvantage for obtaining employment, which could be bidirectionally related to their transportation barriers. Although homeless men tend to have worked more frequently than homeless women, homeless women tend to report higher
occupational skills (Calsyn & Morse, 1990). Similarly, although homeless women tend to have higher incomes than homeless men, homeless women tend to be more often unemployed and dependent upon welfare (North & Smith, 1993).

Also, homeless women tend to be significantly more likely to have dependent children (Calsyn & Morse, 1990; North & Smith, 1993), resulting in significantly different transportation needs and experiences. North and Smith (1993) found significant differences between women with children and solitary women, indicating that the domestic and caregiving responsibilities of homeless women with children can result in very different needs and experiences (North & Smith, 1993). In another study of the needs of homeless individuals, Acosta and Toro (2000) found few gender differences in their needs assessment of the homeless (after controlling for race and age). However, they did find that respondents with dependent children (regardless of whether they were currently homeless with them) reported significantly higher importance of child care and other family-oriented services, and those with their children reported less perceived importance of formal services. These results indicate that homeless women who are also mothers tend to have needs that differ from homeless women who are not mothers, even if their children do not currently live with them.

Finally, homeless women tend to utilize their social networks differently than homeless men, as will be further described below. Homeless women were more likely to have come into homelessness from the homes of their families, with whom they had since stopped having contact (North & Smith, 1993). Homeless women were significantly more likely to have a larger total utilized social network size but also to report a larger support
need (Calsyn & Morse, 1990). In a study comparing 600 homeless men to 300 homeless women, North and Smith (1993) concluded that the ways that homeless men and women differ “makes the experience of homelessness a qualitatively different experience for women, as well as suggesting different origins of homelessness and potential solutions to it” (pp. 490).

Such differences in needs and experiences can also result in different experiences of mobility as well as different transportation-related needs. Gelberg et al. (2004) found that although the participants generally knew where to go for health services, issues such as cost, transportation and scheduling of healthcare could be particularly burdensome for homeless women. Rowe and Wolch (1990) examined the social networks of a sample of homeless women and how they related to participant experiences of time and space, determining, as noted above, that homeless women use their social networks to cope with their situation and to reestablish a stable routine that has been disrupted by their experience of homelessness. Rowe and Wolch (1990) also contend that peer networks tend to differ between homeless men and women in their formation, utilization, and importance, impacting their mobility patterns.

The above research begins to address the extent to which the mobility experiences of homeless individuals tend to differ from other segments of the population as well as how the needs of homeless women tend to differ from those of homeless men. However, in accordance with the ecological community psychology theoretical perspective outlined above, differences in the extent to which individuals are able to access the resources they
need are not solely the result of either their unique needs or behaviors or solely the result of the constraints of their environment. Rather, differences in access to resources between groups is a product of the interaction between both the environmental constraints such as the characteristics of the transportation system, as well as the individuals’ unique needs, perception of the transportation system, and perceived control over her own mobility.

Also, in accordance with the feminist perspective above and the research on homeless women discussed thus far, a conception of one’s perceived control over mobility among homeless women and women at-risk of homelessness cannot define mobility in a way that is synonymous with autonomy, but must take into account the extent to which women’s mobility is interdependent with their social networks. Finally, in accordance with both the community psychology and the feminist perspective outlined above, at the core of the idea of perceived control over one’s mobility among women who are homeless or at-risk of homelessness is a conception of mobility that does not view these women as passive recipients of a mobility determined by their environment, but recognizes their agency to construct their own mobility within the constraints of the environment. The development of a concept of perceived control over mobility that takes these factors into account is outlined below.

**Mobility and Control**

A sense of control over one’s environment is important to an individual’s well-being, and a lack of control over one’s mobility can inhibit control over various other aspects of one’s life by inhibiting access. However, as will be detailed below, a woman’s ability to
Gendered Mobility

construct her own mobility within the constraints of her environment can be a determining factor in her sense of control over her daily life, and this sense of control is key to the ability to cope with difficult circumstances and maintain well-being.

Importance of control. A sense of control over one’s environment, including a sense of control over one’s mobility, is important to one’s ability to cope with her environment and maintain her well-being. One’s control over their locale – one’s physical space embodying both one’s daily path and its social context – can be an indicator of one’s social status and relative power within the community (Rowe & Wolch, 1990; Wolch & Rowe, 1992), making this control over locale an important resource, linked to other resources such as status and power. However, marginalized populations, such as women who are homeless or at risk of being homeless, often experience a sense of powerlessness or lack of control over their locale, and in their daily lives more generally, due to the constraints of shelter life and the dependence upon obtaining various services throughout the day. Communities tend to enact policies to control the homeless spatially, both their movements and their presence in public space, through containment, displacement and exclusion, taking away their control of their locale (Snow & Mulcahy, 2001). Finlayson, Baker, Rodman, and Herzberg (2002) discuss the lack of input into shelter policies and therefore lack of control residents of shelters have over their own lives, even over what time to get up and what time to go to bed. They suggest designing means for clients to have greater input into shelter policies. Choice and control in housing, indicating the extent to which homeless clients were able to choose their housing and related support services in order to have control over the services they receive, has
received considerable attention in homelessness literature and has been found to relate to well-being (Sylvestre et al., 2007).

Previous research on the migrant patterns of the homeless has examined the relationship between mobility and mastery of fate, defined as, “the degree to which the respondents perceived control over their environment” (Lindquist et al., 1999, p. 699). Mastery of fate was significantly related to lower symptoms of depression among migrant and non-migrant homeless individuals, but the relationship was stronger in migrant homeless individuals. In their development of a comprehensive theoretical model of homeless women, Milburn and D’Ercole (1991) emphasize the negative impact of acute life events, stressing that the negative consequences of such events are dependent upon several factors, including their perceived controllability and whether they are planned events. They contend that if a woman feels she has no control over a stressful event, she will be more likely to resort to negative coping behaviors. Among chronic hassles identified by the Milburn and D’Ercole (1991) is having to rely solely on public transportation to get around. They recommend future research on homeless women’s individual appraisal of the controllability of their situation.

Mobility as control. Mobility is crucial to maintaining one’s control over one’s life in our society, and an association of control with one’s capacity to be mobile is a common cultural appraisal that permeates individual-level behavior and preferences. Level of mobility has traditionally been associated with an individual’s place along cultural power
hierarchies, such that the freedom or control that mobility offers has traditionally been associated with men more so than women (Cresswell, 1999).

However, level of control over one’s mobility is culturally associated with some modes of transit over others. The personal automobile and the freedom and control with which it is associated are primary symbols of the autonomous individual in our society. Gardner and Abraham (2007) conducted interviews of private car commuters to determine their core motives for driving to work, finding that a desire for control was underlying many of their motives. Participants problematized the use of public transit in part due to its uncontrollable character and the feelings of helplessness it engendered, whereas they valued the car for their ability to maintain control over physical and social environments while driving. Uncontrollable characteristics of car driving were not considered, resulting in participants overestimating the level of control associated with the car. Gardner and Abraham (2007) note that feelings of control over one’s surroundings promote positive affect and well-being, whereas reduced control results in negative affect. The association of the personal automobile with freedom and control is so pervasive in the culture of the United States that people fail to recognize the extent to which their independence can be limited by car use.

Recent research examines the tendency of individuals not to recognize the limits car use can put on their personal control. Hagman (2006) notes feelings of self-control and independence associated with car driving even when extensive barriers to one’s freedom of movement exist due to the desire to be active subjects rather than passive recipients of their
daily commute experience. Similarly, Rajé (2007) found in her study of a rural area and a peripherally urban area in the United Kingdom that a primary emerging theme was the tendency to report high levels of autonomy surrounding their travel decisions, with almost all participants responding that they are the only ones involved in making decisions about their own travel, including those with dependents and those reliant on the public transport system. However, dependence upon others in order to complete daily travel tasks and interdependence upon the help structures of social networks was evident in analysis of travel needs and trip-making patterns to a greater extent than participant perceptions of their own autonomy implied. Aging and mobility literature also explores the association of a continuum of independence to dependence with level of mobility.

Although aging research stresses that aging individuals fall along a continuum ranging from independent to dependent, this research tends to problematize dependence upon others rather than recognize the possibility of interdependence with others as a means of improving one’s level of mobility instead of as an indicator of low mobility. The continuum from independence to dependence often overlaps with a range of available transportation modes in which “control, autonomy, and choice” in their consumption of travel services is the desired state (Sterns, Burkhardt, & Eberhard, 2003, p. 11). Dupuis, Weiss, and Wolfson (2007) note the importance of mobility in the ability of the aging to maintain independence and control over their lives. They included a seven-item Likert-type measure of perceived control that participants felt they had over the forces affecting their lives as an independent variable predicting mobility (measured in terms of transportation problems) and found that a
lower sense of perceived control over one’s life was significantly statistically related to the presence of transportation problems. Dupuis et al. (2007) note the ability of personal control to moderate or buffer the effects of stressful events in their study of Quebec households. The use of interdependent mobility as a means of coping and maintaining a sense of control demands further attention.

Several transportation researchers have noted and studied the relationship between mobility and control. In their search for a definition of and means to measure mobility, Popper and Hoel (1976) state several times the importance of a psychological component of mobility inherent in the idea of suppressed or potential journeys, stating that, “levels of mobility may be indicated by the volume of tripmaking, but also by the psychological peace-of-mind that a trip could be made if it was necessary” (p. 132). In their study of commuters of an industrial firm, Novaco, Stokols, Campbell, and Stokols (1979) include locus of control – a generalized expectancy concerning whether or not persons perceive themselves to have power over what happens to them – in their model as a mediator between travel impedance and stress, indicating that locus of control within a commute situation could be determined by such things as degree of choice over the location of one’s home or over the type or features of one’s vehicle.

*Interdependent mobility as a means of coping and control.* Individuals can both draw upon their mobility resources in order to cope with a dearth of resources in other areas and/or draw upon other resources, such as social networks. Mobility is closely interrelated with other resources an individual uses in order to cope with environmental circumstances. As
mentioned above, national trends toward government service reductions have forced homeless individuals to increase their daily mobility to find alternative income and service sources (Wolch et al., 1993). Individuals who are homeless move around the city (Wolch et al., 1993) and between cities (Rahmian et al., 1992) in order to meet their daily needs.

Movement is also used to access social ties that can facilitate resource sharing in order to cope, but relocating close to services in the downtown area can put strains on one’s ability to rely upon homed social network members (Wolch et al., 1993; Wolch & Rowe, 1992). Wolch et al. (1993) theorize that mobility is a means of coping for homeless individuals and that this mobility as coping is bidirectionally related to both social connections and the availability of urban resources. Furthermore, Rajé (2007) stresses that social capital in the form of social networks can be used to compensate for lack of other forms of capital, especially financial capital, in order to obtain what one is unable to purchase, such as transport. Particularly for the less mobile, the use of ride-sharing or the use of another person as a “vector” to access services or goods on the behalf of another can overcome the constraints of time and space that an individual higher in financial capital overcomes through ownership of a personal vehicle. This relationship between social network resources and mobility resources is one example of the interdependence of mobility with other resources.

Different groups of people may depend upon social networks in different ways and to varying degrees. Cvitkovich and Wister (2001) found that among their sample of aging individuals in Vancouver, those whose transportation needs were unmet were more likely to depend on only family to provide transportation, whereas aging individuals whose
transportation needs were met were more likely to also depend upon friends and neighbors. Relational theory would suggest that this reliance on social networks is particularly true for women as well because according to this theory, “women have a distinctly different moral voice than men, they are ‘relationally oriented,’ and thus they respond to conflicts and dilemmas based on interpersonal ethics of care and responsibility in relationships” (Cosgrove & McHugh, 2000, p. 821). Similarly, Bond (1997) emphasizes the need to take into account history when examining the adaptive strategies of women of color, noting specifically the prevalence of extended family and multifamily social support networks within African American communities. Nelson (2000) studied a sample of single mothers in order to examine the extent that they relied on reciprocity with their social networks to meet their needs, finding transportation to be among the shared resources respondents most often included.

Past research on the homeless and particularly on the differences between homeless men and women illuminates the ways in which the different populations tend to differ in their social network formation and its relation to mobility. Patterson and Tweed (2009) cite transportation as an area of instrumental support from others that can facilitate escape from the street. As noted above, women have been found to be more likely to have come into homelessness from the homes of their families, who had since ceased contact with them (North & Smith, 1993), and women were significantly more likely to have a larger total utilized network size but also a larger support need (Calsyn & Morse, 1990). Rowe and Wolch (1990) examined the social networks of a sample of homeless women and how they
related to participant experiences of time and space, determining, as noted above, that homeless women use their social networks to cope with their situation and to reestablish a stable routine that has been disrupted by their experience of homelessness. Rowe and Wolch (1990) also contend that peer networks tend to differ between homeless men and women in their formation, utilization, and importance, impacting their mobility patterns. However, the social networks of homeless individuals can be another limited resource in that Rowe and Wolch (1990) also found the impact of homelessness can negatively affect social network formation. Conservation of resources theory can be helpful in further illuminating the interdependence of different resources and how individuals may use a variety of resources to construct their mobility in a way that best enables coping with difficult circumstances.

Conservation of resources theory and control in mobility. Although research has begun to illuminate the ways in which control is important to an individual’s well-being and how mobility is related to control, existing literature fails to acknowledge the extent to which women demonstrate agency in the construction of their mobility in order to exert some control over their circumstances. Hobfoll and Schumm (2002) discuss Conservation of Resources (COR) theory, which can provide a perspective that enables the researcher to account for both the impact of environmental constraints on an individual’s mobility as well as personal adaptations to those constraints, rather than resorting to either victim-blaming or portraying the individual as the passive recipient of their own mobility.

COR theory contends that, “individuals seek to create circumstances that will protect and promote the integrity of the individual, nested in family, nested in tribe” (Hobfoll &
Schumm, 2002, p. 133). One must invest in resources or receive investments from outside sources to maintain and grow resources. An individual’s resources are interrelated, and therefore, changes in one can affect the availability of another. The resources that an individual has at hand are key components in determining that individual’s appraisal of life events as stressful and the individual’s ability to cope with such events. Self-efficacy and social support are two examples of resources that depend heavily upon circumstances for their availability.

