HOUSING SUBSIDY AND SELF PERCEPTION OF WELL-BEING: DOES TYPE OF HOUSING SUBSIDY MAKE A DIFFERENCE IN RESIDENTS' PERCEPTIONS OF MENTAL AND PHYSICAL HEALTH?

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by
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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

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presented by Lia Willis,

a candidate for the degree of doctor of philosophy

and hereby certify that, in their opinion, it is worthy of acceptance.

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Dedications

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ABSTRACT

Studies have indicated that there is a link between health and a person's living environment. There have been no comparisons of the effects of the use the different types of housing subsidy on perceived quality of life and well-being of individuals. Around the country, individuals are being moved from their homes in public housing into Section 8 housing. This study, conducted in Columbia, Missouri, (a mid-sized Midwestern town) compared Section 8 and public housing residents in terms of perceived physical and mental health. Results from the Short Form 36 Health Survey (SF-36) instrument indicated no differences between the two groups in the areas of health and housing subsidy, but found differences in subsidy type and demographics. Possible reasons for, and implications of, findings are explored.

Chapter 1

Introduction

The link between health and living environment is demonstrated in the literature. In terms of mental and physical health, neighborhood effects such as exposure to violence, economic segregation, crowding, and substandard living conditions in public housing is demonstrated to negatively impact public housing residents. In contrast, researchers have found social support to be a positive outcome of public housing and research indicates the notion that residents may be harmed as a result of relocation to other neighborhoods (Popkin, S., Katz, B., Cunningham, M., Brown, K., Gustafson, J., Turner, M., 2004a).

The suspected reasons for the negative effects on individuals living in public housing projects are complicated; it is difficult to separate individual effects and neighborhood effects (Clampet-Lundquist, 2003; Schwirian and Schwirian, 1993), but the idea that one's environment has an impact on one's life is difficult to dispute. Clampet-Lundquist (2003) offers, "the basic concept of neighborhood effects is powerful in terms of providing a comprehensive framework for the impact of concentrated urban poverty" (p.29). In other words, although it may not be possible to determine exactly whether a person's health concerns are caused by environmental factors or individual factors, the concept of neighborhood effects is still useful.

The passage of the Housing Act in the late 1940s provided for the removal of slums and the building of public housing. Shlay (1995) reminds us of the pledge of the Housing

Act of 1949 to provide, "…a decent home and suitable living environment for every American family" (p. 695). Neighborhood effects have been studied for years to determine the best practice for residents using housing subsidies. Because of the complexity of the demographics of public housing residents, and the expansion of housing subsidy programs since the mid- 1970s, a "best practice" has been difficult to identify.

In this chapter, a description of the problems of public housing and their significance for society is offered. Specific research questions are identified for the present study to assist in understanding those problems. A conceptual framework is introduced that provides a basis for exploration of specific hypotheses. Relevant study terms are defined and background information is provided to help explain the intention of the research.

Background of problem and related factors

Many solutions have been tried in order to provide adequate housing for the poor, including traditional public housing (congregate housing, either in towers or row housing), Section 8 housing (providing vouchers for families to rent in the private market) and a newer strategy termed HOPE VI (revitalizing public housing sites and creating mixed-income sites). None of these solutions have been without controversy and none have been without both positive and negative consequences. This research was designed to look at the relationship between residents' perceptions of their mental and physical health and the housing subsidy they are using.

There is a conundrum in public housing. Public housing has often resulted in tenants becoming targets for drug dealers and violence (Durant, Altman, Wolfson, Barkin, Kreiter and Krowchuk, 2000), tenants are socially isolated from mainstream society

(Ross, Reynolds, and Geis, 2000), have fewer school choices and the living conditions are overcrowded and dangerous (Mazza and Reynolds, 1999; Newman, 1972). Mazza and Reynolds (1999) conducted research with children living in public housing, and they found that 93% of the children questioned reported being exposed to some form of violence within the year prior to their study. They note that this exposure to violence can result in symptoms of PTSD (post traumatic stress disorder), depression, and suicidal behavior.

At the same time, research has indicated that public housing tenants have a social network; they often look out for each other. According to Schwirian and Schwirian (1993), people sometimes prefer to remain in public housing rather than to live elsewhere. Schwirian and Schwirian attribute this preference to social relationships that have been developed, doubts about the stability of the Housing Voucher Choice Program, and fear of the possibility they will be unable to find adequate housing elsewhere.

Social support seems to be an important factor in terms of perceived quality of life, which may translate into positive perceptions of mental health. Borglin, Jakobsson, Edberg and Hallberg (2006), in their research on quality of life with older adults, found that subjective ratings of quality of life were linked with level of social support. Those participants who reported low social support also reported low perceived quality of life. Farrell, Aubry, and Coulombe (2004) in their research regarding social networks, neighboring, and well-being, found that neighborhoods consisting of people of similar socioeconomic status interact more with each other than those with more varied status. This might make an argument for persons having better perceptions of health in public housing (more homogeneous) than Section 8 housing (less homogeneous).

Impact of the environment on physical health and mental health

Neighborhoods and environment can affect physical and mental health. Saegart and Evans (2003) found that "environmental threats and assets" (p.570) have both direct and indirect effects on physical and mental health. A partial list of threats in public housing includes overcrowding, pollution, drug activity and violence. A partial list of assets in public housing, for this study site, includes social networks and a geographical location close to hospitals and public transportation. Public housing has been reported in the literature to have environmental hazards such as mold and toxins, which can lead to respiratory problems in adults and asthma in children (Saegert and Evans, 2003; Grigsby and Bourassa, 2003). Gang violence in public housing has lead to injuries and deaths in public housing. Overcrowding (Newman, 1972) and violence, (Mazza and Reynolds, 1999) more commonly attributed to public housing than Section 8 housing, have been determined to contribute to anxiety (Germain, 1984; Saegert and Evans, 2003) and will be described further in the literature review.

Difference between two environments: Section 8 housing and public housing

In theory, public housing neighborhoods and Section 8 neighborhoods are different. By definition, Section 8 neighborhoods do not exist. A housing voucher holder allows families to rent any dwelling approved by the Section 8 housing voucher program. In practice, however, Section 8 housing choice voucher holders could very well be living across the street from public housing, or could be living in a poor neighborhood surrounded by other voucher holders. One of the reasons for this, according to Downs, (1981) is that neighborhoods tend to be resistant to subsidized housing so renters tend to

become congregated into neighborhoods that will accept them. These neighborhoods are generally in poor areas of town.

The Section 8 Housing Choice Voucher Program (HCVP) was created out of the Section 8 initiative to allow those who would otherwise be living in public housing units in impoverished neighborhoods to have some choice about where they live. There are approximately 2.1 million housing vouchers available (www.hud.org) and the Housing Voucher program currently subsidizes approximately 2 million households. The program is funded by the federal government and managed by local Public Housing Agencies (PHAs).

The Housing Choice Voucher Program works as follows. Housing and Urban Development (HUD) funds the local PHA, additional funds are awarded to PHAs when available and the PHA administers the programs locally. Administration includes managing the waiting lists, setting the amount of rent the person pays, and inspecting rental properties yearly (HUD Housing Choice Vouchers Fact Sheet). HUD calculates the median income for each state, which helps determine eligibility for the voucher program. HUD also sets the fair market rent for each county or area, upon which the rental subsidy is based. According Sard and Fischer (2003), voucher payment is based on 90-110 percent of fair market rent, includes rent and utilities, and considers the renter's annual adjusted income. Eligibility requirements for housing vouchers include US citizenship or qualifying immigrant status, and income less than 80 percent of the median income of the county or metropolitan area.

There are several differences between the two environments of Section 8 and public housing. One difference is that Section 8 housing is more anonymous, in that it is

not necessarily identifiable by its address. There is a stigma attached to living in a public housing address (Newman, 1972; Rainwater, 1970). In addition, population density per square mile and violence are generally greater in public housing (Mazza and Reynolds, 1999; Newman, 1972; Tita, Cohen and Engberg, 2005). These variations may result in differences in perceptions of health.

Research question

This study offers an opportunity to compare the well-being (in terms of physical and mental health, as measured by the SF-36) of residents of public housing and residents using housing vouchers. The purpose of this research is to provide data to identify the best practice in public housing. The hypotheses in this study look at whether residents have different self-perceptions of mental and physical health depending on where they live (Section 8 in the community vs. congregate public housing).

This research is an attempt to study residents' perceptions of well-being rather than use objective measures, which have already been captured in previous research. Earlier research has focused on the objective measures such as employment (Durlauf, 2001; Galster, 2002) low birth weight (Popkin, Levy, Harris, Comey, and Cunningham, 2004b) and educational achievement (Durlauf, 2001; Buck, 2001). Missing are the subjective measures, such as residents' perceptions of their mental health and physical health status.

Conceptual Framework

Ecological theory offers a conceptual framework for research on neighborhood effects. Social work, as a profession, strives to help people find a fit where they live (Payne, 2006; Ungar, 2002). According to this theory, people learn to fit into their environment by adapting to their environment. If, by adapting, they are changing to fit

into their environment then the environment is of the utmost importance in one's life. This concept of person-environment fit is what makes neighborhood studies relevant.

Ecological theory, first developed out of Bronfenbrenner's work that resulted in systems theory (Ungar, 2002) and with major developments by Germain and Gitterman, Auerswald, Meyer, and Minuchin (Germain, 1984; Payne, 2006; Ungar, 2002), holds a person-in-environment focus. Central to this theory is the interaction between a person and systems in his/her life (Germain, 1984; Hartig, Johansson and Kylin, 2003; Payne, 2006). Ecological theory also takes into account the social environment, which is described as the "conditions, circumstances, and human interactions that encompass human beings" (Kirst-Ashman and Hull, 2005, p.12). The interaction between all of the variables in one's life is central to this theory, which makes it an appropriate framework for studying neighborhood effects.

Brofenbrenner (1979) wrote about the reciprocal nature of the relationship between the person and the physical environment. Germain's (1984) concept of adaptation to the environment is quite similar to Brofenbrenner's concept of reciprocity. Both address the idea that the environment and the individual interact with and affect the other.

The ecological perspective suggests that external forces (such as the physical environment, social policy, and the economy) have a significant effect on people, regarding physical and mental health (Payne, 2006). Adaptation to one's environment is critical to one's health (Germain,1984). If the experience of living in public housing and how that impacts a person's life can be understood, this understanding may inform social work practice. The ecological approach offers a broad view of individuals and their interaction with their environment.