As outlined above, homeless individuals experience a pervasive lack of control in their daily lives. According to COR, those already lacking resources are more vulnerable to loss spirals, making those lacking in the resource of personal control more vulnerable to future experiences of a lack of control. Within COR theory, individual appraisals of environmental factors are important to understanding the effect environmental factors can have on the individual, but a balance between the weight of the reality of environmental constraints and an individual’s appraisal of his or her environment is needed. Too much focus on only appraisals results in denial of reality and fails to recognize the extent to which resources are required for well-being. Particularly, such appraisals become increasingly less relevant in the presence of greater personal, social, and environmental obstacles. Without fully recognizing the environmental demands, researchers may fail to see successful coping behavior where it exists. Also, an individual must invest in resources in order to gain them or prevent their loss. As illustrated above, COR theory illustrates both the importance of considering individual appraisals nested within their environmental context as well the
importance of understanding the ways in which resources of different types are interdependent.
Gendered Mobility

Although little research exists on the mobility of homeless women specifically, research on women and mobility reveals the ways in which women’s experiences, perceptions, and needs regarding mobility differ from those of men, as will be outlined below. Building assumptions about the mobility of homeless women derived from research on homeless men will provide an inaccurate picture of what it means for homeless women to be mobile. Historically, research on changing transportation technologies has tended to portray the effects of such changes as universal without considering differential effects based upon race, gender, income, or location (Drummond, Roth, Polino, 2003). Still today, transportation is one area in which gender-conscious planning is lacking, but necessary. A growing body of literature emphasizes the “weaknesses of applying policies designed primarily for men to problems faced primarily by women” (Blumenberg, 2000, p. 260). The following literature demonstrates the importance of research on the mobility experiences of women in particular.

Literature from welfare-to-work research reveals that several issues affect how low-income women experience travel differently from men as well as how women differ from one another in respect to their experiences of mobility. Differences within women exist due to income, ability, age, race/ethnicity, and location, among other things (Hine & Grieco, 2003). Several primary reasons the transport needs of women should be considered uniquely from those of men include personal safety, childcare and domestic responsibilities, part-time employment, and the complexity of mobility patterns (Hine & Grieco, 2003).
Safety. One important way that the travel of women can be considered unique from that of men, particularly for women dependent upon public transportation, is that personal safety concerns tend to be greater for women in a public space, such as waiting for or riding in a public transit vehicle. Women both perceive and experience greater risk when using public transportation. Bouyer, Bagdassarian, Chaabanne, and Mullet (2001) found that of all categories of potential risks rated among an extensive list of risks one might face in their daily life, the only sex differences in ratings occurred in the categories of domestic activities and public transportation, with women rating risk higher for both categories. This perceived risk is often grounded in experience. Emerson and Gardner (1997) used a combination of direct observation and interviews to examine the public harassment of women by men on public transportation, finding that the sharing of social space, particularly enclosed public spaces such as with public transportation, can leave women vulnerable to others in physical and symbolic ways. Both actual and perceived risk can act as important determinants of women’s travel behaviors, and are therefore important to transportation literature. The greater perceived and experienced risk that women tend to experience when using public transportation is an important factor in why women's transit needs need to be specifically researched and planned for as well as in why research on women must use measures of mobility and its outcomes that take the unique needs and experiences of women into account in their design and use.

Childcare and domestic responsibilities. Another important factor in why the transportation needs and behaviors of women tend to be unique from that of men is that
women tend to be responsible for childcare and other domestic responsibilities to a greater extent than men. Historically, as new transportation technologies of increasing speed contributed to the development of the suburbs by allowing for longer distance commutes in shorter time, the physical, rather than just symbolic, separation between the public and private spheres in which men and women were respectively culturally assigned grew in magnitude (Drummond, 2003). This geographical separation between work and home life continues to affect women today as they must balance their roles in both the public and private realms, separated by increasing geographic space. In this balance between work and home, transportation plays a key role in determining whether a woman's need to fulfill her domestic responsibilities will limit the geographic employment pool to which she has access. Lopata (1980) found that among a sample of Chicago women, participants tended to limit their job choices, avoiding jobs far from home, because of potential transportation and travel difficulties. Women responded that working at a location close to where they live is very important. Women also tend to travel shorter distances, with working women in urban areas found to travel 18% fewer miles than men each day. Women of all income brackets were found to have shorter average commutes than men, but within women, low-income women were found to commute the farthest of all women (Rosenbloom, 1994). Since low-income women have a smaller job pool from which to choose, they must commute further than their higher income female counterparts, possibly further complicating their work-life balance. Kurz (2000) found that transporting their children was a major factor in how mothers of teenage children coordinated their work-life balance in their Philadelphia-based study. The
greater likelihood of being the primary caregiver, or even sole caregiver, makes the travel needs and experiences of women unique and contributes to the complexity of women's travel patterns.

Complexity. For many reasons, including their greater childcare and domestic responsibilities, women tend to have more complex travel patterns than men. The travel behaviors of women are often described as more complex than that of men because of women's tendency to make more trips, chain trips together, make more non-work trips, and to share transportation responsibilities with their social network. Working women have been found to make 12% more trips than working men of the same age. Even when household status and presence of children are controlled, women still tend to make more trips than men, with women with young children making 11% more trips than men in households with young children (Rosenbloom, 1994). Women also tend to engage in trip chaining to a greater extent than men by stringing multiple trips together rather than commuting directly to home and back, with women 37% more likely than men to make at least one non-work trip during their daily commutes and single parents of young children most likely to have complex commute chains (Strathman & Dueker, 1994). Women's travel patterns also tend to be more complex than that of men because of their greater interreliance upon their social networks in order to fill transportation needs. Particularly in families with limited or shared car access, women serving as the primary caregivers in a family typically compensate for their insufficient transportation access, making two-thirds of all trips to shuttle others around (The Surface Transportation Policy Project, 2003). Nelson (2000) studied a sample of single mothers in
order to examine the extent that they relied on reciprocity with their social networks to meet their needs, finding transportation to be among the shared resources respondents most often included. Greater interreliance with one's social network to meet transportation needs can both alleviate transportation burdens as well as increase them, depending on the evenness of exchange. Regardless of whether this interdependence is positive or negative, it is another aspect of women's complex travel patterns that must be considered in research and planning as well as in the development and application of measures of mobility and its outcomes. One reason why research and planning on the travel needs and experiences of women are so important is because of the effect transportation opportunities can have on employment.

Employment. The reasons why the relationship between employment and mobility tends to be different for women than for men is that transportation barriers tend to limit the opportunities for employment for women to a greater extent than for men, and women's greater likelihood of holding part-time, casual, and/or local employment results in different needs and experiences related to their mobility. A significant amount of recent literature on gender and mobility surrounds the issue of Welfare-to-Work. This literature explores the ways in which transportation affects women’s ability to transition from welfare to work, evaluating existing welfare-to-work commute transportation programs. Welfare-to-Work literature contends that women’s concentration in low-wage, feminized jobs and their responsibility for their households results in different transportation needs, as illustrated through the research below. Blumenberg (2000) stresses the need to consider the transportation needs of single women with children if such welfare-to-work transportation
programs are to be successful because single women with children comprise a majority of the welfare population. A woman's mobility can have major implications for her employment prospects. Ong (1996) found from interviews of 1,000 female heads of household welfare recipients that those owning a personal vehicle had higher employment rates and higher total earnings, although temporal ordering could not be determined.

The theory of Spatial Mismatch was originally developed to describe the experiences of low-income African American males (Blumenberg, 2000). It contends that most low-income and minority individuals live within or close to the city center, but that most jobs at their skill level are located outside the city center in the suburbs, making transportation essential to employment. Spatial mismatch theory and subsequent welfare-to-work transportation programs (e.g., reversed commute programs) are based upon research with low-income and minority men, however, and the little research that exists on whether women experience a spatial mismatch is mixed (Blumenberg, 2000). One possible explanation for the mixed results of research testing the application of the spatial mismatch theory to women is the wider dispersion of feminized jobs throughout the metropolitan area (Blumenberg, 2000). Blumenberg (2004) suggests moving beyond the spatial mismatch theory to examine the many ways that space can be a barrier to employment, such as residential segregation and the importance of “modal mismatch,” or considering mode of transportation in conjunction with distance traveled. Again, although welfare-to-work transportation planning is derived from research with low-income, minority males, single women with children comprise a majority of the welfare population, resulting in a policy and planning mismatch. This
mismatch, as well as the unique ways that mobility is interrelated with employment for women, again highlights the need for research on women's needs and experiences specifically, as well as how those needs and experiences necessitate measures of mobility and its outcomes sensitive to the experiences of women.

However, in describing the ways that women's mobility may differ from that of men, it is important not to problematize such differences. The uniqueness and complexity of women's travel cannot be seen as the problem. Rather, the degree of “fit” between the individual travel behaviors of women and the characteristics of the transportation system must be examined in order to identify areas of “misfit” and move to solutions that accommodate the transportation needs of both men and women equally. For this reason, the extent to which the public transportation system is organized to “match” the needs of low-income women who are often dependent upon it is important to any analysis of the unique travel needs and experiences of women.

*Public transportation.* Current public transportation systems tend not to be organized to meet the unique travel needs and behaviors of women for reasons listed above among others. The characteristics of the public transportation system are particularly important when studying the transportation experiences of low-income women because fewer reliable transportation options exist for welfare recipients than non-recipients, meaning low-income women tend to be dependent upon public transportation or walking. The ways in which the current public transportation systems fails to “fit” with the needs of women and therefore put women who use public transportation at a disadvantage include the following:
1. **Domestic responsibilities.** Public transportation stations and vehicles are not designed to accommodate strollers, shopping carts, parcels, and young children (Blumenberg, 2000; Schintler & Kaplan, 2000; Preston & McLafferty, 1999).

2. **Cost.** Many public transportation systems charge flat fares (paying the same fare regardless of distance traveled) which favor the traditional male commuter model and put women at a disadvantage as they tend to travel shorter distances and make more short, non-work trips (Blumenberg, 2000; Preston & McLafferty, 1999).

3. **Safety.** Women may express fear of using public transportation, particularly due to low lighting and few people at stops and stations and on transit vehicles (Blumenberg, 2000; Emerson & Gardner, 1997).

4. **Time.** Public transportation can take a great deal more time than is feasible to reach available jobs, particularly in conjunction with domestic responsibilities, making work-life balance particularly difficult for mothers dependent upon public transit (Blumenberg, 2000; Preston & McLafferty, 1999).

5. **Complexity.** Public transportation is often not flexible enough to serve the complex travel needs of women, particularly single moms (e.g., trip chaining and domestic responsibilities) (Blumenberg, 2000; Schintler & Kaplan, 2000).

All of these factors listed above, safety, childcare and domestic responsibilities, complexity, employment, and fit with the public transportation system, must be taken into consideration when conducting research upon the mobility of women, particularly low-income women.
The Current Study

Research and policies seeking to improve access to services and well-being among women who are homeless or at risk of becoming homeless need to not only recognize the importance of transportation to these outcomes, but also recognize the need to promote a sense of personal control through the services provided. The current study seeks to examine the relationship between mobility, access to services, and well-being among women who are homeless or at risk of becoming homeless, and to measure mobility in such a way as to recognize the importance of personal control in one’s own construction of one’s level of mobility. Measuring outcomes associated with mobility is important to understand the way that mobility is related to the everyday lived experiences of the population of interest.

The current study uses a framework adapted from Carp (1988) as a model for the way that mobility, difficulty of meeting needs, and quality of life relate (See Figure 1). Carp (1988) developed an ecological-congruence model of mobility of the aging that has been found to be helpful in organizing the relationship between mobility, need-resource congruence, and well-being in a previous qualitative study of women at the site of the current study. The current study further examines the extent to which this model can be adapted and applied to a sample of women currently experiencing or at-risk of experiencing homelessness. In Carp's model, mobility was seen as a key determinant of the degree of fit between need and resource, as “existence of facilities is meaningless without access to them” (Carp, 1988, p. 3). Fit between needs and resources then predicts well-being and independent living. Cvitkovich and Wister (2001) use a similar model in which person-level
characteristics moderate a person’s level of mobility which in turn predicts the extent to which a person’s needs are met and how the individual prioritizes her needs, which in turn predicts well-being. Within the homelessness literature, Patterson and Tweed (2009) identified eight facilitators to individuals escaping homelessness based upon past literature, including both lower-order life-maintenance needs and several higher-level social and esteem needs very similar to those needs outlined by Carp's model. Also, Acosta and Toro (2000) conducted a needs assessment of the homeless that is helpful in adapting the needs in Carp’s (1988) model of mobility of the aging to the needs that a sample of homeless women would deem important. The current study examines the relationship between difficulty of meeting needs, quality of life, and mobility within a sample of women who are homeless or at-risk of becoming homeless using the measures outlined below.

**Difficulty of Meeting Needs.** The current study measures the extent to which the level of difficulty of meeting needs among a sample of women currently homeless or at-risk of homelessness is related to both mobility and quality of life. Acosta and Toro (2000) conducted a needs assessment of a sample of homeless individuals in order to determine the effectiveness of social programs because, despite increases in government aid to homeless individuals, services targeting this population continue to be underutilized and misunderstood. Not only is research on the needs of homeless individuals important, but it is also important to measure the needs of the homeless in a way that asks homeless individuals directly about their needs.
An approach to measuring difficulty of meeting needs that asks homeless individuals to actively participate in determining their needs is critical to an empowerment approach to research that is compatible with both the community psychology and feminist perspectives outlined above. According to the Acosta and Toro (2000), service agencies have rarely conducted studies of the extent to which the needs of homeless individuals are met in which the homeless individuals themselves are asked about their perceived needs, but rather have relied predominantly on the results of descriptive studies to deduce client needs from their characteristics. Research that asks homeless individuals themselves about their needs yields responses that differ from the research asking homelessness service providers about the needs they perceive to be important to their clients (Rosenhek & Lam, 1997). The Acosta and Toro (2000) study is unique in that it not only asks clients directly about their needs, but also relies on the homeless participants themselves to generate their list of perceived needs. The current study seeks to adapt measures of needs used by Acosta and Toro (2000) by using a similar method of measuring the needs of the homeless, but also to relate this measure of difficulty of meeting needs to both mobility and well-being.

The current study examines the relationship between mobility, difficulty of meeting needs, and well-being. The primary goal of the Acosta and Toro (2000) study was to determine how the perceived needs of subgroups of homeless individuals differed, and they therefore only consider individual-level predictors of need-fulfillment/satisfaction, whereas environmental factors that could influence access to resources, like mobility, are not assessed. Acosta and Toro (2000) also stopped short of examining what outcomes difficulty
of meeting needs could predict, such as quality of life. The current study seeks to determine the extent to which mobility is associated with one’s ability to meet needs as well as the extent to which one’s ability to meet needs determines one’s perceived quality of life.