Urie Brofenbrenner, a pioneer of the ecological theory, proposed four levels of the environment: the microsystem, mesosystem, exosystem, and macrosystem. (Brofenbrenner, 1979). These levels represent the different ways in which people are connected to their environment. The individual level represents the most intimate level, while the macrosystem represents the level involving all of the other levels. Each level is described briefly in the paragraphs that follow. Brofenbrenner (1979) described the environment as "a set of nested dolls, each inside the next, like a set of Russian dolls" (p. 3). This description illustrates how each piece of the environment is connected, and builds on, the next.

The microsystem, in the context of ecological theory, represents the interactions between neighbors, family members, the local school, the community center or any other interpersonal relationships. Bronfenbrenner (1979) used the term "interrelations" (p. 7) to describe the interactions "within the immediate setting" (p. 7). These interactions are the most basic, can be positive or negative, and can affect the individuals accordingly. Positive interactions with the community center, for example, can result in increased knowledge of available services regarding mental and physical health.

The mesosystem, in the context of ecological theory, is a link between microsystems, such as a neighborhood, community center and a neighbor. Bronfenbrenner (1979) uses the term "interconnectedness" (p.7) to explain the importance of relationships between microsystems. A strong, positive mesosystem can provide a basis for further connections and linkages. Negative mesosystems may result in isolation, which may lead to mental health concerns (Brofenbrenner (1979).

External forces, as well as internal forces, influence one's environment and, as a result, one's development (Kemp, Whittaker and Tracy, 1997). Exosystems are settings that influence one's environment indirectly. Examples of exosystems include family income, work hours of parents, and conditions and regulations in public housing developments. For instance, if a parents work twelve hour days, this may result in the children being in daycare for long hours, which has a direct impact on family well being. Additionally, family income may prevent family members from seeking medical care, resulting in healthcare issues.

Macrosystems include the ideology and formal structure of the environment (Brofenbrenner,1979).The macrosystem impacts all of the levels of the environment. Social policy, societal norms, and regulations are all examples of macrosystems. Social policy regarding housing, such as HOPE VI, may directly influence where people needing housing assistance are placed. In addition, social policy determines who is eligible for housing subsidies.

The ecological perspective is relevant to public housing because of the environmental focus. According to this theory, the influence of the environment on the person may emphasize detachment, lack of support, and inability to escape poverty. According to Sampson and Morenoff (1997), this perspective explains how people remain "trapped" in an environment, "geographically and socially isolated from the mainstream values of the larger society" (p.18). Feelings of isolation from housing opportunities can lead to feelings of isolation from economic opportunities, education opportunities, and social opportunities, as they are all interwoven. Physical and mental health can be affected by

feelings of isolation and denial of opportunities in the other areas listed above (Durlauf, 2001; Galster, 2002).

Germain describes adaptation as central to the ecological perspective. Adaptation can be described as the ability to adjust to one's environment; thus, adaptation is a term in the ecological perspective applicable to studying neighborhood effects. Germain (1984) wrote about adaptation as a framework for understanding healthcare. She wrote that "adaptedness, stress and coping" (p.58) are key to understanding social work in the field of healthcare. Germain views "human development-including health and illness-as outcomes of continuous exchanges between the individuals and the social environment, the physical setting, and the cultural context" (p.58). Hartig et al., 2003, also relate health to where a person lives, as it affects one's coping strategy and stress level.

Germain (1984) postulated there are three categories of adaptation: personal, environmental, and leaving the environment. She explained personal adaptation to be one's attempt at making changes, including "physiological, cognitive, emotional, social, and cultural processes" (p.58). She described the environment's adaptation as making changes such as becoming accessible for a person with a disability. The third way adaptation may occur in an environment, according to Germain, is moving to a different environment. This is relevant to housing research because residents of public housing or Section 8 housing may move from one subsidy to another, or may become ineligible for (or no longer require) housing subsidy programs.

Stress and coping are two other concepts Germain (1984) described as central to one's ability to adapt to one's environment. Stress is described by Germain (1984) as "an indicator of a poor person-environment fit…" (p.60). Stress tells the person they may be

in danger or have an illness or disability. According to Germain, one's "personal and environmental resources" are what determines one's coping strategies (p.67). Germain wrote that coping strategies can be healthy, such as exercise and asking for help, or they can be unhealthy, such as using drugs or alcohol; both are considered coping skills and, both are adaptations to one's environment. Stress and coping have well-documented effects on physical and mental health (Saegart and Evans, 2003). Mcneill, Wyrwich, Brownson, Clark and Kreuter (2006) speak to the value in using the ecological model in social science research, as it offers an understanding of how the environment affects behavior and well-being.

Significance of this study for social work knowledge

Housing subsidy, well being, and whether the two are related is an important question for social workers. Social workers are involved at the micro, mezzo and macro level of housing issues. Examples of ways social workers may interact with persons seeking or using housing subsidies include the roles of broker of services, administrators of services at the local, state, or federal levels, and as therapists. It is helpful for social workers to understand the effects of housing conditions, policies, and neighborhoods, on individuals and families using housing subsidies.

The significance of these research findings to the social work profession is in both the planning of future housing communities and in the provision of services for people receiving housing subsidies. The research questions are regarding perceptions of mental and physical health. If it is found that persons in either sample have perceptions of mental health or physical health needs, there may be a demonstrated need for services in the population.

Housing and health have been shown to be connected. Mulroy (1990) contends that housing, whether considering policy, planning, or practice, is within the purview of social work. Germain's ecological model suggests a person's environment (1984) has an impact on one's health. Saegert and Evans (2003) link early death rates to poor housing conditions. Social workers, working on the macro, mezzo, or micro level of the profession, can work toward improving housing conditions; improving housing conditions will likely improve the overall health of residents.

By gaining information about physical and mental health perceptions in public housing and Section 8 housing, social workers can understand what resources are needed in the community, and where those services should be located (whether this is in public housing and the surrounding area, or whether this is in outlying areas, available to those using housing vouchers). Social workers can be helpful, in the housing environment, when acting as a partner with the person seeking housing assistance. Working with the individual to determine needs and available resources, and navigate the system, can empower the individual to adapt as needed and use healthy coping skills (Germain, 1984).

The ecological model considers the consumers' needs, which can be seen when looking at the idea of adaptation and all that it means: helping the consumer understand what he/she needs and "improving the fit between people and their environment…and influencing environmental forces so that they respond to people's needs" (Payne, 2005, p.152). By having a better understanding of health and mental health perceptions in public housing and Section 8 housing, social workers can more easily form partnerships with consumers, and help empower them to seek the services they need.

Definitions

Physical and mental health perceptions were measured in this study by the SF-36 scale developed by John Ware, Jr. (2000). This scale is explained in detail in chapter three. This scale measures the participants' perceptions of their physical and mental health, which may or may not yield different results from medical or psychological tests. The term Section 8 Housing Choice Voucher Program (HCVP) refers to housing of residents who qualify for public housing but who are able to use vouchers to live in neighborhoods of mixed income. Section 8 is rental assistance and the houses people live in are owned, in general, by the private market. The terms Section 8 housing and the Housing Choice Voucher Program are used interchangeably throughout this document. Public housing refers to congregate housing in housing developments which are owned and operated by the local housing authority. Neighborhood, "a term that is hard to define precisely but everyone knows it when they see it" (Galster, 2001, p. 2111), is defined differently in various sources. Some authors define neighborhood in the nontraditional sense, as special populations, including social bonds such as friendships and acquaintances (Forrest & Kearns, 2001). Galster (2001) defined neighborhood as a specific region with boundaries, which is the definition used in this study.

Hypotheses

This research compares perceptions of mental and physical health of residents living in Section 8 housing to those living in public housing. The key arguments are that violence, drug related activity, housing in disrepair, and exposure to toxins exist in public housing (more so than in the greater community). This exposure results in physical and mental health difficulties. These hypotheses are based on the research on neighborhood

effects, which are explored in the literature review. The specific hypotheses guiding this project, based on the literature review and ecological model, suggest:

1. People using a housing voucher in the private market will have higher positive perceptions of mental health than those living in public housing.
2. People using a housing voucher in the private market will have higher positive perceptions of physical health than those living in public housing.

Assumptions of study

An assumption of this research was that the two groups in the study are demographically alike. By the nature of the research, selection bias is introduced into the study. Only those economically eligible for housing subsidy were mailed questionnaires. It was assumed that the only differences between them were the way they used their subsidy. It was also assumed the head of the household completed the survey.

Delimitations

The sample was taken from residents living in Columbia, Missouri, a rural community in the Midwest. One group consisted of residents of public housing, and the other group consisted of persons using the housing voucher program in the community. Each survey was mailed to the head of household (HOH) of each family, as denoted by the CHA. This decision was made to increase the likelihood of having only one responder from each household and, because it was assumed the HOHs had similar attributes and responsibilities in the home, it was thought that the sample would be more homogeneous. In cooperation with the CHA, 600 questionnaires were mailed out (300 to public housing residents and 300 to Section 8 residents), and responses were recorded. Further details about the sample are in chapter three.

This study used the Short Form 36 Health Survey-questionnaire (SF-36), developed by John Ware (2000), with residents either living in congregate public housing or using housing vouchers in the private market. The questionnaire gathered information from both groups to measure resident perceptions of physical and mental health. The measures from the two groups were compared and results statistically analyzed to explore the relationship between the type of housing subsidy and the perceived health of residents.

Chapter 2

Literature Review

This chapter offers a review of the literature regarding neighborhood effects. Residential stability, stress, neighborhood violence, economic segregation, substandard housing, and the associated mental health and physical health consequences are explored in the following chapter. The objective nature of the effects described highlight the dearth in the literature of subjective measures of neighborhood outcomes as they relate to perceptions of mental and physical health.