Previous research with several different segments of the population has shown that mobility is one major factor determining one’s ability to meet needs. In their study of aging individuals, Cvitkovich and Wister (2001) found that transportation-dependent participants were significantly more likely to report difficulty of meeting needs than transportation-independent participants. Dupuis et al. (2007) also noted the importance of mobility in the ability of seniors to access social and life-maintenance needs within their communities. Within the homelessness literature, this relationship between mobility and accessing needed resources has also been highlighted. In their description of how to create integrated service systems for the mentally ill, Randolph, Blasinsky, Leginski, Buckley, and Goldman (1997) pointed out that services do exist in many communities today, but that homeless individuals must still overcome barriers to obtaining those services, such as transportation. Previous research suggests that homeless individuals use their mobility to fulfill their daily needs via balancing maintenance of social ties and obtaining urban resources (Wolch et al., 1993). Furthermore, one’s ability to access needed resources is a primary determinant of one’s quality of life. An individual’s “coping status” is a result of the extent to which personal characteristics interact with access to resources in the local environment in order to fulfill their “coping needs” (Wolch et al., 1993). An ability to meet one’s needs is an important
determinant of one’s perceived quality of life, making mobility not only a primary
determinant of access to needed resources, but also indirectly related to quality of life.

Psychological well-being. As noted above, previous literature describes the
relationship between mobility and difficulty of meeting needs for several populations,
including the homeless. Further research also illustrates the relationship between access to
needed resources and psychological well-being as well as the relationship between mobility
and psychological well-being. Past research on the migrant patterns of homelessness has
begun to examine the relationship between mobility and well-being among homeless
individuals. Lindquist et al. (1999) used a Mastery of Fate scale to examine the degree to
which participants’ perceived control over their environment acted as a mediator between
migrant patterns and depression, finding that high mastery played a stronger role in reducing
depressive symptoms among migrant homeless participants (Lindquist et al., 1999). Again,
previous literature on aging and mobility has examined the relationship between mobility and
perceived quality of life, a primary component of well-being. Dupuis et al. (2007) note the
importance of mobility in the ability of seniors to maintain their well-being and quality of life
in part because mobility is necessary to access needed resources and also because mobility is
necessary to maintain independence and control over one’s life. The Valuation of Life
(VOL) Scale (Lawton et al., 2000) that is used as a measure of quality of life in the current
study has been used as a measure of quality of life and well-being in several aging and
mobility studies in which an individual’s well-being is predicted to be related to their
mobility (Cvitkovich & Wister, 2001). Cvitkovich and Wister (2001) found that fulfillment of transportation needs contributed significantly to predicting VOL.

Lawton et al. (2000) define VOL as the subjectively experienced worth of a person's life, weighted by the multitude of positive and negative features whose locus may be either within the person or in the environment. Therefore greater VOL is related to a greater likelihood to anticipate the future in positive terms (Lawton, et al., 2000). Several qualities distinguish VOL from other measures of quality of life, health utility, and positive psychology often used as outcomes in the aging literature and also make VOL more applicable as a measure of well-being for the current study. The VOL scale is meant to bound a section of the concept of positive mental health while excluding definitions in terms of presence of psychopathology (Lawton et al., 2000). VOL also excludes more specific domains of perceived quality of life and physical health in favor of more generalized judgments (Lawton et al., 2000). Furthermore, Lawton et al. (2000) contend that VOL represents a cognitive schema that embodies the dynamic accommodation and assimilation process by which people meet the threat of changes in quality of life that arise. In this way, VOL as a measure is more sensitive to changes in the person-environment interaction than other more static measures of well-being.

However, before the relationship between mobility and either difficulty of meeting needs or quality of life can be determined among a sample of women who are homeless or at-risk of homelessness, a means of measuring mobility is needed that takes into account the unique needs, experiences, and behaviors of both the homeless and low-income women as
outlined above. For this purpose, previous measures of mobility, as will be described below, have been found to be inadequate, necessitating the development of a new measure of mobility for the current study.
Measuring Mobility

Previous measures of mobility fail to provide detail-rich, context-specific mobility research that encompasses the full complexity of an individual’s daily lived experiences of mobility, particularly the experiences of individuals among the most marginalized populations, including both the homeless and low-income women as described above. Many previous attempts have been made to both define and operationalize mobility, but these attempts have failed to produce a measure of mobility appropriate for the current study.

Defining mobility. Many attempts have been made to define mobility. Popper and Hoel (1976) stated that mobility was, “one of the most frequently used, but least well defined concepts relative to transportation planning” (p. 131). They “broadly” define mobility as “the ease with which one can interact with the environment” (p. 131) and stress that mobility is not only the capacity of a person to fulfill travel needs but that mobility also fulfills social and psychological needs. Furthermore, mobility is not just influenced by the social, economic, and physiological needs and characteristics of the individual, but also by the characteristics of the transportation supply system (Popper & Hoel, 1976). Popper and Hoel’s (1976) attempts to define mobility are important in that they describe the need to take both individual psychological and social characteristics, characteristics of the environment, and the interaction of the two into account when attempting to measure mobility. This is compatible with the ecological perspective on mobility mentioned above. However, the measure of accessibility is “measured as the number of opportunities contained within a constant travel time band (isochrone) from an origin,” (Popper & Hoel, 1976, p. 131), a
means of measurement that fails to account for the social and psychological factors of mobility. This gap between the theoretical definition of mobility and how mobility is operationalized is a pervasive problem in transportation and mobility literature.

Several other authors have commented on the need for a clear definition and operationalization of mobility. Metz (2000) pointed out that the relationship between quality of life and mobility has not been clear up to now in part due to the lack of clarity in the definition of mobility. Mobility, to Metz, includes “both travel to achieve access to desired people and places, benefits that are incidental to this purpose,” as well as “the potential to make trips that are not actually made,” and argues that what is measured in the current literature is not mobility, but rather “travel behavior” that is then associated with mobility (2000, p. 150). Metz (2000) proposed an all-encompassing definition of mobility including travel to access desired destinations, the psychological benefits of movement, the benefits of exercise, involvement in the local community, and potential travel, but doubts whether these varied benefits could be combined into one valid measure of mobility. However, such a broad definition of mobility would result in a measurement of mobility that is confounded by including the benefits of mobility within the definition of mobility itself. Further theoretical exploration of the concept of mobility has continued.

Flamm and Kaufman (2006) attempted to operationally define the concept of “motility” as “the capacity to be mobile,” in order to determine the extent to which motility is a factor of social integration/differentiation or even exclusion and to be able to conduct
comparative analyses of motility among individuals (p. 167). They defined motility in terms of one’s “mobility potential.” Three groups of factors that compose motility:

1. *Access* refers to factors that regulate the extent that available options may be used such as vehicle ownership, parking, price, schedules, etc.

2. *Skills* refer to the abilities of the individuals including factors such as acquired knowledge and organizational capacity to plan or adapt to changes.

3. *Cognitive appropriation* refers to the way individuals respond to varying levels of access and skills in which they assimilate standards and values into their own strategies and habits (Flamm & Kaufman, 2006).

For Flamm and Kaufman (2006), motility may or may not translate into travel. This definition of motility is helpful in that it differentiates motility from past notions of accessibility in that motility “concentrates more than accessibility on how an actor builds his/her relationship with space and less on the possibilities offered by a given territory” (Flamm & Kaufman, 2006, p. 168). This emphasis on the individual’s ability to construct her mobility is an important component of mobility and control as described above.

However, Flamm and Kaufman (2006) place a great deal of emphasis on the way individuals’ values influence their mobility choices, failing to fully acknowledge the full extent that environmental factors might constrain individuals’ available choices. A definition of mobility that recognizes both the environmental constraints and the way individuals construct their own mobility within those constraints is still lacking and needed, as is an operationalization of mobility that both embodies this relationship between individual and
environment while also being sensitive to the unique mobility experiences of marginalized populations.

Operationalizing mobility. Previous literature has continually called for an operationalization of mobility. Metz (2000) argued that an operational definition of mobility is necessary in order to measure it as a predictor of quality of life and facilitate the evaluation of interventions designed to improve mobility. Flamm and Kaufman (2006) called for a means of approaching spatial mobility from a systematic point of view, “taking into account all of its components as well as the interaction among them” (p. 168). To provide a quantitative measure of mobility would enable the comparison of levels of mobility between groups and therefore enable the “analysis of the equitable distribution of transport system impacts” (Popper & Hoel, 1976, p. 131). However, as outlined above, an operationalization of mobility that is congruent with existing theory surrounding the concept of mobility and that also is sensitive to the transportation experiences of marginalized populations has yet to be developed. Existing measures of mobility within several different fields that study mobility and transportation have all been found lacking for the purposes of the current study, justifying the creation of a new measure as outlined below.

Existing Measures of Mobility

As discussed above, many attempts have been made to define and operationalize mobility, but none have fully embodied the theoretical understanding of mobility nor have they been constructed in a way as to be sensitive to the mobility experiences of marginalized populations. Attempts to measure mobility have been applied to many different populations.
in order to predict a variety of outcomes from various disciplines including traditional transit, women and transport, aging, mobility studies, and homelessness literature.

Traditional transit. Traditional transit literature is one area of research that has yet to develop a measure of mobility that satisfies the needs of the current study. Transit literature is generally used to describe the transit needs of a specific geographic zone, is often carried out by transportation planners themselves, and has traditionally been the area of research that has most influenced transportation planning and policy. Measures of mobility from traditional transit literature tend to use regional or neighborhood data from large extant aggregate data sources in order to measure the mobility that an average person in that “zone” might have according to their individual characteristics and the characteristics of the transportation available in the zone. For example, Van Acker, Witlox, and Van Wee (2007) used data from a regional transportation survey to examine the effects of land use (i.e. density, diversity, and design according to local land use policy) versus socio-economic characteristics on travel behavior, finding that socio-economic variables were better predictors than land use systems. Historically, traditional transit literature has looked at mobility either from a demand-oriented approach or a supply-oriented approach (Popper & Hoel, 1976). A common demand-oriented measure of mobility used would be a “gap analysis” comparing rates of trip generation, in which lower mobility would be indicated by a household trip generation rate below an ideal, but such a measure ignores walking trips and generally only compared between income strata, ignoring other group differences (Popper & Hoel, 1976). A common supply-oriented measure of mobility, which Popper and Hoel
(1976) advocated, would be to measure the accessibility to opportunities as indicated by the nearness to needed destinations. Neither of these types of measures provides detail-rich, context-specific measures of mobility, and both fail to take into account the agency of the individual in responding to her environment and lack sensitivity to the specific mobility experiences of marginalized populations.

**Women and transport.** Women and transport research emerged in reaction to traditional transit literature in an attempt to measure the previously ignored experiences of women, but continued to rely on similar measures of mobility. Large, aggregate data sources are often used in similar ways as described above in reference to traditional transit literature. For example, Cervero, Sandova, and Landis (2002) addressed the debate within welfare-to-work literature about the extent that private mobility (access to a personal vehicle) versus public mobility (access to public transportation services) determines access to employment. They used aggregate data on regional job accessibility and measures of transit service intensity and proximity in conjunction with individual-level surveys (which included information on car ownership) and found little support for the spatial mismatch hypothesis. Private mobility was more important than public mobility in predicting employment. Similarly, Blumenberg and Shiki (2003) examined aggregate data on the geographic locations of welfare recipients, low-wage employment, and public transit in order to determine recipients’ spatial access to employment and public transportation in Fresno County, California, demonstrating that the spatial mismatch hypothesis may be less applicable in medium-sized cities and rural areas than it is in large metropolitan cities. Such
research addresses the experiences of populations previously ignored by traditional transit literature, but continues to do so using measures that do not fully capture the experiences of these populations.

Another common measure in women and transport literature is level of access to a personal vehicle. Ong (1996) predicted employment and earnings based upon whether participants owned a personal vehicle or not. Blumenberg (2008) examined the travel patterns and barriers of Southeast Asian immigrants by examining whether they own and commute with a car or not, their level of access to a car (number of adults per car available to a household), level of difficulty traveling, age of vehicle, and ease of borrowing a car, entering these measures in various combinations to predict employment. Measures based predominantly on access to a personal vehicle fail to get at the varied mobility experiences of those with the lowest levels of mobility who are often without access to a personal vehicle. A key goal of the current study is to develop a measure of mobility that is sensitive to the varied experiences of those with low levels of mobility and what means of transport they use when access to a personal car is limited. In contrast to the women and transit literature, aging literature begins to measure the mobility of the aging with measures developed specifically for this population.

Aging. In the past, aging literature has tended to use “objective” measures of outings frequency, modes of transportation, and distances traveled to measure outdoor mobility, but more recent research has begun to examine perceptions of mobility, such as through “transportation problems” measures (Dupuis et al., 2007). Dupuis et al. (2007) used
transportation problems to categorize participants as those for whom transportation was a problem and those for whom it was not, with the “not a problem” category including those who were able to drive, take the public transit, or who received help for reasons other than health reasons and the “a problem” category including those who took public transit alone and found it to be somewhat to very difficult and those who received help for health-related reasons. Those participants experiencing transportation problems were further categorized according to whether they experienced negative consequences of inadequate transportation, based upon whether they had been unable to meet needs in the past month because they did not have transportation. Cvitkovich and Wister (2001) used two similar measures of mobility including “transportation dependence,” a dichotomous variable in which individuals who can drive or take public transportation without difficulty are considered independent, and “transportation need,” another dichotomous variable in which participants indicated whether their transportation needs were fulfilled. These measures illustrate the extent to which an independent-dependent dichotomy of mobility is a primary concern within aging literature.

Although a common theoretical understanding of mobility in aging literature is that it is on a continuum ranging from independence to dependence characterized by the extent to which individuals are able to choose “where, when, and how to travel” (Sterns et al., 2003), existing measures of mobility tend to categorize independence versus dependence rather than measure it on a continuum. Additionally, by seeing dependence and independence as opposing ends of a continuum, such a theoretical understanding excludes the possibility of interdependence with others as a way of expanding one’s mobility options. Access to a
social network with which one is interdependent for her transportation needs can represent a means of being more mobile than if one was unable to depend upon such a network. Other aging and mobility literature has attempted to describe and measure mobility based upon a less categorical understanding.