Neighborhood Effects

Residential Stability vs. Residential Mobility

On the surface, having low mobility in the neighborhood may seem to be a positive attribute; however, mobility can have mixed meanings for residents. Stability (defined here as living in the same area for five years) in public housing may have meaning for the tenant that there is no way out. Ross et al., 2000, note that residential stability can actually cause people in a lower socioeconomic neighborhood to feel isolated and trapped. According to Bolland and McCallum (2002), the national average length of stay in a public housing development is seven years. Residential mobility may have a more positive impact, in terms of health, than residential stability. On the other hand, moving too often can have a negative impact (Dong, M., Anda, R., Felitti,V., Williamson, D., Dube, S. et al., 2005). Dong, et al.(2005), in their research regarding children and the effects of frequent moves, found those children who changed residences often to be more

vulnerable to physical and mental health difficulties. A Section 8 voucher holder may not have the same sense of needing to leave his/her environment, as the address is not stigmatized and the physical and social conditions may be different than that of public housing.

S*tress*

Stress has been associated with mental and physical health difficulties (Evans, Wells, and Moch, 2003; Stewart, Cianfrini, and Walker, 2005). Druker, van Os and Farley (2003) found that residents of lower socioeconomic neighborhoods "were associated with lower levels of mental health" and "poorer perceived health" (p.700). Hartig et al. (2003) explained the importance of restoration; people need to be able to get release from stress in their lives to maintain psychological well being. They argued that residents in lower socioeconomic neighborhoods may not have the resources to avoid their stress. The ecological model addresses ways to adapt to the environment and, as a result, reduce stress.

Stress in the public housing environment may include crowding, exposure to violence, the condition of the physical surroundings, and noise levels typically described as neighborhood effects (Yen, Yelin, Katz, Eisner, and Blanc, 2006). In a study looking for a link between inner-city neighborhoods and asthma morbidity, Wright, Mitchell, Visness, Cohen, Stout, Evans and Gold (2004) found that residents of public housing had increased exposure to violence, and attributed the violence to increased stress levels. Stress is not being measured in this research design, per se, but is reported in the research to be a contributing factor to mental and physical health perceptions, thus, is included in this review of the literature. Overcrowding and exposure to violence is not as likely to be

a condition of Section 8 housing as it is in public housing, according to Cohen, Stout, Evans and Gold (2004).

Neighborhood Violence

Neighborhood violence is a key factor that affects residents in low-income housing neighborhoods (Farrell and Bruce, 1997; Newman, 1972; Durant et al., 2000). According to the research, violence can almost be expected in many clustered, low-income neighborhoods. Schubiner, Scott, and Tzelepis (as cited in Farrell and Bruce, 1997) asked participants about violence occurring over a three month period. They found, "58% of a predominantly African American sample of 14 to 23 year olds reported seeing a fight, 34% had seen someone shooting a gun, and 19% had seen a fight involving knives. At some point in their lives, nearly half (42%) had seen someone shot and another 22% had seen someone killed…" (p.707). The impact of this violence is explained in the paragraphs that follow.

Durant et al., 2000, studied children and the effects of exposure to violence. They found reported that approximately 54 percent of the students reported "witnessing or being the victim of between 1 and 15 acts of violence" (p.710), with the children living in public housing scoring higher in "use of violence" (p.710). Children living in chronic states of neighborhood violence may have experiences similar to children who have been through wars (Gabarino, Dubrow, Kostelny, and Pardo, 1992).

Thompson-Fullilove, Heon, Jimenez, Parsons, Green, and Fullilove (1998) wrote about the isolating effect of neighborhood violence. They wrote that residents' fear for themselves and/or their children keeps them from making contacts in the neighborhood. This fear can have an impact on social capital, as people who isolate themselves may not

have a chance to build contacts in the neighborhood and obtain assistance when they need it. This isolation can lead to feelings of depression. (Thompson-Fullilove et al., 1998).

Exposure to violence can also lead to physical health concerns. Prolonged exposure to violence can make one vulnerable to stress (Wallen, 1993), which can lead to complications such as bodily pain, PTSD symptoms, and headaches (Linares, 2004). Because there is less occurrence of violence in Section 8 housing, as mentioned previously, this would support the need for increased use of housing vouchers.

Neighborhood effects have been shown in the research to both support the need for more housing vouchers for use in the private market and to show the usefulness of living within one's own socioeconomic group. Scott (1995), offering an explanation of why behaviors of residents of public housing may be different from those living elsewhere, writes, "values and norms structure behavior" (p.38), and that roles are expected and internalized. Because different peer groups have different norms and values, they can be expected to have different behavior, as well. Wilson (1987) explains violent, and otherwise antisocial behavior (that is generally considered pathological), as functional for some people in public housing; "displaying the ability to survive and in some cases flourish in an economically depressed environment" (p.150). This fits with Germain's (1984) adaptation model.

Economic segregation

The argument for (and against) public housing centers on the positive and negative effects of being economically segregated. Negative effects include: actual and perceived walls, actual and perceived barriers from employment and opportunity, and lack of choice regarding one's school and neighborhood (Scott, 1995). A positive effect is the building

of social networks. If people live in a neighborhood where they are the only poor, they may compare themselves to the rich, or at least non-poor, and suddenly they have feelings of inadequacy; they are isolated from their peer groups (Germain, 1984; Scott, 1995). According to the ecological model, this segregation/isolation can lead to feelings of inadequacy that requires adaptation and use of coping skills to navigate the environment in a way that will lead to satisfactory health. (Germain, 1984).

Neighborhood effects and mental health

Mental health problems and the living environment have been linked in the literature (Evans and Kantrowitz, 2002; Klebanov, Brooks-Gunn and Duncan, 1994; Leventhal and Brooks-Gunn, 2003; Ross et al., 2000; Schulz, Williams, Israel, Becker, Parker, James et al., 2000). The above-mentioned researchers found stress (from overcrowding, crime and distressed conditions) to be the common denominator. These conditions have already been discussed in this document as existing more so in public housing than in Section 8 housing. Bashir (2002) wrote about the importance of a home being both safe and comfortable: "home (is seen as) necessary shelter, a source of identification, and a place to rest and relax, is both a psychological and a physical necessity" (p.733). If one is unable to rest, due to fear or physical conditions of the environment, they may develop mental and/or physical health difficulties.

The ecological model accounts for environmental stress influencing health and well-being (Saegert and Evans, 2003). The authors attributed physical health and psychological health (and illness) to the environment. McNeill et al. (2006) found that physical activity was dampened by living in a neighborhood that was perceived as a dangerous (such as public housing). If physical exercise was a coping skill for the

individual prior to moving to the neighborhood, adaptation may become an important skill for him or her, in order to thrive in his or her new environment. This issue could lead to mental health concerns if he/she does not learn new positive coping skills to handle stress.

Neighborhood disorder is thought to be another potential cause of mental health difficulties. Ross (2000) refers to social disorganization theory to explain the influence of neighborhood chaos and instability, in combination with social control and isolation from "mainstream society" (p.582), as having a causal effect on mental illness. Evans and Krantowitz (2002) found that people living in lower socioeconomic neighborhoods experience more noise, which supports the notion of disorder. Saegert and Evans (2003) suggest that feeling less in control of one's life, such as feeling "trapped" in public housing, can lead to problems with mental health.

The effects of living amongst hazardous material

Hazardous material has been cited as problematic in some public housing developments. Dubow et al. (1997) reported that 77% of neighborhood study participants reported having trash and broken bottles in their yards, 39% had no safe place for their children to play, 41% had theft or damage to their property, and "39% judged their neighborhoods to be unsafe" (p.140). Acevedo-Garcia et al. (2003) suggested that residents might be at greater risk of environmental hazards because they are perceived as being of less value to society. They implied that, politically, it made more sense to "locate hazards in minority communities because the risk for the majority (non poor) population might be lower" (p.9). Grigsby and Bourassa (2003) researched housing quality standards and reported finding lower-income neighborhoods being exposed to

lower air quality than upper income neighborhoods, suggesting that neighborhood definitely matters, in terms of physical health.

Stigma

It may not just be the physical condition of public housing that affects someone's physical or mental health. Burningham and Thrush (2003) emphasized that living in public housing can have a negative effect on mental and physical health due to the stigma of living in these types of envoronments. Link and Phelan (2001) describe stigma as having a lasting stereotyping and discriminatory effect, besides the effects on self-perception and health. Ellaway, Macintyre, and Kearns (2001), studied neighborhoods of different social classes. They looked at how people living in different neighborhoods had varying perceptions of their environment and of their health. They found that what may also be important, besides the actual environment, are the perceptions of one's environment that may influence his or her health. This research has implications for HOPE VI policy, which purports that revitalizing public housing makes it better for residents living there; the stigma may remain, even after the revitalization.

Lack of choice

When people are deprived of choice in living arrangements and see only poverty, Kearns & Parkinson (2001) suggest, people tend to not be able to see beyond their circumstances. The Section 8 Housing Choice Voucher Program offers, to some extent, the freedom to choose one's neighborhood. In a city that has only the option of clustered low-income housing for those who request assistance with housing, residents may perceive themselves to be trapped and may perceive their neighbors to be trapped there as well (Kearns & Parkinson, 2001). This belief fits in with the ecological model and the

theory of adaptation. Germain (1984) wrote that stress may indicate the need to leave one's environment; however, if there is no other choice, there may be no place to go.

One's neighborhood may influence one's opportunities and individual perceptions. When people cannot choose their neighborhood and must live in clustered, low income housing, they are also deprived of opportunities for themselves and their children (Durlauf, 2002; Galston, 2002). Galston (2002) offers that opportunity is influenced in three ways: "opportunity structure…characteristics of the individual…and individuals' perceptions of the opportunity structure" (p.6). Neighborhoods can act as invisible barriers to jobs, adequate healthcare, networking opportunities for community resources, etc. Barriers to these necessities may prevent children from leaving poverty (Buck, 2001; Durlauf, 2002).

Neighborhood effects and physical health

Studies using objective measures have found support in the data that physical conditions of public housing have an effect on physical well-being (Bashir, 2002; Krigger and Higgins, 2002; Saegart and Evans, 2003). Problems cited in the literature include dirty carpeting that contains dust and mold, trash such as broken glass in common areas, environmental toxins due to public housing placement near power plants and factories, heating and cooling problems, and pest infestation (Krieger and Higgins, 2002; Saegert and Evans, 2003). These problems may lead to physical problems such as asthma in children, respiratory problems in adults, chronic illnesses, and injuries (Krieger and Higgins, 2002; Howell, Harris and Popkin, 2005; Schwirian and Schwirian, 1993; Cohan, Mason, Bedimo, Scribner, and Basolo, 2003). In addition, Bashir (2002) found evidence to support the notion that neurological disorders were caused by physical conditions of

substandard housing. Researchers comparing higher and lower socioeconomic groups found evidence to support that people living in areas with higher socioeconomic status reported better physical health than other groups (Wainwright and Surtees, 2003; Howell et al., 2005).