Further attempts have been made to expand on the concept of mobility within aging literature. Joseph and Fuller (1991) identify the concept of “action space” as helpful to research on the mobility of the elderly. Action space is composed of two interrelated factors: (1) mobility and (2) activity patterns. The action space of a highly mobile individual would be geographically extensive and encompass a full range of activity patterns as compared to the lower mobility and restricted activity patterns of an individual with a lesser action space. Several studies have begun attempts to operationalize this understanding of mobility in relation to action space by creating a measure of life-space mobility. Moving beyond nominal and categorical measures of mobility, recent aging research has attempted to create a measure of life-space mobility in which individuals can be scored on continuum of mobility, compiled from questions measuring where and how often participants travel and whether assistance is needed for travel at different levels of space progressing out from the individual’s living space (Allman, Baker, Maisiak, Sims, & Rosman, 2004; Peel et al., 2005). Life-space mobility is helpful in that it moves beyond reducing mobility to the categories of dependent or independent. However, the a measure of mobility in and around the home that is useful for aging literature due to the frequency of physical mobility constraints is less applicable to homeless individuals. A measure based upon concentric levels of mobility
emanating progressively away from the home is problematic to applications to homeless individuals due to its assumption of a stable housing situation. Furthermore, such a measure ignores other important factors surrounding control and mobility as well as the unique travel needs of the homeless and low-income women outlined above. The field of mobility studies has begun to move to a more complex understanding of mobility.

**Mobility studies.** The emerging field of mobility studies provides a more complex understanding of mobility by generally using qualitative methodologies in order to provide detail-rich and context-specific information that could be helpful in defining and operationalizing mobility. Ureta (2008) examined the way in which changes in transportation in Chile differentially affect different populations, resulting in the social exclusion of low-income individuals which in turn compromises their ability to maintain their patterns of everyday life. Flamm and Kaufman (2006) used a grounded theory approach to identify key determinants of individual travel behavior from qualitative interviews. Flamm and Kaufman (2006) concluded that motility represents a form of capital interrelated with social, cultural, and especially economic capital, and raised the question of whether motility tends to accentuate or compensate for the social inequalities in other realms of capital. This related directly to the concept of mobility as a means of coping with difficult circumstances in the face of a dearth of other resources as well as the importance of a sense of personal control over one’s mobility outlined above. However, although such qualitative research embraces and further illuminates the complexity of mobility and is easily applied to specific populations, they do not allow for systematic comparisons across populations in
order to compare levels of access and social exclusion based upon level of mobility as is called for by definitions of mobility outlined above. Homelessness literature that has addressed mobility can provide a means to measure mobility that is specific to the experiences of this marginalized population.

_Homelessness._ Although past research on the mobility of the homeless has resulted in research specific to this population, the mobility measures used continue to provide an oversimplified vision of mobility and do not account for the complex and dynamic daily individual experience of place, space, and control. Transportation importance and need have often been considered within a list of many needs and rated on Likert scales (Acosta & Toro, 2000), but have rarely been focused on specifically and explored in depth. Wolch et al. (1993) provide one example of research that has begun to focus on homelessness and mobility specifically. They “roughly approximated” the mobility of homeless men based upon the number of hours spent outside the downtown area in a typical 24-hour period, categorizing those that spent any portion of their day outside the downtown area as “daily movers,” finding that the only statistically significant difference between movers and non-movers to be in their social support networks. Wolch et al. (1993) conclude that the greater mobility among “movers” is linked to their attempts to maintain ties with social network members, particularly the homed social network, in order to meet daily needs; whereas “non-movers” did not have as extensive social networks and therefore must rely on formal services downtown to meet their needs. This measure and these results are significant in that they recognize the relationship between social support and mobility. However, Wolch et al.
(1993) did not conclude that this relationship could be bidirectional in that “non-movers” may have smaller social networks because they do not have access to the transportation needed to maintain those relationships (Toohey, Shinn, & Weitzman, 2004), and the extent of one’s social network, particularly one’s homed (likely more financially stable) social network, could provide needed transportation resources therefore making “movers” more mobile than “non-movers.” Although this and all of the measures outlined above have contributed to the development of a definition and operationalization of mobility, none is sufficient alone to fully serve the needs of the current study due to the shortcomings outlined below.

**Shortcomings of Existing Measures**

The above measures of mobility fail to take into account many of the qualities of mobility described throughout this paper that are most important to generating context-specific, detail-rich mobility research on previously ignored marginalized populations. The shortcomings of previous measures are described below in reference to their ability to measure mobility in general as well in reference to their ability to measure the mobility of women who are homeless or at-risk of homelessness specifically.

*Lived experience.* One way in which current measures of mobility are lacking is their inability to include questions that tap into the details of the daily lived experiences of individuals in order to unpack the “black box” of mobility. In an attempt to remedy the dearth of detail and context in existing transit literature, Rajé (2007) endeavored to create a picture of the “lived experience of transport structure” by examining suppressed journeys and
barriers to travel in two case-studies of two different locations. Results indicated that a disconnect between user perceptions and planner interpretations existed and that this disconnect was exacerbated by the gender bias and ethnic makeup among planners. Rajé (2007) also found that the use of measurement tools at technical levels far removed from local experience (like those described above under traditional transit measures) resulted in an underrepresentation of barriers to mobility within everyday routine travel. As a result, Rajé (2007) sought to move beyond the mainstream approach within transit literature of measuring transport demand, to illuminate the lived experiences of the individuals who experience the transport system, particularly “micro-scale effects” of how the system facilitates or hinders their daily access to services and activities. This approach by Rajé (2007) recognizes the need for a measure of mobility that addresses mobility’s role in individuals’ daily lived experience, rather than in isolation from other aspects of daily life. The Rajé (2007) approach also highlights the importance of recognizing the heterogeneity of different social groups and the differences as well as similarities that exist within and across groups. The current study seeks to develop a measure that would both embed mobility within the daily lived experience as well and be sensitive to the unique mobility experiences of marginalized populations, particularly women who are homeless.

Within women and transport literature, existing methods tend to measure mobility as traditional transportation literature has measured mobility, rather than developing a measure that recognizes the daily lived mobility experiences of women specifically. Law (1999) was highly critical of the “women and transport” research and chooses to redefine the topic as
“gender and daily mobility,” borrowing from many other related disciplines and coming to an approach to mobility in which gender is considered as a symbolic code shaping daily mobility practices and the cultural meaning of those practices. Similarly, Blumenberg (2000) criticized research on which reverse-commute programs are based because this research tends to use aggregate data from census tracts and traffic zones to map the location of jobs in comparison to the location of welfare participants (such as Immergluck, 1998; Ong & Blumenberg, 1998), but these data do not directly test the hypothesis because they do not reveal the actual experiences of welfare recipients. Existence of or proximity to public transportation systems cannot be considered equivalent to access to such opportunities as it has often been in past transit literature, but rather a number of other factors must be considered to determine the extent to which individuals can take advantage of such opportunities within their geographic vicinity (Hine & Grieco, 2003). Furthermore, the traditional male commuter models of mobility are inadequate for a variety of reasons when applied to the daily lived experiences of homeless women. One such reason is that such models are based upon a mobility experience to and from home, whereas individuals experiencing homelessness have insufficient income for permanent housing and therefore their housing-related mobility is often shaped by the search for nightly shelter rather than journeys to and from a stable home (Wolch et al., 1993).

*Modal bias.* Another aspect of existing measures of mobility is their tendency to be specific to one mode of transportation. Previous research has struggled to develop measures that are applicable to more than one mode of transportation, neither have they addressed the
possibility of one individual utilizing multiple modes. Often research examines the impact of dependence upon public transportation or level of access to a car, possibly comparing the two. However, this emphasis on level of access to a car and the idea that accessibility more generally (defined as the “get-at-ability” of a destination) is synonymous with access to a car (Hine & Grieco, 2003). The current study seeks to develop a measure that is not specific to and therefore limited to any one mode of transportation and that is also able to be applied to individuals who use multiple modes of transportation.

**Complexity.** Another aspect of mobility that has thus not been fully incorporated into existing measures of mobility is the complexity of travel patterns that actually make up the daily lived experiences of an individual’s travel, particularly the travel of low-income women. Hine and Grieco (2003) contend that measures of mobility must recognize the specific needs and desires of the category of people under consideration and the complexities of travel differentially associated with different groups of people. Hine and Grieco (2003) encouraged transportation researchers and policy makers to think beyond over-simplified neighborhood-based approaches (such as those discussed above under traditional transit measures). Because socially excluded individuals are not necessarily clustered in neighborhood zones but can also be geographically scattered, access to transport cannot be geographically measured as adequate or inadequate based on zone-level measurements. Another key aspect of the complexity of individual travel patterns that must be taken into consideration when measuring mobility is the “density of time” within trips (i.e. amount of transportation activity within a certain amount of time, rather than just trip number, time, or
distance) which can be increased via multi-tasking, purchase of time, or asking others to
undertake tasks (Hine & Grieco, 2003).

Research that focuses on the unique needs of a specific population is not sufficient if it does not also take in the full range of complexity of a variety of travel purposes. For example, although “women and transport” research addresses the needs of women specifically, employment accessibility studies have primarily focused on commuting at the expense of the full range of research problems, including nonwork travel (Law, 1999; Sanchez & Schweitzer, 2008). Ignoring non-work trips is especially detrimental to research on women because out of the six daily trips that women make on average, only one is for commuting purposes (Roberto, 2008). Furthermore, according to a 2008 evaluation of the federal Job Access and Reverse Commute Program (JARC) by the Brookings Institute, …research on transportation mobility among low-income workers…emphasizes that to be effective, access must be to more than just work destinations and should focus on social access more generally. A focus on jobs alone oversimplifies the planning involved and hinders effective project evaluation (Sanchez, & Schweitzer, 2008, p. 15).

For the reasons outlined above, the mobility measure of the current study attempts to recognize the complexity of travel patterns, particularly those specific to women who are homeless or at-risk of homelessness.

Perceived mobility. Another shortcoming of existing measures of mobility is their failure to take under consideration both the perceived world and the directly measurable
physical world (Hine & Grieco, 2003). Past measures of mobility have tended to value “objective” measures of travel rather than acknowledging the importance of people’s perceptions of travel. A growing body of research recognizes the need for measures of perceived mobility. Ory, Mokhtarian, and Collantes (2007) stressed the need to include not just how much people actually travel but also their subjective assessments of travel amounts as an important factor determining travel behavior. In two of the only studies specific to transportation within the field of community psychology, Novaco et al. (1979) and Novaco, Stokols, and Milanesi (1990) examined the relationship between travel impedance, locus of control, and stress for daily commute. Whereas Novaco et al. (1979) did not take into account perceived measures of travel impedance but rather used only an objective measure, Novaco et al. (1990) included an additional measure of subjective impedance, a measure of the perceptual conditions of travel impedance. The notion of “suppressed journeys,” or trips that an individual needs or wants to make but cannot, is an important aspect of perceived mobility that can act as an indicator of the extent to which an individual has control over their own mobility (Hine & Grieco, 2003). The current study seeks to develop a measure of mobility that values an individual’s perception of their own mobility experiences, particularly their perceived control over their own mobility embodied which will include measures such as suppressed journeys.

Agency. Existing measures have failed to measure mobility in a way that recognizes the interaction between individual characteristics and environmental constraints and the agency of individuals to construct their own mobility rather than be passive recipients of it.
As described above, measures of mobility must not fail to recognize the importance of personal control in the ability of an individual to construct her own mobility within the confines of environmental circumstances. Marginalized populations, such as women who are homeless or at risk of homelessness experience a pervasive lack of control in their daily lives as outlined above. According to COR theory, those already lacking resources in one area are more vulnerable to losing resources in that area or other important resource areas. Therefore, the researcher must account for both the impact of environmental constraints on an individual’s mobility as well as personal adaptations to those constraints, rather than resorting to either victim-blaming or portraying the individual as the passive recipient of their own mobility (Hobfoll & Schumm, 2002). The mobility measure developed for the current study seeks to make individual agency and control over their own mobility a central element of the measure.

**Social networks.** Previous measures of mobility have ignored the viability of “interdependence” with others as a method of maintaining or increasing one’s mobility options, particularly reliance upon social networks which tends to be a more common practice among women and low-income individuals. As outlined above, mobility and social networks are linked in that an individual’s mobility is bidirectionally related to the extent that she has a social network on which she can rely. Limited mobility can limit one’s access to, and therefore ability to depend upon, social networks, and limited access to social networks can limit one’s ability to depend upon others to meet her transportation needs. Measures of mobility must take account of not only “direct accessibility” (i.e. “the ability of individuals to
plan and undertake journeys by public or private modes subject to time budget and cost”), but also “indirect accessibility” (i.e. “the extent to which individuals or groups can rely on neighbors or other support networks to access goods and facilities on their behalf subject to time and financial budgets”) (Hine & Grieco, 2003, p. 300). The measure developed for the current study is designed to recognize the important role that social networks can play in one’s construction of and control over their own mobility.

**Development of PCMS**

As outlined above, existing measures of mobility fail to take into account many aspects of mobility critical to its measurement, particularly among marginalized populations. The current study seeks to address gaps in the current mobility literature by developing the Personal Control in Mobility Scale. Framing mobility in terms of one’s control over it provides a greater benefit over the existing measures of mobility discussed above in that the measure will:

1. Not be mode-specific, but rather will be able to be applied regardless of mode or even combinations of modes;

2. Provide a mobility score on a continuum enabling comparisons across groups or individuals regardless of mode with greater variability than previous dichotomous measures;

3. Encompasses the complexity of daily travel patterns rather than reducing it to a number of trips or distance traveled;
4. Recognize the importance of access to social networks in shaping an individual’s mobility;

5. Value the ability of individuals to construct their own mobility within the constraints of their environment, enabling the researcher to capture participants’ adaptive mobility within the context of such environmental constraints, rather than resorting to either victim-blaming or portraying the individual as the passive recipient of their own mobility.

For the purposes of the current study, personal control as it pertains to mobility can be defined as the one’s sense of agency in satisfying one’s transportation needs. The PCMS was developed based upon the literature outlined above as well as from an earlier qualitative study on the mobility clients of the site of the current study.

The current study seeks to use the PCMS to measure the personal control in mobility of a sample of women who are homeless or at-risk of homelessness and to better understand the relationship between their perceived control in mobility, met needs, and well-being.

Research Questions and Hypotheses.

H1: The PCMS will be shown to represent one homogenous factor in an exploratory factor analysis and to demonstrate strong psychometric qualities – i.e. reliability via Cronbach's Alpha and a one-factor structure

H2: The PCMS score will be significantly inversely related to the Needs Difficulty (i.e. NDQ) scores when entered into a regression analysis controlling for age and income, with
participants who report higher personal control in mobility reporting lower difficulty in meeting their needs.

H3: The PCMS score will be significantly positively related to the VOL score when entered into a regression analysis controlling for age and income, with participants who report higher personal control in mobility also reporting higher perceived quality of life.

H4: The relationship between the PCMS score and the VOL score will be significantly mediated by the Needs Difficulty score when entered into a regression analysis controlling for age and income, with the relationship between the PCMS and VOL significantly reduced when controlling for the Needs Difficulty scores.

Method

Design

The current study is a theory-based, nonexperimental research design with the following goals to: (1) explicate a series of theoretical relationships between constructs, (2) provide high-quality measurement of the theoretical concepts addressed and (3) analyze data to determine the extent to which the postulated relationships between these theoretical concepts exist (Shadish, Cook, & Campbell, 2002). As there is no treatment evaluated and no random assignment in the current study, no causal relationships are inferred. Specifically, the current study seeks to determine the internal consistency of the PCMS, the extent to which the PCMS predicts the NDQ scores and VOL scores, and the extent to which the relationship between the PCMS and VOL is mediated by the NDQ scores. See Figure 1.

Participants
Recruitment. The current study recruited 89 participants through a day center for women who are homeless or at-risk of homelessness in the downtown of a mid-sized southeastern city. Participants were recruited from gathering places in the center during the most-highly-trafficked times at the center, mid morning before lunch. Participants were told that the study was about their transportation experiences, how easy it was to meet their daily needs and how they felt about their future. Incentives were provided for participation in the form of a gift bag containing toiletry and snack items as well as a day pass to the Raleigh city buses.

Eligibility. Eligible participants include women currently receiving services from the center who were over the age of 18 and fluent in English. Participants self-identified as 18 or over, fluent in English and literate. Researchers did not ask for verification or administer a literacy test.

Sampling. The center serves women who are currently homeless or at-risk of homelessness. The sample was selected specifically to access a population generally marginalized by past academic research and local economic planning alike. Past research has demonstrated how transportation systems are biased toward a traditional male commuter model. Therefore, participants who are women, do not have a home, and are less likely to have stable employment are those most excluded from current transportation research and planning. The bias in the existing research and planning toward housed, employed men must be balanced with research that illuminates the needs and experiences of unhoused and under- or unemployed women. Sampling of this population is a key goal of the current study.
In this way, the site facilitated typical and extreme instance sampling simultaneously. Women who are homeless or at-risk of homelessness were selected as a sample in order to serve as an extreme instance in comparison to the populations more typically researched. However, the site also provided a “typical” sample of women who are homeless or at-risk of homelessness as defined below. Finally, within the site, a sample of women were drawn from the larger populations of all women who use the services there through convenience sampling. Convenience sampling makes the sample less generalizable to the larger shelter population in that the sample will be biased towards those who are willing and able to volunteer for the study.

Site. The center in which the current study took place seeks to advocate for and provide services to women with children and single women who are homeless or at-risk of becoming homeless. The center is the only day center in the city in which it is located for women and children who are homeless.

The current study seeks to make use of a participatory and community-based approach to this research project. Therefore the researcher sought the input of center staff and clients through a prior qualitative interview pilot study that informed the current study and also sought continued input of center staff throughout the research design process. In community-based research, it is imperative that the entire research process be designed with the input of the community organization and its clients throughout in order to ensure the information generated by the research is useful to their needs. Therefore, the current study
seeks to examine the needs of the center’s clients in a way that is compatible with the
center’s approach to helping their clients.

*Measures*

The questionnaire included a series of descriptive questions used to describe the
current sample in order to enable comparisons to past and future research (see *Appendix A*).
These are described below.

*Homelessness.* Although literature on homeless populations often fails to clearly
define what is meant by homeless or at-risk of homelessness, the current study seeks to
clearly define these two concepts in a way that was inclusive of a broad range of experiences
of homelessness and risk of homelessness. Therefore, a series of questions were asked based
upon several definitions of homelessness and risk of homelessness.

Patterson and Tweed (2009) define homelessness as (a) staying outdoors from
evening to morning because of lack of acceptable housing and/or (b) staying in an emergency
shelter because of lack of acceptable housing. However, the Patterson and Tweed (2009)
definition is a narrow definition of homelessness that excludes many other experiences of
inadequate housing and the concept of at-risk of homelessness. In contrast, the U.S.
Department of Housing and Urban Development defines someone who is homeless as (1) an
individual who lacks a fixed, regular, and adequate nighttime residence; and (2) an
individual who has a primary nighttime residence that is – (A) a supervised publicly or
privately operated shelter designed to provide temporary living accommodations (including
welfare hotels, congregate shelters, and transitional housing for the mentally ill); (B) an
institution that provides a temporary residence for individuals intended to be institutionalized; or (C) a public or private place not designed for, or ordinarily used as, a regular sleeping accommodation for human beings.

Springer (2000) also provides a non-exclusive definition of homelessness that goes further by including risk of homelessness as a category because, “the situation of being houseless can be acute, imminent or potential” (p. 478). Those who face the risk of losing their shelter either by eviction or expiry of lease with no other possible shelter options or are released from an institution having no place to go are categorized as at “risk of houselessness.” Fiedler, Schuurman, and Hyndman (2006) differentiate between two broad groups of homelessness, “absolute” and “relative.” Relative homelessness includes those at-risk of homelessness – those in “unaffordable, overcrowded, and/or substandard housing situations” who spend at least 30% of their income on shelter (p. 210). The measures of homelessness in the current study seeks to encompass these more inclusive definitions of homelessness and at-risk of homelessness.

Current homelessness and presence of a previous experience of homelessness were collected as descriptors of the participants’ experience of homelessness in order to determine to what extent participants’ experiences of homelessness had been chronic and/or cyclical, and these indicators are adapted from homelessness indicators included in Wenzel, Leak, Andersen, and Gelberg (2001). Participants were asked to respond “yes” or “no” to whether they were currently homeless (defined as lacking fixed, regular, and adequate housing) (see Table 1). Respondents that responded “yes” to currently homeless were then asked to write
in how long they had been homeless, with all responses converted to months. Participants were also asked if they had experienced other instances of homelessness in the past.

Amount of income spent on housing was asked in order to determine the extent to which participants who were currently not homeless were at risk of homelessness according to the definition of homelessness and at-risk of homelessness outlined above. Participants were asked to write in how much of their income (in dollars) they had spent on housing last month so that it could be converted to a percentage of their reported total monthly income (see below).

**Car access.** Level of access to a car was measured by asking participants to categorize their level of access to a car as full, shared, or no access (regardless of driver or passenger status). This measure is commonly used in transit literature (Ong, 1996; Raleigh Five-Year Transit Plan) and provides a general descriptor of participants’ mobility as defined in previous literature. A second continuous measure of car access asked participants to write in the number of trips taken by car over the past two weeks. Number of trips is another common measure of mobility in transit literature (Rosenbloom, 1994; Blumenberg, 2000; Preston & McLafferty, 1999).

**Race/ethnicity.** Participants were asked to select their race and/or ethnicity using a question adapted from the 2010 US Census format. Participants were asked to select all categories that apply for the race(s) and/or ethnicity they most closely identified with (White; Black or African American; Hispanic, Latino or Spanish origin; American Indian or Native
Alaskan; Asian; Native Hawaiian or Pacific Islander; some other race(s). Please write in.________).

Education. Participants were asked to select their highest level of education completed (8th grade or less; some high school; high school graduate or GED; Technical training or associates degree; Some college, College graduate; Graduate school).

Employment. Participants were asked to select their current employment status (Unable to work due to a disability; Not working and not searching for work; Not working and searching for work; Currently employed part-time; Currently employed full-time).

Caregiver. Finally, participants were asked to write in the number of children for whom they are the primary caregiver.

Control Variables.

Age and income were used for hypothesis testing purposes.

Age. Participants were asked to write in their current age.

Income. Participants were asked to write in their total individual income for the last month.

Predictor Variables

Personal Control in Mobility Scale (PCMS). The PCMS, developed for this study, is designed to measure the perceived confidence that one can draw on personal, social, and public resources to meet one's mobility needs. Questions were designed to assess participants’ agency in satisfying their transportation needs in a way that could include a variety of modes, including a personal vehicle, public transportation, or relying on their
social network. Questions were asked in reference to the participants’ daily travel over the past 30 days (not in reference to specific travel modes but to overall travel). Items asked participants to rate statements on a 5-point Likert-type scale ranging from 1, *strongly disagree*, to 5, *strongly agree*. Ratings of each item were averaged together resulting in one total PCMS score. As outlined above in hypothesis one, the PCMS was expected to demonstrate a one-factor solution, representing one homogenous theoretical construct of personal control as it pertains to mobility. The results of the factor analysis of the PCMS are described below in the results of hypothesis one.

*Needs Difficulty Questionnaire (NDQ).* The NDQ, derived from one component of the Needs Assessment Questionnaire (NAQ) (Acosta & Toro, 2000), provides a measure of the extent to which clients are able to meet the needs listed. The NDQ consists of 15 needs assessment items, with an option to mark “not applicable” for each need. The difficulty of meeting needs was rated on a four-point Likert scale (1 = always difficult and 4 = always easy). The needs listed on the NAQ used by Acosta and Toro (2000) were generated by their participants as a component of their study of the homeless. Similarly, the needs listed on both the NDQ and NIQ (see below) were adapted using common destinations listed during a qualitative study of a sample of women from the same location as the current study, and the list of needs was also shortened to 15 items. Examples of items include “ childcare” and “affordable housing.” Acosta and Toro (2000) did not view the needs list as a factor but rather as an index, as does the current study.
The NDQ was scored by reverse coding the variable so that higher scores would represent higher difficulty. Need difficulty ratings were then averaged into one NDQ score for each participant. As will be described later, the NDQ ultimately used had a Cronbach’s Alpha of .97.

Needs Importance Questionnaire (NIQ). The NIQ, also derived from another component of the NAQ (Acosta & Toro, 2000), provides a measure of how important the respondent perceives the needs listed to be. The NIQ consists of the same 15 needs assessment items as the NDQ, but instead asked participants to rate the personal importance of each need on a five-point Likert scale (1 = not important and 5 = extremely important). Again, the needs listed on the NAQ used by Acosta and Toro (2000) were generated by their participants as a component of their study. Similarly, the needs listed on both the NDQ and NIQ were adapted using common destinations listed during a qualitative study of a sample of women from the same location as the current study, and the list of needs was also shortened to 15 items. Examples of items include “childcare” and “affordable housing.” Acosta and Toro (2000) did not view the needs list as a factor but rather as an index, as does current study. As will be described later, the NIQ ultimately used had a Cronbach’s Alpha of .86.

Dependent Measure

Valuation of Life (VOL) Scale. The VOL Scale was adapted from the Lawton et al. (2001) Valuation of Life (VOL) Scale. The VOL Scale that Lawton et al. (2001) developed was composed of 19 items, 13 positively-worded and six negatively-worded, answered on a five-point scale ranging from 1 = disagree very strongly to 5 = agree very strongly. Internal
consistency and inter-item correlations were demonstrated to be strong for both positive ($\alpha = .94$, median $r = .55$) and negative ($\alpha = .83$, median $r = .44$) items (Lawton et al. 2001). Concurrent validity was demonstrated by showing that VOL shared a moderate amount of variability with most indicators of positive mental health (median $r = .51$). Lawton et al. (2001) determined discriminate validity by comparing VOL with measures of health (median $r = .20$) and depression (median $r = .40$). Based upon the premise that people may discount future life based upon their present life, Lawton et al. (2001) also demonstrated that VOL was independently related to Years of Desired Life over and above any related construct.

One limitation of the VOL scale was that it consistently demonstrated a two-factor structure with a minimal correlation between the two factors, one composed of positively-worded items and the other of negatively-worded items, making it difficult to justify combining the factors into one score. Lawton et al. (2001) tested the possibility of the two factors emerging due to response and comprehension error, finding that poor health and low education were associated with more incongruent responses between positively and negatively worded items. For this reason, they recommend using only the 13-item positively-worded VOL scale for heterogeneous populations or populations reporting fewer years of education (Lawton et al. 2001), such as the sample expected for the current study.

The samples for the four studies with which the VOL was developed had an average age ($M = 77.34, M = 76.89, M = 80.64, M = 75.65$) higher than that expected for the current study. However, the samples also included significant proportions of female, African
American, and low-income participants with high school as an average level of education completed, similar to what was expected in the current study.

For the current study, the 13-item positively-worded VOL scale was used with responses rated on a five-point scale ranging from 1 = disagree very strongly to 5 = agree very strongly. Only the positively-worded items were used because a significant proportion of the sample for the current study was anticipated to report low levels of education and problems with literacy and comprehension. Ratings for each item were averaged together resulting in one VOL score for each participant. As will be discussed later, the VOL scale ultimately used had a Cronbach’s Alpha of .91.

Procedure

Participants signed up with the researchers in groups of ten or fewer to participate in the study. The clients who volunteered to complete the questionnaire were taken to a private room in the center and asked to confirm that they met the eligibility criteria for the study. Eligible participants were presented with incentives, administered an informed consent and then given an opportunity to ask questions. The researchers emphasized that participation was voluntary, that the responses were confidential and that incentives were not conditional upon completion of the survey. The researchers then administered the questionnaire and provided assistance to those participants who needed additional help in order to complete the questionnaire, such as reading questions out loud for those participants with vision or literacy difficulty. Help was offered to anyone who needed it before the survey administration began at the beginning of each session. Throughout the course of the study, two individuals
requested assistance. When all participants had completed the surveys, surveys were collected, and participants were thanked for their participation in the study and provided the opportunity to ask any final questions.

Results

*Missing Data Analysis*

All of the above measures use mean scores in order to limit the problem of missing responses. However, patterns in the data were examined in order to determine the effect of missing data on each of the above predictor and dependent measures. For the control variables, 6.7% of age responses were missing, and 16.0% of income responses. For PCMS scores, 4.5% of participants were missing responses for two items and 9.0% of participants were missing a response for one item. For VOL scores, 1.1% of participants were missing responses for 3 items and 2.2% of participants were missing a response for one item. For the PCMS and VOL scores, participants who answered less than 80% of items were excluded from analyses, resulting in 4 participants’ PCMS scores being counted as missing and 1 participant’s VOL score being counted as missing.