It is clear that current conditions of many public housing developments make them virtually uninhabitable. Popkin et al., (2004a); Popkin et al. (2004b); and Zeilenbach, (2003) described conditions such as cockroach infestations, plumbing problems, exposed pipes, and peeling lead paint. Safety concerns abound, as residents are subjected to gunfire, gang-related activity, drug activity, and racial conflicts (Popkin et al., 2004b; Bailey, 1965). They describe the toll on residents from living in a chronically stressful environment. "…weathering…the constant stress of living in danger and being exposed to the hazards of substandard housing exact a major toll on physical and mental well-being" (p.402).

Researchers have found a relationship between socioeconomic status and environmental quality (Kennedy, Kavachi, Glass and Prothnow-Stith, 1998; Evans and Kantrowitz, 2002).Air quality, environmental toxins, noise, crowding, and housing quality are variables affecting physical health (Evans and Kantrowitz, 2002; Grigsby and Bourassa, 2003). These are all conditions that can be found in many public housing developments.

Perceptions of mental and physical health

Perceptions of health have been shown in the literature to reflect objective measures of health status. Malstrom, Sundquist, and Johansson (1999) wrote that there is a solid relationship between "chronic disease…self-reported health status, health care

utilization…mortality" (p.1182) although they qualify this statement by pointing out that this relationship does not mean there is an absolute match between self-report and diagnosis. Drukker and van Os (2003) in their study about quality of life and neighborhood, found a relationship between perceptions of housing conditions and perceptions of health.

Overall, there seems to be support in the literature indicating the usefulness self-reported health status (van Genderen, F., Westers, P., Heijnen, L., De Kleijn, P., van den Berg, P., and van Meeteren, L., 2006; Melanson, P. and Downe-Wamboldt, B., 1987). Melanson and Down-Wamboldt (1987), in their study of older adults in various living situations, found a strong relationship between life satisfaction and perceived health. Van Genderen, et al. (2006) in their study of hemophiliacs and perceptions of physical abilities, found self-perceptions to be both accurate and helpful to the physician. While these studies may seem unrelated, they demonstrate the usefulness of measuring perceptions of health.

Ware (2000) looked at the following physical health concepts to develop his SF-36 instrument: pain, general health, physical functioning, and ability to maintain one's role (unencumbered by physical difficulties). These items were chosen, according to Ware (2000), because they had been used in many other health surveys and seemed to represent the accepted concepts of health. Ware also looked at the following mental health concepts to develop his SF-36 instrument: vitality, social functioning, the ability to maintain one's role (unfettered by mental or emotional difficulties). These items, too, were chosen because they were the generally accepted concepts of mental health.

This literature review has generally focused on adults, but it is important to note that children in clustered, low income housing neighborhoods also have increased health risks. The literature points to the following explanations: the rapid spread of infectious disease due to crowded living conditions (Acevedo-Garcia et al., 2003), environmental hazards (Dubow, Edwards, and Ippolito,1997; Acevedo-Garcia et al., 2003; Cohen, Mason, Bedimo, Scribner, Basolo, and Farley, 2003), limited access to healthcare (Brooks-Gunn, Duncan, and Aber, 1997; Chiles, 1998), substandard housing (Brooks-Gunn et al., 1997), high levels of stress, and an increased exposure to violence, compared to children not living in clustered, low income housing (Dubow et al., 1997; Aceveda-Garcia et al., 2003). There is also research to support public housing residents experiencing more physical effects such as increased rates of low birth weight, infant mortality, and other diseases than other populations (Popkin, et al., 2004b; Saegert and Evans, 2003).

Measuring physical and mental health

Physical health problems have been defined in many different ways but, with regard to the housing literature, mortality (Wainright and Surtees, 2005), and asthma were the most common themes found (Harris and Kaye, 2004; Howell et al., 2005; Krieger and Higgins, 2002). Mental health has been defined in many ways; it was defined in the housing literature as life satisfaction (Schulz et al., 2000; Schwirian and Schwirian, 1993), the ability to cope, and stress management (Germain, 1984; Hartig et al., 2003; Klebanov et al., 1994). Mental health problems were generally defined as: stress, anxiety and depression (Germain, 1984; Harris and Kaye, 2004). Saegert and Evans (2003) conceptualized the housing niche model "…to better understand the ways that

psychological, social, and physical environmental factors contribute to health…" (p. 575). This study is measuring *perceived* physical and mental health, and defined these terms by the Short Form 36 Instrument developed by Ware (2000).

HOPE VI

Public housing is being replaced with mixed income sites in many communities, using HOPE VI (Housing Opportunities for People Everywhere) funding (Popkin et al., 2004a). HOPE VI is a government-funded program that began in 1992 (Harris and Kaye, 2004). Oversight of this program is through HUD (the Department of Housing and Urban Development). The stated intentions of Hope VI are to reduce concentrated poverty and increase the use of housing vouchers in the community, improve distressed housing, and improve neighborhoods (Harris and Kaye, 2004). HOPE IV information is relevant to the present study because moving a person from public housing to Section 8 housing changes his or her neighborhood, which relates to neighborhood studies. Proponents of HOPE VI say that tenants are better off in mixed income sites because research shows negative neighborhood effects in public housing, and that the displaced residents are able to use vouchers in the private housing market to live somewhere other than public housing and are often living in better housing than before (Brophy & Smith, 1997; Popkin et al., 2004a).

Summary

To summarize, the literature review demonstrates the need for research on the perceptions of mental and physical health and the differences between types of housing subsidy used. Neighborhood effects for those living in public housing have been documented, as have negative effects of moving residents out of public housing and into

the private market, but these populations have not been compared. In addition, these populations have not been studied and compared using subjective measures. The ecological model offers a lens through which to see environmental effects on mental and physical and mental health. A comparison between the two groups (Section 8 residents and public housing residents) is needed to guide planners responsible for future planning for people requiring housing assistance, and to help social workers and others charged with helping subsidy users gain the information they need to understand neighborhood effects.

Public housing conditions, such as overcrowding, pollution, and violence have been described in this review. This review has summarized the literature that supports the idea that these conditions impact mental health and physical health. Because the research has shown these conditions to be greater in public housing, and because there have been no studies using subjective measures to compare mental and physical health perceptions of these two housing subsidy groups, there is no information for planners of housing for those who have needs for housing subsidies. This comparison is the focus of the present study.

Chapter 3

Method

In this chapter the variables, instruments, and the setting of the study are described. In addition, the sample, the mailing process, and the return rate of the questionnaires are explained. Lastly, the details of the data collection, data screening and statistical analyses are described.

Permission was granted by an administrator with the Columbia Housing Authority (CHA) and, in order to maintain anonymity of the participants within the CHA, the following protocol was agreed upon. Participants were selected by the administrator, using a numbering system in the computer to select a random sample from each group (public housing and Section 8 housing). Surveys were sent by mail to each sample group and each envelope included two questionnaires: the SF-36 questionnaire measuring perceptions of participants' mental health and physical health and a survey asking for demographic information. The completed surveys were mailed, by the participants, to the researcher, using a self-addressed, stamped envelope. The data from these questionnaires were analyzed in an effort to see whether residents have dissimilar health perceptions in the different types of low-income housing.

This study used survey methodology to compare specific outcomes for residents of public housing and section 8 housing. Six hundred addresses (three hundred addresses in public housing and three hundred addresses in section 8 housing) were sent the questionnaires described above. T-tests, chi square analysis, and multiple regression

analysis were used to analyze the data. Composite scores of two scales, mental health and physical health, were computed to determine which group had better self-perceived mental and physical health.

Dependent variables

Mental and physical health perceptions were the basic concepts behind the dependent variables in this study. Brody (2005) defined health as "a state of physical, mental and social well-being" (p.125). Ware and Sherbourne (1992) defined subjective perceptions of physical and mental well-being (using concepts described below) through their SF-36 survey. Deiner, Oishi, and Lucas (2003) define subjective well-being as "happiness or life-satisfaction" (p. 404). Further explanation of the concepts of physical and mental health is offered in the paragraphs that follow.

Russell (2007) writes that mental illness is generally thought of as causing the subjective experience of "distress, impairment, and dysfunction" (p.62). Mental health was conceptualized as the ability to function in society with less than moderate feelings of mental distress, impairment or dysfunction and an overall feeling of well-being, or life-satisfaction (Deiner, et al., 2003). They acknowledge that subjective feelings of well-being vary for individuals over time, but it is the overall feeling (perception) of mental health that determines one's concept of mental health. For this study, perceptions of physical and mental health were measured subjectively, with the SF-36 instrument.

Physical health was conceptualized as the ability to perform tasks of daily living and to not have physical illnesses that constrain one's ability to enjoy life. Brody (2005) stressed the importance of not considering only whether or not the person had an illness or disease, but whether the person felt good. Ware's SF-36 instrument asks participants to

answer questions about their ability to accomplish certain tasks, such as climb stairs and carry groceries, but the survey also asks them how they feel, and how much their physical health impairs their ability to interact socially.

Measuring physical health perceptions by ability to perform physical tasks is not a new concept. Johnson and Wolinsky (1993) measured health status by looking at functional limitations, (shopping, light housework, caring for self, etc) among other variables. Tessler and Mechanic (1978) questioned study participants about their perceptions of physical health by asking questions related to ability to "perform life activities" (p.256). Choi and Kim (2007) measured functional impairments as the inability to perform activities of daily living as they once had. Additionally, studies commonly link functional ability with psychological well-being (Choi and Kim, 2007; Mechanic and Hansell, 1987; Tessler and Mechanic, 1978).

The dependent variables for this study were the composite mental health perception scores and composite physical health perception scores on the SF-36 Instrument. This instrument was chosen because it measured perceptions of mental and physical health, had good reported reliability (alpha coefficients of .93 for PCS and .88 for MCS) and validity (Corcoran and Fischer, 2000) and had normative data available because of widespread use of the instrument. The subscales of the SF-36 were based on multiple questions measuring each concept. Each composite score has four subscales, which are described in the paragraphs below.

The composite mental health score was comprised of four subscales: vitality, social functioning, role limitations due to emotional problems, and general mental health. Vitality items on the questionnaire include questions about energy level, including: "do

you feel full of life" and "did you feel worn out". Role limitation items include questions about being able to accomplish work activities or live up to expectations and included: "have you had to cut down on work time" and "have you accomplished less than you would like to during the past 4 weeks." Social functioning items included questions about meeting with friends and relatives and whether mental or physical health difficulties have interfered with those activities. The general mental health subscale consists of questions regarding absence or presence of symptoms of depression and anxiety, such as feelings of sadness, happiness, nervousness and peacefulness (Ware and Sherbourne, 1992).

These mental health subscales included several items closely related to the Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV) criteria for depression and anxiety. The DSM-IV has in common with the SF-36: depressed mood, loss of energy, impairment in functioning, and anxiety (APA, 2000). It is reasonable to expect similarities between the two, as the above-mentioned items have been shown, over time, to be indicators of well-being (Ware and Sherbourne, 1992). This similarity lends to credibility of the SF-36 measurement of mental health perception.

The composite physical health scale is comprised of four subscales: physical functioning, role limitations due to physical problems, bodily pain, and general health perceptions. Physical functioning was measured by the participants' answers to questions about physical activity level. Participants were asked whether they were able to kneel, walk up stairs, dress themselves, and engage in moderate to vigorous activities, etcetera. Role limitations questions asked if participants have had to miss work or other activities due to problems with physical health. The bodily pain subscale consisted of two questions regarding physical pain. The general health scale was made up of five

questions, asking participants whether they believed their health was good or bad (Ware and Sherbourne, 1992).

Ware and Sherbourne (1992) explained that the health questions were not meant to address, specifically, diseases or treatments; instead, the intent was to measure health perceptions in general. This fits for the present study, because subjective measures are being used, rather than diagnostic tests. An overall feeling of mental health or physical health is the primary interest of this study, because self-rated health perceptions have been shown, in research cited elsewhere in this document, to be an accurate rating of health and because objective measures have already been studied multiple times in other studies.

As with the mental health scale, the physical health scales items were adapted from other instruments in use for several decades (Ware and Sherbourne, 1992). Measuring a variety of health items, ranging from ability to climb a flight of stairs to bodily pain gives breadth to this composite score.

Independent variables

The independent variables were the type of housing subsidy used: public housing or Section 8. Public Housing, in this study, is defined as congregate, row housing in the city of Columbia. Section 8 housing, in this study, is defined as housing available for people who are eligible for the Housing Choice Voucher Program. Voucher holders can rent a house or apartment from one of the landlords accepting vouchers. This study included participants living in either public housing or using housing vouchers in Boone County.

Instrument

Participants completed a demographic survey and the Health Survey Short Form (SF-36) scale, which is a subjective measure for physical and mental health (Ware, 2000), and this survey has eleven questions, with 36 queries, which asked for responses ranging from yes/no to Likert-type responses. This instrument gives a composite score of perceived physical health (PCS) from four subscales: physical functioning, physical role, bodily pain, and general health. The mental health composite score (MCS) is obtained from the subscales vitality, social functioning, emotional role, and general mental health. The SF-36 is a widely-used scale and has an alpha coefficient of .93. Validity was reported as good (Corcoran and Fischer, 2000). Specifically, the alpha coefficients are .93 for the (PCS) and .88 for the (MCS) (Corcoran and Fischer, 2000). The SF-36 survey instrument is attached in appendix A.

The SF-36 was chosen for several reasons. This survey covers both physical and mental health in one instrument and is relatively brief, making participant completion more likely. This instrument also has demonstrated validity and reliability, as described in the previous paragraph. The SF-36 instrument has been used in many studies to measure self perceptions of health and well-being (Ware and Gandek, 1998). An additional strength of the survey (besides demonstrated validity and reliability) is that it can be self-administered (Ware, 1992). Limitations of the SF-36 survey are explained in chapter 5.

The SF-36 was constructed with the intention of creating a "standardized health status survey that was comprehensive, psychometrically sound and brief" (Ware and Sherbourne, 1992, p.474.) Items were included that were represented in most health surveys, with the addition of other concepts that were seen as essential to measuring

health, such as vitality and bodily pain (Ware and Sherbourne, 1992). Initially, the instrument had 18-20 items (Ware and Sherbourne, 1992); the survey has been modified since its inception to what it is today.

Ware and Sherborne (1992) explain that the items in the SF-36 were included because of standards in the field; the items were adapted from surveys and concepts that had been used for decades. These items measured perceptions of physical and mental health on eight scales, as described above. The standardized nature of the survey increases the ability to replicate studies and, accordingly, the ability to test validity and reliability of the instrument (Ware and Sherbourne, 1992).

Demographic information was obtained from a questionnaire included in the survey packet. Participants were asked their age, gender, employment status, yearly income, and family composition. This information was collected for the purpose of increasing internal validity and for demographic comparisons between the two housing samples.

Setting

Columbia, Missouri is a Midwestern town of about 99,000. According to the city website, the average household income is $31,000 (gocolumbiamo.org). The average income of public housing residents is $8,000 (Semelka, 2007). The local Housing Authority (CHA) office is geographically located in the middle of public housing. This agency oversees 719 public housing units (372 row house apartments and 347 tower apartments) and, as of May, 2005, had 960 filled Section 8 housing vouchers. In Boone County, there are approximately 700 landlords currently accepting Section 8 vouchers (Semelka, 2007).

Columbia was chosen as the site for this project because the CHA is currently applying for a grant from the program Housing Opportunities for People Everywhere (HOPE VI). The research was intended to provide the CHA with information to help them make a decision about redevelopment. The information gleaned from the residents using housing subsidies may be representative of like communities, but may not be representative of larger cities.

There is a need for research in other public housing settings as well as other areas around the country. Tower apartments were not included in this study but there is a need to gather information about this population (tower apartments in mid-sized cities). Their unique setting brings distinctive circumstances, different from both tower apartments, row houses, and Section 8 housing in larger cities.

S*ample*

This study used a random sample of low-income housing residents living in two settings using two different types of housing subsidy: public housing in garden-style row housing and Section 8 housing choice vouchers. Following IRB (Institutional Review Board) approval, participants were randomly selected from these two groups by an administrator with the housing authority. The administrator was asked by the researcher to randomly select 300 addresses from her database from those living in public housing and 300 from those living in Section 8 housing. The ratio of Section 8 sampled units was less than the ratio of public housing units. The goal was to have a similar sample size.

The administrator randomly selected 300 names from each housing subsidy program, using an Excel program and starting with a random number to select names from her database. Each participant was assigned a number. The administrator printed these

addresses onto labels and addressed the provided envelopes. The pre-paid envelopes were also numbered. For the second mailing, the administrator was provided a list of numbers of participants who returned the survey, plus a list of numbers that came back as "return to sender" so only those who did not return the survey from the initial mailing would receive the second mailing. The second batch of envelopes was also pre-numbered.

This study utilized mailed questionnaires to two samples: three hundred public housing residents and three hundred Section 8 residents. Questionnaires were sent out in two mailings and results were analyzed using SPSS 14 software. The total response was 170 surveys, with a response rate of 28 percent.

Mailing process and return rates

Questionnaires were mailed to 600 addresses, 300 from each type of subsidy used. Ninety eight surveys were returned after the first mailing (60 from the public housing group and 38 from the Section 8 group). In an effort to get a larger sample, surveys were sent a second time to addresses from which surveys had not been returned. This second mailing yielded 73 returned surveys (37 from the public housing group and 35 from the Section 8 group). The total number of surveys returned from those persons living in public housing was 97; this is a response rate of 32 percent. The total number of surveys returned from those using housing vouchers was 73; this is a response rate of 24 percent. The total number of surveys returned, including public housing and section 8 housing, was 170; this is a response rate of 28 percent. Ten surveys, in total, were sent back as "return to sender" and are not included in the response rate.

There have been some researchers who have questioned the use of the SF-36 form with populations who have disabilities or who are somewhat older than the general

population. Mallison (1998) questioned the validity of a mailed survey to an older population. Picavet (2001) postulated that mailed surveys tend to have a lower return rate when sent to people from lower socioeconomic groups or with less formal education. These reasons could account for the somewhat low return rate of this research project.

It was hoped that offering a gift of appreciation (a drawing for gift cards) and having a firm ending date for receiving surveys would result in a good response rate. Dillman's (1978) methods were employed as an attempt to improve the overall response rate. Letters were written, surveys were folded, and envelopes were stuffed according to Dr. Dillman's suggestions. The low response rate may have been due to low reading level, age of participants and socioeconomic level of target group (Picavet 2001; Mallison, 1998). Because the sample was of sufficient size to compare the two groups and run statistical measures, the surveys were not sent out a third time.

Adult heads of household were targeted as participants completing the surveys, as it was assumed that they would have similar responsibilities and characteristics in the household. For reasons of safety, time, and lack of database availability from the Housing Authority, this method of sampling was chosen. For the purposes of this project, adult participants were targeted, because much research about housing has involved children already.

Data Collection

Surveys were prepared and taken to the housing authority. Staff at the housing authority prepared mailing labels and mailed the surveys. An information letter was included in the survey packet, along with an informed consent explanation detailing the intent of the research, what participation would entail, and potential risks to participants.

There were no anticipated risks to participants. Informed consent was assumed with the return of the survey. For each mailing, participants returning their surveys were entered into a drawing for one of six $25 gift certificates to a discount store.

Data screening

All of the returned surveys were entered into the database. Data entry was completed by a student working with the researcher. To ensure accuracy, data were randomly checked after data entry was completed for accuracy. No errors were found in this random check.

Missing data were handled as follows. If participants returned the SF-36 survey or demographic survey incompletely, the questions they answered were analyzed. Sample size was reduced in the analysis of each case when that occurred. This increased the possibility of Type II error, as reduced sample size means each answer carries more weight; however, this decision was made in order to include as many participants as possible. Different Ns are indicated in the tables.

Statistical analysis

Both hypotheses in this study rely on the SF-36 variables. Descriptive statistics on demographic variables assisted in determining the extent to which the two groups are similar. These surveys were computer scored, using SPSS software, and the groups were compared using independent samples t-tests to examine the equality of means. Chi square analyses were used to analyze the demographic data. Multiple Regression analysis was carried out to see whether other demographic items might account for mental health or physical health differences.