The NDQ was dealt with differently because the “not applicable” option resulted in a larger amount of missing data than existed in the other measures, with 30.3% of participants answering fewer than 80% of items. Although responses of “not applicable” were treated as missing data, these responses are not the same as an unanswered item. Therefore, the NDQ score was computed by averaging responses from each participant regardless of the number missing.
One concern was whether participants who endorsed a large number of “not applicable” responses on the NDQ represented a different level of need than those women who reported using more services. To examine this, the difficulty of meeting needs was correlated with the number of missing items in the following manner. A variable was computed to count the frequency of missing data for each participant. The NDQ score and the missing data frequency were then correlated. No significant correlation was found between the number of missing responses and the participant scores ($r(87) = .123$, $p = .252$), meaning that number of items missed does not relate to how a person responded to the remaining items. Therefore, the NDQ score using all participants regardless of number answered was used in all further analyses.

**Descriptives**

Descriptive information on the sample of 89 participants is presented in *Table 1.*

**Homelessness.** Participant homelessness or risk of homelessness was categorized and described in several ways. Participants responded to whether they were currently homeless or not, with 56 participants responding as currently homeless and 31 responding as not currently homeless. Of those currently homeless, average duration of homelessness ranged from one day to 204 months, with a mean duration homeless of 22.97 months. Those not currently homeless were further categorized as at-risk of homelessness if they reported spending one-third or more of their total income last month on housing, according to the definition of at-risk of homelessness outlined above. Of those participants not currently homeless, 11 participants reported spending one-third or more of their income last month on
housing, qualifying them as at-risk according to the definition above. Of the remaining 22 participants who were not either homeless or at-risk of homelessness, 9 reported spending less than one-third of their income last month on housing (5 of whom reported spending nothing on housing last month), and 2 reported no income. The remaining participants had missing responses in either the currently homelessness or income questions.

In order to determine if those participants who could be categorized as homeless and at-risk of homelessness differed from the remaining participants in respect to PCMS, NDQ, and VOL scores, participants were divided into two groups, those who responded as either currently homeless or who were at-risk of homelessness according to the definition above, and all other participants for whom this could not be confirmed. A multivariate analysis of variance (MANOVA) was conducted comparing the two groups on all three outcomes, revealing significantly different mean scores between confirmed homeless or at-risk of homelessness and unconfirmed for all three outcomes. Participants confirmed homeless or at-risk of homelessness responded significantly lower (M = 3.05) than non-confirmed participants (M = 3.77) on the PCMS, F (1, 83) = 6.99, p < .05, η² = .08. Participants confirmed homeless or at-risk of homelessness responded significantly higher (M = 1.43) than non-confirmed participants (M = .82) on the NDQ, F (1, 83) = 10.65, p < .05, η² = .11. Participants confirmed homeless or at-risk of homelessness responded significantly lower (M = 4.01) than non-confirmed participants (M = 4.60) on the VOL, F (1, 83) = 9.40, p < .05, η² = .10.
**Car access.** Participants were asked two questions in order to better understand their level of car access as additional comparison measures of mobility. An overwhelming majority of participants responded that they had “no access” to a personal vehicle (see Table 1). On average, participants responded that they had taken fewer than two trips by car in the last week, ranging from zero to thirty trips, with 44.9% of participants responding that they had taken no trips in the past two weeks.

**Caregiver.** Participants were asked for how many children (if any) they were the primary caregiver, as having dependents can greatly affect one’s experience of mobility. A majority of participants responded that they were not the primary caregiver for any children (62.9%), with responses ranging from 0 to 9.

**Other.** Other descriptives of the sample, including race(s)/ethnicity with which the participants most closely identified, highest level of education completed, and current employment status, are listed in Table 1.

**Control Variables**

Age and total individual income last month are to be used in further analyses as control variables. Participants were asked to write in responses for both. Participant ages ranged from 18 to 61 (\(M = 41.16, SD = 10.53, n = 83\)). Overall, this sample is somewhat older than that of Acosta and Toro (2000), with most (77.7%) of their sample under the age of 40. For total individual income last month, two outliers of $21,000 and $25,000 were excluded from analyses out of concern that participants misunderstood the question. Monthly incomes ranged from 0 to $3,000, with 27.5% responding they earned $200 last
month (an amount that corresponds to the food assistance maximum benefit allotment for a household of one in North Carolina) and 14.5% responding they earned no income last month ($M = $466.67, $SD = $593.06, $n = 69$).

**Predictor Variables**

Descriptive statistics and correlations were computed for all variables to be included in regression and mediation analyses, including PCMS Scores, NDQ Scores, VOL Scores, and control variables of age and income. Descriptives statistics for study variables are summarized in Table 2.

Of the correlations run, the PCMS Scores were found to be significantly correlated with the NDQ Scores, the VOL Scores, and incomes last month. The NDQ Scores were also significantly correlated with the VOL Scores. Correlations among study variables are summarized in Table 3.

**Internal Consistency of the PCMS**

Hypothesis one predicted that the PCMS would be shown to represent one homogenous factor in an exploratory factor analysis and to demonstrate strong psychometric qualities – i.e. reliability via Cronbach's Alpha and a one-factor structure. An Exploratory Factor Analysis was performed in order to test whether items loaded on the predicted one-factor solution.

A three-factor structure resulted based upon maximum variance explained, with the first factor explaining 37.39% of the variance. However, even upon Varimax and Promax
rotations, the three-factor solution resulted in an uninterpretable factor solution with many complex items.

The Scree plot and Eigen values indicated a two-factor solution. Therefore, a two-factor solution was forced but resulted in a difficult to interpret second factor with several complex items (i.e. loading more than .3 on more than one factor), including two negatively-worded items. See Table 4.

After removing complex items that loaded on more than one factor, factor one had seven items, and factor two had two items. Factor one seemed interpretable and had an internal consistency (alpha) of .88. The two items in factor two had an internal consistency (alpha) of .63 and seemed less interpretable, so only factor one was used in subsequent analyses.

Regression and Mediation Analyses

For the remaining hypotheses, a series of regression analyses were used to determine the extent of the relationship between the PCMS scores and the NDQ scores, the extent of the relationship between the PCMS scores and the VOL scores and the extent to which the relationship between PCM and VOL is mediated by the NDQ scores.

Hypothesis two. Hypothesis two predicted that the PCMS score would be significantly inversely related to the NDQ scores when entered into a regression analysis controlling for age and income, with participants who report higher personal control in mobility reporting lower difficulty in meeting their needs. A linear regression was conducted to determine the relationship between the PCMS and NDQ, controlling for age and income.
Holding age and income constant, participants who perceive themselves to have a higher sense of personal control over their mobility also report less difficulty meeting their daily needs, confirming hypothesis two (See Table 5). Together, age, income, and PCMS scores account for 26% of the variability in NDQ scores.

**Hypothesis three.** Hypothesis three predicted that the PCMS score would be significantly positively related to the VOL score when entered into a regression analysis controlling for age and income, with participants who report higher personal control in mobility also reporting higher perceived quality of life. A linear regression was conducted to determine the relationship between the PCMS and VOL, controlling for age and income. Holding age and income constant, participants who perceive themselves to have a higher sense of personal control over their mobility also report a higher valuation of life, confirming hypothesis three (See Table 6). Together, age, income, and PCMS scores account for 15% of the variability in VOL scores.

**Hypothesis four.** Hypothesis four predicted that the relationship between the PCMS scores and the VOL scores would be significantly mediated by the NDQ scores when entered into a regression analysis controlling for age and income, with the relationship between the PCMS and VOL significantly reduced when controlling for the NDQ. In order to determine if mediation exists, the approach advocated by Baron and Kenny (1986) was used. As can be seen in Table 4, all three variables were significantly related to one another, indicating that conducting a mediation analysis would be appropriate.
Next, a hierarchical regression was conducted with PCMS scores entered into the regression on the first step, NDQ scores in the second step. Age and income were excluded as covariates for the mediation analysis because neither was related to the outcome variable, and the inclusion of two additional variables in conjunction with the low $n$ for income would significantly reduce the power needed for a mediation analysis (Hoyle & Kenny, 1999)\(^2\). As can be seen in Table 7, the PCMS was a significant and positive predictor of VOL scores, indicating that higher personal control of mobility is related to higher valuation of life.

With the addition of NDQ scores in the second step, the relationship between the PCMS and VOL scores decreases but is still significant (see Table 7), suggesting that NDQ scores may mediate the relationship between the PCMS and VOL. Results from a follow-up Sobel test (1982) indicated that NDQ scores were a significant mediator between PCMS and VOL scores ($t = 2.07$, $p < .05$), confirming hypothesis four. Interestingly, NDQ scores were also a unique predictor of VOL scores (see Table 7). Together, the PCMS and NDQ scores accounted for 25% of the variability in VOL scores.

Post-Hoc Analyses

**PCMS and car access measures comparisons.** Correlations were conducted to compare the PCMS, car access variable, and number of trips by car variable. A Pearson Product-Moment correlation was conducted in order to determine the strength of the relationship between the PCMS and number of trips by car in the last two weeks. Participants’ sense of personal control over their mobility was found not to be significantly

\(^2\) When a Sobel test was run with income included as a covariate, NDQ was found to not be a significant mediator between the PCMS and VOL scores ($t = 1.71$, $p = .09$, $n = 67$).
related to the number of trips they had taken by car over the past two weeks, \( r(65) = .15, p = .22 \).

A Point-Biserial correlation was conducted in order to determine if the PCMS was related to a dichotomized car access variable, with 1 meaning “no access” and 2 meaning “any access” (some or full). Participants’ sense of personal control over their mobility was found to be significantly positively related to their access to a personal vehicle, \( r(77) = .26, p < .05 \), meaning that those participants with either part or full access to a personal vehicle tended to have a higher sense of personal control over their mobility.

Post-hoc analyses also revealed that the PCMS explained 20% more variance in NDQ scores than number of trips by car and 18% more variance in VOL scores. A similar pattern of results was found for level of car access.

*Needs Importance Questionnaire follow-up analyses.* In order to determine if the pattern of results held true when only important needs were included, analyses for hypotheses two and four were rerun using only those NDQ needs that were rated as either somewhat or very important on the NIQ. Somewhat and Very Important needs for each participant were then averaged to create the new Important-NDQ (I-NDQ), \( (M = 2.25, SD = .80, n = 87) \)

First the I-NDQ was correlated with the original NDQ, the PCMS, VOL, age, and income. Of the correlations run, the I-NDQ Scores were found to be significantly correlated with the original NDQ Scores \( (r = .98, p < .001) \), the PCMS scores, and the VOL Scores. This pattern of correlations is similar to what was seen for the NDQ.
Hypothesis two predicted that the PCMS score would be significantly inversely related to the NDQ scores when entered into a regression analysis controlling for age and income, with participants who report higher personal control in mobility reporting lower difficulty in meeting their needs. A linear regression was conducted to determine the relationship between the PCMS and new I-NDQ, controlling for age and income. Holding age ($\beta = .02, p = .86$) and income ($\beta = .15, p = .19$) constant, participants who perceive themselves to have a higher sense of personal control over their mobility also report less difficulty meeting their somewhat and very important daily needs ($\beta = -.57, p < .001$), confirming hypothesis two. Together, age, income, and PCMS scores account for 28% of the variability in the somewhat to very important I-NDQ scores.

Hypothesis four predicted that the relationship between the PCMS scores and the VOL scores would be significantly mediated by the NDQ scores when entered into a regression analysis controlling for age and income, with the relationship between the PCMS and VOL significantly reduced when controlling for the NDQ. In order to determine if mediation exists, the approach advocated by Baron and Kenny (1986) was used. As can be seen in Table 6, the I-NDQ was significantly related to the other variables, and, as noted previously in Table 4, all other variables were correlated with one another, indicating that conducting a mediation analysis would be appropriate.

A hierarchical regression was conducted with PCMS scores entered into the regression on the first step, I-NDQ scores in the second step. Age and income were excluded as covariates for the mediation analysis because neither was related to the outcome variable,
and the inclusion of two additional variables in conjunction with the low \( n \) for income would significantly reduce the power needed for a mediation analysis\(^3\). As can be seen in Table 8 and as was noted earlier, the PCMS was a significant and positive predictor of VOL scores, indicating that higher personal control of mobility is related to higher valuation of life.

With the addition of I-NDQ scores in the second step, the relationship between the PCMS and VOL scores decreased but was still significant (see Table 8), suggesting that I-NDQ scores may mediate the relationship between the PCMS and VOL. Results from a follow-up Sobel test (1982) indicated that I-NDQ scores were a significant mediator between PCMS and VOL scores (\( t = 2.09, p < .05 \)), confirming hypothesis four. Interestingly, I-NDQ scores were also a unique predictor of VOL scores (see Table 8). Together, the PCMS and I-NDQ scores accounted for 25% of the variability in VOL scores.

Discussion

The primary goals of this study were to determine how mobility relates to both one’s ability to meet daily basic needs and, in turn, one’s well-being, as well as to develop a new measure of mobility that would fully encompass the complexity of one’s perceived daily travel experiences. Hypothesized relationships and results were confirmed. The resulting Personal Control in Mobility measure was found have strong internal consistency. Personal Control in Mobility scores were also found to significantly predict both difficulty of meeting needs and psychological well-being, with difficulty of meeting needs mediating the relationship between Personal Control in Mobility and psychological well-being.

\(^3\) When a Sobel test was run with income included as a covariate, NDQ was found to not be a significant mediator between the PCMS and VOL scores (\( t = 1.72, p = .09, n = 65 \)).
Furthermore, post-hoc analyses revealed that these relationships held true even when only participants’ important needs were included in analyses. Cvitkovich and Wister (2001) found that a Weighted Priority Model of P-E Fit that weighted each need by its importance explained significantly more variance in Valuation of Life than other models because it accounted for the difference in saliency between needs for each individual. Controlling for importance of needs as well as difficulty accounts for the idea that when needs that are more important to the individual are difficult to meet, this deficit will have a greater impact on individual well-being than less important needs. The pattern of results was the same even when analyses were performed examining only those needs deemed most important.