Chapter 4

Results

This chapter provides the statistical results and analysis of the data from the research project described in the previous chapters. Data screening methods used prior to analyzing the data will be explained. Demographic survey results will be discussed prior to the results of the well-being survey. Results of the well being survey will be described in terms of the scales available in the instrument, as well as composite scores, such as psychological well being and physical being.

Demographic survey

Descriptive statistics were used to describe demographic information from each sample (those living in public housing vs. those living in Section 8 housing). Inferential statistics (chi-square analysis) were used to determine differences between the two groups on the demographic variables. Table 2 (p.42) shows the results from the chi square analysis.

Participant Demographics

When compared to US Census Bureau data, the participants in each group (public housing vs. Section 8) in this study are similar to each other but dissimilar to the general population of Missouri and the United States. According to their responses to the demographic survey, all of the participants in the study are predominantly female, poor, unemployed, and unmarried. In the public housing sample, 50 percent of respondents were African American and 43 percent were Caucasian; in the Section 8 sample, 32

percent of respondents were African American and 63 percent were Caucasian. Approximately half of the participants have attended college. Compared to the general population, a high number of participants report having a disability. Refer to table 1 (p. 41) for demographic information.

Population demographics

According to the US Census Bureau, the median income range for women in Missouri is 27,504-29,946; the median income range for men in Missouri is 38,650-42,563. Data from the US Census Bureau indicate that the Missouri demographic for race is 85 percent Caucasian and 12 percent African –American. The US is predominantly Caucasian (80 percent) and 13 percent African American. In Missouri, 55 percent of the population is married, 26 percent never married, 19 percent widowed, separated, or divorced ; in the US, 53 percent of the population is married, 28 percent never married, and 18 percent is widowed, separated, or divorced. Employment statistics are similar in Missouri and the United States; the employment rate in Missouri and the United states are 62 and 66 percent, respectively. The unemployment rates are 7 percent in both Missouri and the US. In terms of disability, Missouri's disability rate for adults (21-64) is 15 percent, while the US disability rate is 12.7. Eighty one percent of the population in Missouri has graduated from high school (80 percent of the US population), and 22 percent of the Missouri population (24 of the US population) has obtained a bachelor's degree (or higher) in college (US Census Bureau, 2007).

HUD 1998 census statistics offer a slightly different perspective of the demographics of persons using housing subsidies. According to HUD, approximately 9 percent of the public housing population (9.6 percent of Section 8 housing) makes an average of $5,000

or less per year. The public housing and Section 8 populations, nationwide, consist of 25 percent under the age of 25, and 42 and 25 percent, respectively, over the age of 85. In terms of race in public housing, 70 percent of the public housing population is Caucasian and 30 percent is from a minority group. Sixty nine percent of the minority population is Black (not Hispanic), 47 percent is Hispanic, 19 percent is Native American, and 2 percent is Asian or Pacific Islander. The Section 8 population consists of 59 percent Caucasian and 41 percent minority. Of the minority group, 58 percent is black (not Hispanic), 40 percent is Hispanic, 15 percent is Native American, and 1 percent is Asian or Pacific Islander (HUD dataset, 1998).

Demographic comparisons

There are clear differences between the participants in the study sample and the general population. Disability, racial representation, income, marital status, and employment status seem to be the demographics that stand out the most. In terms of disability, 61 percent of the public housing sample and 71 percent of the Section 8 housing sample reported having a disability, as opposed to US the disability rate of 12.7 percent (US Census Bureau, 2007). The Unemployment rates in both samples in the study were above 60 percent, which is nearly equal to both the US and Missouri employment rates (US Census Bureau, 2007).

The participants do not seem to differ much in terms of where they live (public housing vs. Section 8 housing) except for one area that was found to be statistically significant: why they chose to live where they live. The majority of the participants in the public housing sample picked the first answer, “It is the only thing I can afford,” whereas the participants in the Section 8 sample were more evenly distributed across two answers,

"It is the only thing I can afford" and "It is the only thing available." Because the population studied is so different from the general population, and because of the small sample size, the results from this study are not generalizable to the general population.

Table 1 Participant Demographics

	Public Housing		Section 8 Housing	
Characteristic	**%**	**N**	**%**	**N**
Gender				
Female	75	(59)	80	(57)
Male	25	(20)	20	(14)
Income				
Less than 5,000	36	(26)	31	(22)
5000-9,999	47	(34)	40	(29)
10,000-19,999	16	(12)	21	(15)
20,000-30,000	1	(1)	8	(6)
Employment Status				
Full-time	19	(14)	17	(11)
Part-time	14	(10)	11	(7)
Not working	62	(45)	68	(45)
Marital status				
Never married	47	(34)	34	(24)
Married	8	(6)	6	(4)
Widowed/Separated/Divorced	45	(33)	61	(43)
Education				
HS dropout	28	(22)	21	(15)
HS graduate	28	(22)	26	(19)
Some college	29	(23)	38	(27)
College graduate	15	(12)	15	(11)
Choice of current Residence (1st choice)				
All I can afford	65	(53)	51	(29)
Only thing available	4	(3)	26	(15)
Close to friends/family	4	(3)	12	(7)
Close to work	2	(2)	5	(3)
Close to public transportation	1	(1)	5	(3)
Disability				
Yes	61	(46)	71	(52)
No	39	(30)	29	(21)
Race				
African American	50	(37)	32	(23)
Caucasian	43	(32)	63	(45)
Other	7	(5)	6	(4)
How many people live in your home?				
Under age 18				
Mean (SD)	.76	(1.16)	1.05	(1.46)
Over age 18				
Mean (SD)	.91	(.62)	.86	(.58)

Table 2 Chi Square Table for Type of Subsidy Used

	Public Housing		Section 8		X^2	*p*
	%	**N**	**%**	**N**		
Why living there						
1st chce (afford)	88	(53)	71	(29)	4.941	.026
1st chce (avail)	14	(3)	54	(15)	7.969	.005
1st chc (fam)	15	(3)	37	(7)	2.438	.118
1st chc (work)	11	(2)	21	(3)	.636	.425
1st chc (transp)	6	(1)	19	(3)	1.421	.233
Gender					.669	.414
Male	59	(20)	41	(14)		
Female	51	(59)	49	(57)		
Race					5.546	.062
Caucasian	42	(32)	58	(45)		
African American	62	(37)	38	(23)		
Income					4.628	.201
Income under 5k	54	(26)	46	(22)		
Income 5-9k	54	(34)	46	(29)		
Income 10-20k	44	(12)	56	(15)		
Employment					3.719	.591
Employed PT	59	(10)	41	(7)		
Employed FT	56	(14)	44	(11)		
Unemp (not seek)	65	(13)	59	(24)		
Unempl (seek)	42	(17)	35	(7)		
Retired	52	(15)	48	(14)		
Marital Status					5.940	.115
Never married	59	(34)	41	(24)		
Widowed	20	(2)	80	(8)		
Married	60	(6)	40	(4)		
Sep. or Div.	47	(31)	53	(35)		
Disability					1.896	.169
yes	47	(46)	53	(52)		
no	59	(30)	41	(21)		
Education					1.586	.663
HS dropout	60	(22)	41	(15)		
HS grad	54	(22)	46	(19)		
Some college	46	(23)	54	(27)		
College Grad	52	(12)	47	(11)		

* For relevant variables, totals should sum to approximately 100% across rows.

Well-being survey

Preliminary Analysis

SPSS (version 14) was used to analyze data (SPSS, 2005). The independent samples t-test was utilized to determine differences between the means of the two groups. This test is recommended in cases where there is a small sample. Additionally, the t-test is useful

in situations where the samples do not have an equal number of cases (Weinbach and Grinnell, 1987). According to Waigandt (2003), the t-test allows both for the sample mean to be compared to the population mean and for each sample to be compared to the other.

Psychometric Properties of the SF-36

The purpose of this study was to determine whether there were differences in the separate subjective well-being composite scores from the SF-36 questionnaire. T tests were enlisted to analyze the data from the SF-36 short form. The Levene's test was not significant, indicating the data were suitable for analysis. The independence assumption seems reasonable, since the treatment groups were chosen specifically because they qualified only for the group for which they were chosen.

Chronbach's Alpha (.698) was found to have borderline acceptability (a score of .8 is generally considered good). Chronbach's Alpha measures internal consistency. An alpha score of .698 means there is some correlation between test items, but not a large amount. Alpha level (α) was set to .05 to limit Type 1 error, or falsely accepting the null hypothesis. These properties of the SF-36 instrument are explained because the SF-36 is the major instrument of this study. The Chronbach's Alpha shows this survey, despite some mild concerns about reliability and validity, is appropriate for use with this population.

Mental health composite score

The mental health composite score is made up of four subscales: vitality (questions 9a,9e,9g, 9i), social functioning (questions 6,10), role-emotional (questions 5a-c), and mental health (questions 9b, 9c, 9d, 9f, 9h). Prior to analyzing the data, some of the data

were reverse-scored per instructions from the scoring manual. See appendix A for the SF-36 Health Survey.

The mean score of those housed in public housing was 43 (SD=6.71), N=73. The mean score of those using Section 8 vouchers was 44 (SD=5.35), N=73. The mean for the US population is 51 (Ware, Kosinski and Dewey, 2002, p.75). The mental health composite score showed no significance between the public housing group and the section 8 group (*t* -.804, 144 *df*, *p*= .423).

Physical health composite score

The physical health composite score is made up of four subscales: physical functioning (questions 3a-3i), role-physical (questions 4a-4d), bodily pain (questions 7, 8), and general health (questions 1, 11a-11d). Prior to analyzing the data, some of the data were reverse-scored per instructions from the scoring manual. See appendix A for the SF-36 Health Survey.

In the independent samples t tests, there were no differences between the two groups. The mean score of those housed in public housing was 60 (SD 9.31), N=69. The mean score of those using section 8 vouchers was 59 (SD=8.18), N=67. The mean for the US population, for those between the ages of 45-54, is 49.62 (Ware et al., 2002, p.75). The physical health composite score showed no significance between the public housing group and the section 8 group (*t* .575, 134 *df*, *p*= .566).

Multiple regression analyses

According to the results of this study, housing subsidy does not make a difference in terms of perceptions of physical health and mental health. Multiple regression analyses were next employed. According to Mitchell (2001), this type of analysis "accounts for

correlation among causal variables to estimate the effect of a particular trait with all else statistically held constant" (p.218). To determine whether other factors were related to perceptions of physical and mental health, in the context of person-in-environment, multiple regression analyses were carried out.

To determine whether or not there was a relationship between the physical health composite score and other variables in the study, physical health was entered first, and then the collapsed; recoded demographic variables were entered into the regression. The composite score for physical health perceptions was entered first, in order to determine how much variance for which this variable was responsible (Pedhazur, 1997). Gender ($p<.05$), employment status ($p< .0001$), and having someone in the household under the age of 18 ($p< .01$) were significant, meaning these may be predictors of subjective physical well-being. The adjusted R^2 of .229 indicates that the regression model accounted for 23% of the variance in perceptions of physical health. According to the analysis performed, these factors may be more important than housing.

To determine whether or not there was a relationship between the mental health composite score and other variables in the study, the mental health composite score was entered first, and then the collapsed, recoded demographic variables were entered into the regression. Mental health was the variable entered first, in order to determine the variance for which it was responsible. The question "how many people live in your home over the age of 18" was the only statistically significant item, ($p<.05$). The adjusted R^2 of .019 indicates that this regression model only accounted for 2% of the variance in mental health perceptions. More research is needed to determine the variance in mental health. See the multiple regression tables below for both the physical health and mental health

multiple regressions. See table 3 (p.48) for the physical health regression table, and table 4 (p.48) for the mental health regression.

Table 3. Multiple Regression for Physical Health

	B	SE B	β	*t*	*p*
Intercept					
Housing subsidy	-1.680	1.493	-.102	-1.125	.264
Income	-.231	1.006	-.023	-.230	.819
Education	-1.526	.811	-.183	-1.881	.063
Age	-.022	.055	-.047	-.409	.684
Gender	3.739*	1.838	.185	2.034	.045
Employment Status	6.129***	1.829	.354	3.350	.001
Race	2.199	1.618	.128	1.309	.194
Marital Status	-2.002	1.802	-.121	-1.111	.270
How many live under 18	1.772**	.641	.288	2.766	.007
How many live over 18	.667	1.173	.051	.568	.571
Adj. R-square	.229				
F-value	4.038				
N	109				
Model significance	.000				

p<.05*, p<.01**, p<.001***

Table 4 Multiple Regression for Mental Health

	B	SE B	β	*t*	*p*
Intercept					
Housing subsidy	.217	1.165	.019	.186	.853
Income	.966	.788	.137	1.226	.233
Education	-.061	.621	-.011	- .099	.922
Age	.004	.043	.012	.093	.926
Gender	.705	1.433	.049	.492	.624
Employment Status	.778	1.450	.063	.537	.593
Race	1.211	1.253	.104	.967	.336
Marital Status	.919	1.402	.079	.655	.514
How many live under 18	.486	.502	.113	.970	.335
How many live over 18	1.858*	.904	.205	2.055	.043
Adj. R-square	.019				
F-value	1.211				
N	106				
Model significance	.294				

p<.05*, p<.01**, p<.001***, p<.0001****

Note: For comparison group purposes, the codes for categorical predictors in each of the two regression models above are: Housing subsidy (0= public housing, 1= Section 8), Education (2=hs dropout, 3hs grad, 4=some college, 5= college grad), Gender (1=female, 2=male), Employment Status (0=not employed, 1= employed), Race (0=white, 1=black, 2=other), Marital Status (0=currently or formerly married, 1=never married)

Chapter 5

Discussion

This final chapter describes the implications of the data analysis from this research project. The results of the hypotheses, and possible explanations of findings, will be explained. Subjective well-being of the two populations will be addressed from a theoretical standpoint. Theory and research implications of the results will be described. Limitations of this study will be reviewed and, lastly, implications for future research in the area of supported housing will be discussed.

Results of hypotheses

The measures from the two groups were compared and results statistically analyzed to explore the relationships between the type of housing subsidy and the perceived physical and mental health of residents; in different terms, do people fare better in public housing or Section 8 housing? This study asked whether residents have different perceptions of mental and physical health depending on where they live (Section 8 in the community vs. public housing). The two hypotheses for this study were as follows:

1. People using a housing voucher in the private market will report higher positive perceptions of mental health than those living in public housing. This hypothesis was not supported by the results of the data analysis. The differences between the two samples were not statistically significant. The mental health composite score showed no significance between the public housing group and the Section 8 group (t -.804, 144 df, $p>.05$).

2. People using a housing voucher in the private market will report higher positive perceptions of physical health than those living in public housing. This hypothesis was not supported by the results of data analysis. The differences between the two samples were not statistically significant. The physical health composite score showed no significance between the public housing group and the section 8 group (*t* .575, 134 *df*, *p>.05*).

The multiple regression analyses showed some significant results in the physical health perceptions model. Physical health perceptions seem to be influenced by gender, employment, and the presence of a child in the home. The regression coefficient for gender is 3.739 ($p<.05$), indicating gender had statistically significant influence over physical health perceptions in this study. The regression coefficient for employment status is 6.129 ($p<.05$), indicating gender had statistically significant influence over health perceptions in this study. The regression coefficient for the number of people living in the house under the age of 18 is 1.772 ($p<.05$). This may mean the number of people living in the house under the age of 18 can significantly predict physical health perceptions. These variables accounted for 23% of the variance in the physical health regression model.

In the mental health regression model, only the presence of another adult in the home showed significance, ($B=2$, $p<.05$), and accounted for 2% of the variance in the model. An implication of these results seems to be that family support makes a difference in terms of perceptions of physical and mental health. More information is needed to determine what affects one's perceptions of mental health, as the demographics in this regression model did not capture that information. These results may be that

neighborhood is more important than individual factors. Future research could focus on this area.

In the city used for this research, the results seem to mean that there are truly no differences in the two samples. In larger cities, gentrification has resulted in poorer people moving out of urban neighborhoods and into suburbs of cities, resulting in some former residents of public housing living far from friends, extended family members and former neighbors (Atkinson, 2004). Once depending on public transportation, which may not be available in the suburbs, former public housing residents may find themselves unable to connect with friends from their former community (Newman and Wyly, 2006). In Columbia, this may not be the case.

As can be seen in the demographic results, there are virtually no differences in the two samples, which was predicted. The majority of the participants in both samples reported annual incomes below $10,000. As was written in an earlier chapter, this sample cannot be generalized to the general population. It is a small sample and represents only people who are of a certain income level. What was not predicted prior to this study was that people reported they chose their current residence because of affordability and availability rather than environmental conditions and available public services, such as transportation. It was thought that public housing residents might choose to live there because of availability of services such as transportation, but data analysis did not support that assumption.

Columbia is a very homogeneous community. Public housing is surrounded by other communities, in contrast to some of the larger housing developments mentioned in the literature review, such as Cabrini-Green and Pruitt-Igoe, which were set up in super-

blocks. The isolation factor does not seem to be as prevalent in Columbia as in larger cities. Columbia has many community services available, for reasons described in the following paragraphs.

Columbia appears to be somewhat unique in that the city has three institutions of higher learning: Columbia College, Stephens College, and University of Missouri, as well as satellite campuses of Moberly Area Community College and William Woods University. Some of public housing is surrounded by these institutions, resulting in less physical isolation than what was discussed in the literature review. In addition to the institutions of higher learning, Columbia has three hospitals in the area, along with several clinics and a health department. In addition to providing care to those with insurance benefits, these facilities provide care to those without medical coverage. Mental health services are also available to persons without medical coverage. This availability of services (in the community studied) for medical and mental health concerns may account for the lack of differences between the two groups studied. Because services are available, fewer people may go without services than people from larger cities, where services are stretched thin due to higher demand.

Theoretical Implications

Brofenbrenner (1979) described the environment as being connected on every level. The home is the basic level, according to Brofenbrenner's ecological theory. He postulated that qualities of the environment, such as safety and social support within the neighborhood, affect individuals' level of functioning. It is difficult to say whether or not this research supported or refuted this part of ecological theory, as the neighborhoods studied were so similar.

Adaptation is an aspect of ecological theory that Germain (1984) believed was critical to one's health. Lack of significant findings in the SF-36 instrument supports this concept; people adapt to their environment similarly, given similar circumstances. Participants from both samples adapt to their environment in similar ways, as evidenced by similar results in the SF-36 results in both the MCS and PCS.

As seen in the demographic comparisons, certainly the sample demographics were quite different from the general population in Missouri and the United States (US Census Bureau, 2007). These differences, such as unemployment being over 60 percent in both samples and under ten percent in Missouri, may lead to those using housing subsidies feeling isolated from the rest of the population. Germain (1984) explained this idea as the populations having different values.

The question is whether this study supports or rejects the literature about neighborhood effects. This study's demographic results revealed that the two groups live in the same types of neighborhoods (impoverished) and this may be one possible explanation for lack of statistical significance between the two groups. Previous research has shown that neighborhood features such as ghetto-specific behavior (Wilson, 1987), economic segregation (Scott, 1995), residential stability (Bolland and McCallum, 2002; Ross, et al., 2000), and neighborhood violence (Thompson-Fullilove et al., 1998) result in differences in populations.

This study did not find significant results supporting the above-mentioned research. These findings, again, are likely due to the two samples living in the same (or similar) neighborhoods. Because of concerns of confidentiality, it was not feasible to do a zip code analysis to determine where the participants using Section 8 vouchers were living at

the time they completed the surveys. It is likely that the neighborhoods of the participants in the two samples have the same levels of violence, stability, and economic segregation. Future researchers might find it interesting and worthwhile to include questions about neighborhood attributes.

It may be considered a limitation that subjective measures of health (perceptions of physical and mental health), rather than objective measures of health (birth weight, mortality figures, prevalence of medical problems and diseases found amongst the samples) were used to determine well-being. Subjective measures of health are reported to be an inexact measure, since they are based on people's ratings of themselves. Brofenbrenner (1979) wrote about the importance of studying perceptions; one's perceptions are one's reality. The goal of this research project was to compare subjective measures of health, as objective measures had been studied routinely, as described in the literature review.