Finally, post-hoc analyses also revealed that the PCMS predicted a significant amount of variance in both difficulty of meeting needs and Valuation of Life in comparison to two traditional mobility measures, number of trips by car and level of car access. The inclusion of the PCMS resulted in 18% in additional explained variance in Valuation of Life scores in comparison to number of trips by car and in 21% in additional variance explained in comparison to car access. Unlike the comparison measures, the PCMS is not mode-specific and does not measure participants’ mobility in reference only to their level of access to a car. This is especially important for this sample, in that car access is generally highly limited and therefore level of car access tells us little about women’s mobility. The PCMS also encompasses greater complexity in individual travel patterns in that it takes into account dependence upon social networks and values the ability of the individual to construct her own mobility within the constraints of the environment.
The demonstrated relationship between mobility, difficulty in meeting needs, and well-being are consistent with previous theoretical models from mobility and aging literature on which this research was based (Carp, 1988; Cvitkovich & Wister, 2001). These models emphasized mobility as a predictor of well-being because mobility is not only a need in itself but is also a factor that determines access to resources to meet most other needs. The primary role that mobility plays in determining access to needed resources in the community makes it unique in comparison with other predictors of well-being.

**Strengths of the Study**

The strengths of this study include its ability to integrate several perspectives across disciplines to inform the research process, its focus on community-based and participatory research designed in conjunction with a community organization and their clients, and its choice and design/adaptation of measures that best fit with the needs and focus of this study.

*Integrated perspectives.* The current study addresses the mobility of homeless women from an integrated theoretical perspective that combined the viewpoints of feminism, community psychology, and mobility studies, while also taking into account the specific context and needs of the site at which the study took place. The literature that informed this study spanned a variety of fields and disciplines, and it is a strength of this study that these perspectives were integrated throughout the research process, from the literature that informed it to the methods and measures used to complete it.

*Community-based.* A primary concern of the current study is the dearth of research and policies related to the mobility of low-income women. When research on other subsets
of the population is used to inform policies that affect the mobility needs and experiences of low-income women without their input, the voices of low-income women are effectively silenced. Therefore, the current study is designed in such a way as to provide a forum in which the voices of a sample of low-income women could be heard. Although a researcher cannot presume an ability to “give voice” to another group of people, the current study did seek the input of the participating sample of women throughout the research process and used this input to inform research design and measures.

Pilot interviews with staff and clients at the site of the current study revealed that mobility, particularly one’s control over it and how it affects an ability to meet basic needs, was a primary concern for these women. In this way, these first-person accounts played a key role in the design of the current study. Interviews revealed that the mobility of this sample of women was far more complex than measures that only addressed one’s access to a car or number of trips taken, suggesting the need for the development of a new measure of mobility that would be more sensitive to the mobility experiences of this population. Interviews also provided a list of common destinations and needed services that were used to adapt the items of the Needs Assessment Questionnaire (Acosta & Toro, 2000).

Measures. The current study also uses well-validated measures in the use of the Needs Difficulty Questionnaire (NDQ), an adaptation of a component from the Needs Assessment Questionnaire (NAQ) (Acosta & Toro, 2000), and the Valuation of Life (VOL) scale which had been used as an outcome in previous literature on aging and mobility (Cvitkovich & Wister, 2001). The Needs Assessment Questionnaire, from which the Needs
Difficulty Questionnaire was adapted, was developed by Acosta and Toro (2000) for use with a sample of homeless individuals, and the needs included in it were generated by homeless individuals themselves. As mentioned above, the current study adapted the list of needs based upon previous qualitative interviews with clients at the site of the current study.

Furthermore, the Valuation of Life scale was chosen as a measure for psychological well-being for the current study based upon previous use in mobility literature (Cvitkovich & Wister, 2001). It employs a strength-based approach to measuring psychological well-being and was to be sensitive to environmental and situational effects on well-being (Lawton et al., 2001). Rather than focusing on the absence of psychopathology, the Valuation of Life scale measures psychological well-being through the integration of several measures of positive psychology resulting in a measure of one’s likelihood to anticipate the future in positive terms. Lawton et al. (2001) also contend that the VOL is more sensitive to environmental and situational effects in that it is subject to positive and negative features whose locus of control may be either within the person or the environment and that it embodies one’s ability to accommodate changes in quality of life as they arise. This sensitivity to environmental factors makes the VOL ideal for a study of mobility, a fluid and dynamic predictor that is highly subject to environmental factors as well.

The PCMS also focuses on an individual’s strengths in that it was developed specifically to focus on respondents’ agency in overcoming environmental barriers in order to meet their mobility needs. Unlike previous measures of mobility, the PCMS seeks to account for one’s resourcefulness in utilizing social networks, multiple transportation modes,
etc in meeting daily mobility needs even without access to resources such as access to a personal vehicle or sometimes even to the money to pay for bus fare. The PCMS captures one’s mobility within a context of being environmentally constrained. In this way, the PCMS is much more sensitive to the mobility experiences of marginalized populations than previous measures that generally defined mobility in terms of car access.

Limitations

Although the current study contributes in the above ways to the theoretical understanding of mobility, some factors of the study’s design and measurement limit its findings. These include the study’s correlational design, use of only self-report measures, lack of comparative measures for well-being, lack of power to include income as a control variable in mediation analysis, and generalizability to other populations.

Correlational design. One limitation of the current study is that the relationship demonstrated between mobility, difficulty of meeting needs, and well-being is only correlational, and causation cannot be determined. A correlational design cannot determine the direction of relationships between variables and cannot rule out the possibility of unknown or unmeasured “third” or exogenous variables in accounting for these relationships. Although the variables were theorized to be related to one another in a specific way, the direction of the relationships between these three variables cannot be determined without an experimental design. Higher Valuation of Life may result in lower difficulty in meeting needs and higher personal control in mobility because of a range of reasons, such as a higher tendency to respond positively, a greater tendency to engage help more easily or a variety of
person-level variables such as personality factors or available resources. For example the
hopefulness expressed in higher Valuation of Life scores may result in higher coping and
ability to get needs met. Alternatively, an exogenous variable, such as personality variables,
may result in high Valuation of Life, high Control in Mobility, and low difficulty in meeting
needs. The correlational design of this study means that all of these are possible alternative
explanations of the relationship between Personal Control in Mobility, difficulty of meeting
needs, and Valuation of Life.

**Self-report measures.** Furthermore, all measures are self-report and therefore subject
to self-report bias and inaccurate recall. Using only self-report measures also limits an
ecological design in that there are no direct measures of environmental factors, but only
measures of individuals’ perceptions of their environments.

Self-report measures can be flawed in that they are subject to self-report bias. Participants may answer differently than how they actually think and behave in an attempt to
present themselves in a more positive light, or participant responses may be affected by other
factors that vary from day to day such as daily mood.

Self-report measures are also flawed in that they depend upon the participant
accurately recalling the information requested. This is particularly difficult when participants
are asked to summarize experiences over a long period of time, such as when participants in
the current study were asked to summarize their mobility and their difficulty of meeting
needs over the past thirty days. Accurately recalling information is also particularly
difficulty when asked to summarize a range of experiences, such as being asked to
summarize the difficulty of meeting an entire category of needs such as child care, further education or social visits.

**Comparison measures.** Another limitation related to the measures of the current study is the lack of normative data on this population for the Valuation of Life scale. Participant responses in the current study were very positive in regard to their current psychological well-being, with the mean response being 4.16, where scores ranged from 1 to 5 and a higher score means higher Valuation of Life. The scale was previously normed on samples of aging adults and has not been normed on populations of low-income, marginalized women. The positive responses may reflect a sample bias in that participants who volunteered to take the survey may have been those most likely to have more favorable experiences with services and service providers. However, on survey days, all clients present and not currently at an appointment were approached to participate in the survey, and very few of the clients who were asked to participate refused.

Another possibility is that the demand characteristics of the site of surveys (i.e. being set at the center where they receive services or the presence of the researchers) may have influenced participants to answer more favorably. However, other measures did not show similar positive response patterns and the researchers emphasized the confidentiality of all responses, not to be accessible to any center staff. Additionally, participants were generally very vocal about any negative opinions that they may have had in reference to the center during previous qualitative interviews and in their informal behavior during survey administration. The inclusion of another measure of psychological well-being or mental
health would have provided a valuable comparison of the psychological well-being of this sample.

*Power.* In analyses where income was included as a control variable, approximately one quarter of the sample size was lost due to missing data for the income measure. Although income was controlled for in the analyses where the PCMS predicted the NDQ and again when the PCMS predicted VOL and still resulted in significant relationships, income was not able to be controlled for in analyses determining whether the NDQ mediated the relationship between the PCMS and VOL because the sample size was not great enough to meet the power needed for a mediation analysis (Hoyle & Kenny, 1999).

*Sample.* Although great lengths were gone to in order to describe and categorize the experiences of homelessness of the participants, of those who could not be identified as either homeless or at-risk of homelessness, 5 reported spending nothing on housing last month and 2 reported no income, raising questions about their current housing situation. Additionally, 11 of these participants had missing responses in either the currently homelessness or income questions, and therefore could not be adequately categorized. Due perhaps in part to the sensitive nature of answering questions about one’s homelessness and income, as well as due to the complex nature of attempting to categorize homelessness, not all participants were confirmed as homeless or at-risk of homeless. This may have affected the results.

*Generalizability.* Finally, the current study was intentionally conducted with a specific subset of the population, limiting its generalizability to other populations. As
context has been emphasized throughout this proposal, it is important to remember that the specific context of this limited sample of women who are homeless or at-risk of being homeless limits the generalizability of the results of this study to other contexts. Also, particularly, the development of the PCMS through administering it to this specific sample limits its generalizability to other populations. Furthermore, participants of the current study were all volunteers, resulting in a possible volunteer bias in the sample. Many of the above issues are struggles of a participatory research design within a community setting.

Implications for Future Research

The current study will contribute to bodies of research on mobility and homelessness, but further research is needed to explore the PCMS as a measure of mobility to determine what factors contribute to Personal Control in Mobility, how Personal Control in Mobility compares to other predictors of well-being, what other important outcomes Personal Control in Mobility may predict, as well as what ways Personal Control in Mobility could be manipulated to generate positive outcomes.

Factors contributing to Mobility. The current study will contribute to bodies of research on mobility through the creation of the PCMS, in that it attempts to define and operationalize the construct of mobility, relate mobility to important outcomes in the daily lived experiences of individuals, and to enable the comparison of mobility across groups by reflecting more variability in mobility at the bottom of the income spectrum than previous measures. The Personal Control in Mobility Scale makes a unique contribution in attempts to measure mobility, particularly, in its recognition of an individual’s ability to construct her
own mobility. Future research could further examine what contributes to one’s Personal Control in Mobility, such as one’s sense of agency, one’s sense of autonomy, one’s access to different modes of transportation (i.e. public transit, bicycle, ride-sharing, etc.), and one’s access to social networks. Further research is also needed to continue the work began in the post-hoc analyses of this study to further develop the PCMS by comparing its explanatory power to other measures of mobility.

Comparing the PCMS to other predictors of well-being. Future research could examine the extent to which mobility (as measured by the PCMS) predicts psychological well-being in comparison to the other important predictors. For example, more research is needed to determine the extent to which the PCMS may be related to personality variables in predicting well-being. Furthermore, future research needs to examine the extent to which other critical needs, such as affordable housing, employment, or healthcare, may also be key predictors of well-being, particularly among low-income and homeless populations.

Other important outcomes of the PCMS. Prospective studies could also seek to determine the impact of mobility, as measured by the PCMS, on outcomes of well-being over time as well as on outcomes of independent living, such as income, employment, and housing. Psychological and attitudinal factors have been found to predict independent living outcomes, such as employment, among low-income individuals as well. Kalil, Schweingruber, and Seefeldt (2001) found that the inclusion of psychological and attitudinal measures significantly improved the explanatory power of a model predicting employment outcomes, with women with greater depressive symptoms less likely to be employed, and
women with positive work attitudes more likely to be currently working. Therefore, if mobility explains a significant amount of the variability in well-being, mobility may in turn also predict employment outcomes.

*Interventions utilizing the PCMS.* The relationship between the PCMS and other outcomes, including difficulty of meeting needs and well-being, could be further examined by attempts to influence individuals’ sense of Personal Control in Mobility through experimental interventions. For example, future research could compare the extent to which interventions that seek to train participants in the knowledge and skills necessary to work the existing transportation systems to which they have access and interventions that address mobility needs by increasing one’s access to other modes of transportation (i.e. distributing bus tickets or providing access to a car) predict the PCMS and improve other outcomes. Knowing how Personal Control in Mobility can be changed and whether increased Personal Control in Mobility leads to other increased positive outcomes has important implications for policy and interventions as outlined below.

*Implications for Future Policy and Intervention.*

Finally, the current study provides research on the mobility of a population, women who are homeless or at-risk of homelessness, that is generally ignored by transportation planning and policy alike. Furthermore, the data were collected for the current study in the midst of a major economic downturn, possibly making conditions for participants much more difficult than indicated by similar research in the mid-2000s. The study is therefore shaped
by the current economic conditions and is better equipped to inform policies and interventions within the midst of these conditions.

Research that addresses the transportation needs of low-income women is lacking, but necessary to inform transportation policies and interventions that will then in turn meet those needs. This study begins to illuminate the unique mobility needs and experiences of low-income women, a necessary precursor to those needs being met through policy and intervention. Future policies and interventions will need to address mobility as more than just access to a personal vehicle or a daily commute on public transportation, but rather as a complex daily experience that facilitates individuals’ even most basic functioning. Such policies and interventions will need to address how individuals’ perceived control over their mobility relates to both their ability to meet their daily needs and their sense of well-being.

This research suggests that it could be helpful to intervene at multiple levels. Interventions that only take individual behaviors or attitudes into account or interventions that only take environmental factors into account will both be inadequate. Successful mobility interventions need to work to equip individuals with the skills they need to increase their sense of control over their current transportation system (as mentioned above), while simultaneously working to redesign the system to better facilitate the transportation needs of those most affected by it (i.e. possibly through changes in public transportation policies to better facilitate low-income individuals’ access to transit). Policies and interventions that address the mobility needs of low-income individuals would be necessary and important in that mobility is a primary determinant of these individuals’ access to needed resources.
Therefore, issues of access to resources and services cannot be addressed without addressing mobility.

Locally, the current study was intended to provide a forum in which the needs and experiences of this sample of women can be heard. The current study is to be a component of an on-going working relationship with the center at which it is located. The results of the current study will be communicated to the center through a brain-storming session in center staff will be asked to use these results as a jumping off point for future research and intervention. The goal of this process is so that center staff may use research results as they choose with the intention that the results will aid the center in helping their clients to better meet their own needs. These results will also inform future work of the researcher with the center at which it takes place.

However, a one-time research study is not sufficient, as, “It is only through sustained interaction with people in local communities that real needs and experiences can be revealed” (Raje, 2007, pp. 67). An on-going effort to hear the voices of those most affected yet most ignored by the public transportation system is essential to successful transportation planning and for the well-being of homeless women. The importance of hearing the voices of these women is best embodied by a statement from one of the participants from previously conducted qualitative interviews at the site of the current study, “When nobody hears you, it's really, it's like a silent cry. And so many women are, are cryin' out.”
References


Table 1.

Descriptive Measures of Sample.

(N=89)

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### Race(s)/Ethnicity\(^a\)

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### Highest level education completed

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</thead>
<tbody>
<tr>
<td>8(^{th}) grade or less</td>
<td>3</td>
<td>3.4</td>
<td>—</td>
</tr>
<tr>
<td>Some high school</td>
<td>21</td>
<td>23.6</td>
<td>—</td>
</tr>
<tr>
<td>High school graduate or GED</td>
<td>30</td>
<td>33.7</td>
<td>—</td>
</tr>
<tr>
<td>Technical training or associates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>degree</td>
<td>6</td>
<td>6.7</td>
<td>—</td>
</tr>
<tr>
<td>Some college</td>
<td>20</td>
<td>22.5</td>
<td>—</td>
</tr>
<tr>
<td>College graduate</td>
<td>8</td>
<td>9.0</td>
<td>—</td>
</tr>
<tr>
<td>Graduate school</td>
<td>1</td>
<td>1.1</td>
<td>—</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
**Current employment status**

<table>
<thead>
<tr>
<th>Status</th>
<th>N</th>
<th>Percentage</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to work due to disability</td>
<td>27</td>
<td>31.0</td>
<td>—</td>
</tr>
<tr>
<td>Not working and not searching for work</td>
<td>7</td>
<td>8.0</td>
<td>—</td>
</tr>
</tbody>
</table>

Table 1 (continued).

<table>
<thead>
<tr>
<th>Status</th>
<th>N</th>
<th>Percentage</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not working but searching for work</td>
<td>41</td>
<td>47.1</td>
<td>—</td>
</tr>
<tr>
<td>Currently employed part time</td>
<td>11</td>
<td>12.6</td>
<td>—</td>
</tr>
<tr>
<td>Currently employed full time</td>
<td>1</td>
<td>1.1</td>
<td>—</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*The sum of percentages is greater than 100 because participants were told to check all that apply.*
Table 2

*Descriptives for Regression Variables.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>$M$</th>
<th>$SD$</th>
<th>$N$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCMS</td>
<td>3.21</td>
<td>1.12</td>
<td>85</td>
</tr>
<tr>
<td>NDQ</td>
<td>1.30</td>
<td>.78</td>
<td>89</td>
</tr>
<tr>
<td>VOL</td>
<td>4.16</td>
<td>.78</td>
<td>88</td>
</tr>
<tr>
<td>Age</td>
<td>42</td>
<td>10.53</td>
<td>83</td>
</tr>
<tr>
<td>Income last month</td>
<td>466.67</td>
<td>593.06</td>
<td>69</td>
</tr>
</tbody>
</table>
Table 3

*Correlations for variables used in regression analyses.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PCMS</td>
<td></td>
<td>- .49**</td>
<td>.47**</td>
<td>.11</td>
<td>.24*</td>
</tr>
<tr>
<td>2. NDQ</td>
<td></td>
<td></td>
<td>- .42**</td>
<td>-.11</td>
<td>.00</td>
</tr>
<tr>
<td>3. VOL</td>
<td></td>
<td></td>
<td></td>
<td>.08</td>
<td>.22</td>
</tr>
<tr>
<td>4. Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.15</td>
</tr>
<tr>
<td>5. Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Sample sizes range from 66 to 85.

*p < .05

**p < .01
Table 4

*Factor Loadings, Personal Control in Mobility Scale, Two-Factor, Varimax-Rotated Solution (n=89)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor I</th>
<th>Factor II</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I generally have a plan each day of how I will get to where I want to go.</td>
<td>.35</td>
<td>.49</td>
</tr>
<tr>
<td>2. Whenever I want to go somewhere, I have a way to get there.</td>
<td>.87</td>
<td>-.12</td>
</tr>
<tr>
<td>3. I feel in control of whether I can get to where I want to go each day.</td>
<td>.80</td>
<td>-.08</td>
</tr>
<tr>
<td>4. If there’s an unexpected problem with my transportation, I can usually still find another way to get where I want to go.</td>
<td>.77</td>
<td>-.21</td>
</tr>
<tr>
<td>5. If I am unhappy with something about the transportation options available to me, I can change it.</td>
<td>.73</td>
<td>.04</td>
</tr>
<tr>
<td>6. I have people in my life that I can ask for help if I want help getting somewhere.</td>
<td>.68</td>
<td>.20</td>
</tr>
<tr>
<td>7. Having others to help me out makes it easier for me to get to the places I want to go.</td>
<td>.31</td>
<td>.67</td>
</tr>
<tr>
<td>8. I think it’s important to have a network of people that I can rely on for help with getting where I want to go each day.</td>
<td>.05</td>
<td>.67</td>
</tr>
<tr>
<td>9. There have been times when I could not find a way to get where I wanted to go so I just didn’t go.</td>
<td>.16</td>
<td>-.72</td>
</tr>
</tbody>
</table>
10. The cost of getting where I want to go sometimes keeps me from going there.

Table 4 (continued).

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor I</th>
<th>Factor II</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. I can always manage to solve difficult transportation problems if I try hard enough.</td>
<td>.78</td>
<td>.10</td>
</tr>
<tr>
<td>12. When it comes to transportation and getting where I want to go, I can usually handle whatever comes my way.</td>
<td>.69</td>
<td>.04</td>
</tr>
</tbody>
</table>

*Note.* Bolded items represent simple factor loadings.
Table 5

Results of a multiple regression analysis predicting NDQ scores. (n = 64)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Entered</th>
<th>R</th>
<th>Adjusted R²</th>
<th>F</th>
<th>ΔR²</th>
<th>FChange</th>
<th>β at</th>
<th>entry</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>.53</td>
<td>.27</td>
<td>24.12**</td>
<td>.28</td>
<td>21.12**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step I</td>
<td>PCMS</td>
<td>-.53</td>
<td>-4.91**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step II</td>
<td>.54</td>
<td>.26</td>
<td>8.42**</td>
<td>.02</td>
<td>.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCMS</td>
<td>-.56</td>
<td>-5.02**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>.01</td>
<td>.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>.13</td>
<td>1.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

**p < .001
Table 6

Results of a multiple regression analysis predicting VOL scores.

\( (n = 64) \)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Entered</th>
<th>( R )</th>
<th>( \text{Adjusted } R^2 )</th>
<th>( F )</th>
<th>( \Delta R^2 )</th>
<th>( F_{\text{Change}} )</th>
<th>( \beta \text{ at entry} )</th>
<th>( T )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step I</td>
<td>.52</td>
<td>.26</td>
<td>23.06**</td>
<td>.27</td>
<td>23.06**</td>
<td>.52</td>
<td>4.80**</td>
<td></td>
</tr>
<tr>
<td>PCMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step II</td>
<td>.54</td>
<td>.25</td>
<td>8.13**</td>
<td>.02</td>
<td>.75</td>
<td>.49</td>
<td>4.41**</td>
<td></td>
</tr>
<tr>
<td>PCMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.02</td>
<td>.18</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.13</td>
<td>1.18</td>
<td></td>
</tr>
</tbody>
</table>

\*\( p < .05 \)

\**\( p < .001 \)
Table 7

Results of a hierarchical multiple regression analyses predicting VOL scores.

(n = 85)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Entered</th>
<th>R</th>
<th>Adjusted R²</th>
<th>F</th>
<th>ΔR²</th>
<th>FChange</th>
<th>entry</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step I</td>
<td></td>
<td>.47</td>
<td>.21</td>
<td>23.11**</td>
<td>.22</td>
<td>23.11**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCMS</td>
<td></td>
<td>.47</td>
<td>4.81**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step II</td>
<td></td>
<td>.52</td>
<td>.25</td>
<td>14.76**</td>
<td>.05</td>
<td>5.24*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCMS</td>
<td></td>
<td>.34</td>
<td>3.16**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDQ</td>
<td></td>
<td>-.25</td>
<td>-2.29*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

**p < .01
Table 8

*Results of a hierarchical multiple regression analyses predicting VOL scores with I-NDQ as a mediator.*

*(n = 83)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>β at entry</th>
<th>β at</th>
<th>R</th>
<th>Adjusted R²</th>
<th>F</th>
<th>ΔR²</th>
<th>F_{Change}</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step I</td>
<td></td>
<td></td>
<td>.47</td>
<td>.21</td>
<td>23.17**</td>
<td>.22</td>
<td>23.17**</td>
<td></td>
</tr>
<tr>
<td>PCMS</td>
<td></td>
<td></td>
<td>.47</td>
<td>4.81**</td>
<td></td>
<td>.05</td>
<td>5.25*</td>
<td></td>
</tr>
<tr>
<td>Step II</td>
<td></td>
<td></td>
<td>.52</td>
<td>.25</td>
<td>14.82**</td>
<td>.05</td>
<td>5.25*</td>
<td></td>
</tr>
<tr>
<td>PCMS</td>
<td></td>
<td></td>
<td>.35</td>
<td>3.17**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-NDQ</td>
<td></td>
<td></td>
<td>-.25</td>
<td>-2.29*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

**p < .01
Figure 1.
Mobility, Needs Difficulty, and Perceived Quality of Life.
(Adapted from Carp, 1988)
Appendix
Appendix

*Personal Control in Mobility Scale*

STEM: Think about the ways that you get from place to place, your transportation over the last 30 days. Circle the number that indicates how much you agree or disagree with the following (1 = *Strongly Disagree* to 5 = *Strongly Agree*).

1. I generally have a plan each day of how I will get to where I want to go.
2. Whenever I want to go somewhere, I have a way to get there.
3. I feel in control of whether I can get to where I want to go each day.
4. If there’s an unexpected problem with my transportation, I can usually still find another way to get where I want to go.
5. If I am unhappy with something about the transportation options available to me, I can change it.
6. I have people in my life that I can ask for help if I want help getting somewhere.
7. Having others to help me out makes it easier for me to get to the places I want to go.
8. I think it’s important to have a network of people that I can rely on for help with getting where I want to go each day.
9. There have been times when I could not find a way to get where I wanted to go so I just didn’t go.
10. The cost of getting where I want to go sometimes keeps me from going there.
11. I can always manage to solve difficult transportation problems if I try hard enough.
12. When it comes to transportation and getting where I want to go, I can usually handle
whatever comes my way.

*Needs Importance Questionnaire*

STEM: The following is a list of things you may have needed recently. Rate how important each need has been to you over the last 30 days (1 = *not important at all* to 5 = *extremely important*).

1. Mental Health Services (counseling, therapy)
2. Recreation/Leisure (things you do for fun)
3. Financial Services (bank, credit union, budgeting)
4. Religious Activities (church, Bible study, prayer meeting, services)
5. Non-Food Items (clothes, toiletries)
6. Social Visits (with family, friends, partners)
7. Further education (GED, job training, technical school, college)
8. Affordable housing (temporary or permanent)
9. Medical/dental treatment
10. Job placement/Employment Services
11. Public benefits (food stamps, SSI)
12. Court/Legal Assistance
13. Drug/alcohol treatment
14. Free/Affordable Food
15. Child care
Needs Difficulty Questionnaire

STEM: The following is the same list of things you may have needed recently. Rate how easy or difficult it was for you to meet each need with the services provided in your community over the last 30 days on a 1 to 4 scale (n/a = not applicable; 1 = always difficult to 4 = always easy).

1. Mental Health Services (counseling, therapy)
2. Recreation/Leisure (things you do for fun)
3. Financial Services (bank, credit union, budgeting help)
4. Religious Activities (church, Bible study, prayer meeting, services)
5. Non-Food Items (clothes, toiletries)
6. Social Visits (with family, friends, partners)
7. Further education (GED, job training, technical school, college)
8. Affordable housing (temporary or permanent)
9. Medical/dental treatment
10. Job placement/Employment Services
11. Public benefits (social services, foodstamps)
12. Court/Legal Assistance
13. Drug/Alcohol Treatment
14. Free/Affordable Food
15. Child Care
Valuation of Life Scale

STEM: The following items are statements about how you may feel about your life. Rate your agreement with the following statements (1 = strongly disagree to 5 = strongly agree).

1. I feel hopeful right now.
2. Each new day I have much to look forward to.
3. My life these days is a useful life.
4. My life is guided by strong religious or ethical beliefs.
5. I have a strong will to live right now.
6. Life has meaning for me.
7. I feel able to accomplish my life goals.
8. My personal beliefs allow me to maintain a hopeful attitude.
9. I intend to make the most of my life.
10. I can think of many ways to get out of a jam.
11. I can think of many ways to get the things in life that are most important to me.
12. Even when others get discouraged, I know I can find a way to solve the problem.
13. I meet the goals that I set for myself.
General Information

1. What is your current age? _________ years old

2. With what race or races and/or ethnicity do you most closely identify (check all that apply)?
   a) White
   b) Black or African American
   c) Hispanic, Latino or Spanish origin
   d) American Indian or Native Alaskan
   e) Asian
   f) Native Hawaiian or Pacific Islander
   g) Some other race(s). Please write in. ______________

3. What is the highest level of education you have completed?
   a) 8th grade or less
   b) Some high school
   c) High school graduate or GED
   d) Technical Training or Associates degree
   e) Some College
   f) College Graduate
   g) Graduate School
4. What is your current employment status?
   a) Unable to work due to a disability
   b) Not working and not searching for work
   c) Not working and searching for work
   d) Currently employed part-time
   e) Currently employed full-time

5. What was your total individual income last month (including food stamps, disability, SSRI)? Enter number below. ________

6. For how many children are you the current primary care giver? Enter number below. ________

7. Are you currently homeless (defined as lacking fixed, regular, and adequate housing)? If yes, for how long have you been homeless?
   a) YES, how long? ______
   b) NO

8. How much of your income (in dollars) did you spend on the cost of housing last month? Enter number below. ________

9. Have you had other times in the past that you have been homeless (defined as lacking fixed, regular, and adequate housing)?
   a) YES
   b) NO
10. Which response best describes your level of access to a personal vehicle?
   a) No access to a personal vehicle (i.e. you do not currently have any access to a car for personal use),
   b) Shared access to a personal vehicle (i.e. you do have a car you can use, but you must share it with someone else), or
   c) Full access to a personal vehicle (i.e. you have a car that you can use anytime you need it).

11. How many trips have you made using a car over the past two weeks? ____________