Research implications

Comparisons across these two groups did not yield significant findings; these findings may be a consequence of the sample size or community size. In larger communities, there may be vast differences between the two groups. In Columbia, those holding housing vouchers may live in neighborhoods close to each other, in the same geographical location, which may account for the study results being similar. In some neighborhoods in Columbia, Section 8 housing and public housing are located together; for example, in some areas of congregate public housing in Columbia, one side of the street has public housing units and the other side of the street has low-cost apartments that accept Section

8 housing vouchers. In larger communities, persons holding housing vouchers generally live in areas completely separate from the public housing community.

Public housing residents clearly have different experiences in larger cities than they do in Columbia, as is presented in the research. Public housing in Columbia is not in the state of disrepair that some cities around the country are reporting. For these reasons, along with the amount of medical care available in Columbia, there may not be physical health differences between the two samples.

The purpose of this study was to look at both groups in Columbia and see if their needs might best be met by moving them out of public housing and into Section 8 housing or maintain the status quo. It may be helpful to city planners and policy makers to take into consideration that, according to this research, well-being does not seem to be affected by the use of either type of housing subsidy: housing voucher or public housing.

Limitations of the study

One limitation of this study was that, because of the nature of the housing in Columbia, Missouri lent to the two groups being compared being quite similar in their housing; in one area of town, one side of the street may be considered public housing and the other side of the street accepts Section 8 housing vouchers. Because of confidentiality concerns, there was no way to get addresses and make sure the two samples lived in completely different areas. This was unfortunate; this lack of heterogeneity of neighborhood may have made the likelihood of significant results smaller. In future studies, it would be critical to have this information available to the researcher.

Small sample size was another limitation of this study. Although 600 surveys were sent out in the first mailing and approximately 500 surveys were sent out in the second

mailing, only 170 surveys were returned. This is a response rate of 34 percent. Differential loss of participants from the comparison groups may be a threat to internal validity. Because questionnaire research was the method chosen, selection bias must always be considered as a limitation. Although surveys were assembled according to suggestions from a questionnaire expert, an incentive was offered, and a second mailing was sent to those who did not respond to the first mailing as suggested by Dillman (1978), this population lends itself to low response rates. Going door to door may have resulted in a much higher return rate of surveys and may be useful for the next study, but only if addresses can be obtained for Section 8 residents so the same method can be employed for each sample.

Another limitation of this study is that there was no control group. A control group of persons from the same socioeconomic group not using subsidized housing may have been useful in terms of comparison. A pilot study may have been useful, as well. This would have required grant funding, or financial backing from a university or college.

Further, mailing the surveys opens up the research to questions about who actually completed the survey and whether or not the sample is representative of the population. It is possible that the mailing lists could have been flawed. Every effort was made to insure the CHA was given the correct information about who to mail the surveys to, but there could have been labeling errors during the process. Once again, having participants fill out the surveys in person would alleviate this concern.

Another limitation of this study could be that Columbia is a somewhat rural town, and the literature review focused on metropolitan areas. Comparing neighborhood effects in

urban areas to Columbia may be a flawed argument. If this study serves as a pilot study for a larger research project, the literature review will be quite relevant and useful.

Implications for social work practice

Although my study did not find significant differences between public housing and Section 8 housing, this may be due to adaptation, as described by Germain (1985). Adaptation to violence, poor housing conditions, and drug activity are not acceptable. Social workers acting at the macro level should work toward better housing policy and environmental conditions. This work needs to be accomplished with local housing authorities and residents. On a micro level, social workers may be helpful in helping residents cope with a difficult living situation.

Social workers also need to keep in mind that affordability and availability are the two main reasons residents choose their type of housing subsidy. The implication of this for social workers is that, even in a relatively affluent community like Columbia. Housing cost and availability remain a problem and may require social work intervention.

In the physical health multiple regression model, physical health perceptions were predicted by gender, employment, and presence of a child in the home. Social workers need to be aware, when working with unemployed men without children in the home, that they may have low perceptions of physical health. They may need linkage to supportive services, including medical services.

In the mental health regression model, mental health was improved by having another adult in the home. It may be helpful to have a companion to share responsibilities or to talk with. Social workers who are working with adults living alone should keep in mind

that this status may have negative mental health consequences and may require more services.

Implications of findings for future research

In this study, the hypotheses were not supported by the data analyses. This may mean that there are truly no differences in the two housing populations and, therefore, in a town like Columbia, housing subsidy use does not matter in terms of well-being. This question may be better answered by having a larger sample, using a larger city with more variance in type of housing, and by including, specifically, people using their housing choice vouchers in non-impoverished neighborhoods to test neighborhood effects. Access to a database of addresses of those using housing vouchers and including only those living in non-poor areas would be critical to this research.

For this study, the assumption was made that neighborhood effects would be the same in Columbia as in larger cities; they were not. To determine whether these results were because of the plethora of community supports in Columbia, it may be useful to test these hypotheses in different communities, such as other communities of similar size, rural communities, and metropolitan communities. A more heterogeneous community might show significant differences between the two housing groups.

This study may serve as a pilot study for a larger research study. It may be helpful to targeting a large city, where there is a wide disparity between public housing and Section 8 housing. Another recommendation would be to canvass the public housing projects and fill out the questionnaires in face to face interviews with the heads of households. Section 8 housing residents could be attracted by posting flyers, using the housing authority

newsletter, going to grocery stores, etcetera. Housing authority cooperation would be key to this research.

As mentioned earlier, most of the research in the literature review used objective measures to test the notion of neighborhood effects. This study used a quantitative tool to collect subjective data, which may have been a poor measure, in this case. Self-perceptions of physical and mental health may not be useful measures of differences between housing subsidy type. A more useful approach might be a qualititative methodology, using personal interviews and open-ended questions.

Overall, the null findings indicated no differences between the two groups. These results may mean there are no differences, that the community is quite homogeneous, or that quantitative methods are not appropriate with this population. Returning to the theoretical basis upon which this project was built, Germain wrote of adaptation. Adaptation to one's environment may also be the reason for null findings, especially considering the negative effects of public housing and Section 8 housing, the very process of adaptation may be necessary for survival. Further studies may show a link between well-being and type of low-income housing. The key to any type of research in this area is to listen to the residents, and hear their voices.

Your Health and Well-Being

This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities. ***Thank you for completing this survey!***

For each of the following questions, please mark an ☒ in the one box that best describes your answer.

1. In general, would you say your health is:

Excellent	Very good	Good	Fair	Poor
☐1	☐2	☐3	☐4	☐5

2. <u>Compared to one year ago</u>, how would you rate your health in general <u>now</u>?

Much better now than one year ago	Somewhat better now than one year ago	About the same as one year ago	Somewhat worse now than one year ago	Much worse now than one year ago
☐1	☐2	☐3	☐4	☐5

3. The following questions are about activities you might do during a typical day. Does <u>your health now limit you</u> in these activities? If so, how much?

	Yes, limited a lot	Yes, limited a little	No, not limited at all
a Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	☐ 1	☐ 2	☐ 3
b Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	☐ 1	☐ 2	☐ 3
c Lifting or carrying groceries	☐ 1	☐ 2	☐ 3
d Climbing several flights of stairs	☐ 1	☐ 2	☐ 3
e Climbing one flight of stairs	☐ 1	☐ 2	☐ 3
f Bending, kneeling, or stooping	☐ 1	☐ 2	☐ 3
g Walking more than a mile	☐ 1	☐ 2	☐ 3
h Walking several hundred yards	☐ 1	☐ 2	☐ 3
i Walking one hundred yards	☐ 1	☐ 2	☐ 3
j Bathing or dressing yourself	☐ 1	☐ 2	☐ 3

4. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a Cut down on the amount of time you spent on work or other activities	☐1	☐2	☐3	☐4	☐5
b Accomplished less than you would like	☐1	☐2	☐3	☐4	☐5
c Were limited in the kind of work or other activities	☐1	☐2	☐3	☐4	☐5
d Had difficulty performing the work or other activities (for example, it took extra effort)	☐1	☐2	☐3	☐4	☐5

5. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a Cut down on the amount of time you spent on work or other activities	☐1	☐2	☐3	☐4	☐5
b Accomplished less than you would like	☐1	☐2	☐3	☐4	☐5
c Did work or other activities less carefully than usual	☐1	☐2	☐3	☐4	☐5

6. **During the <u>past 4 weeks</u>, to what extent has your <u>physical health or emotional problems</u> interfered with your normal social activities with family, friends, neighbors, or groups?**

Not at all	Slightly	Moderately	Quite a bit	Extremely
☐1	☐2	☐3	☐4	☐5

7. **How much <u>bodily</u> pain have you had during the <u>past 4 weeks</u>?**

None	Very mild	Mild	Moderate	Severe	Very Severe
☐1	☐2	☐3	☐4	☐5	☐6

8. **During the <u>past 4 weeks</u>, how much did <u>pain</u> interfere with your normal work (including both work outside the home and housework)?**

Not at all	A little bit	Moderately	Quite a bit	Extremely
☐1	☐2	☐3	☐4	☐5

11. How TRUE or FALSE is <u>each</u> of the following statements for you?

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a I seem to get sick a little easier than other people	☐1	☐2	☐3	☐4	☐5
b I am as healthy as anybody I know	☐1	☐2	☐3	☐4	☐5
c I expect my health to get worse	☐1	☐2	☐3	☐4	☐5
d My health is excellent	☐1	☐2	☐3	☐4	☐5

THANK YOU FOR COMPLETING THESE QUESTIONS!

9. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

	All of the time	Most of the time	Some of the time	A little of the time	Non the t
a Did you feel full of life?	☐1	☐2	☐3	☐4	☐
b Have you been very nervous?	☐1	☐2	☐3	☐4	☐
c Have you felt so down in the dumps that nothing could cheer you up?	☐1	☐2	☐3	☐4	☐
d Have you felt calm and peaceful?	☐1	☐2	☐3	☐4	☐
e Did you have a lot of energy?	☐1	☐2	☐3	☐4	☐
f Have you felt downhearted and depressed?	☐1	☐2	☐3	☐4	☐
g Did you feel worn out?	☐1	☐2	☐3	☐4	☐
h Have you been happy?	☐1	☐2	☐3	☐4	☐
i Did you feel tired?	☐1	☐2	☐3	☐4	☐

10. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?

All of the time	Most of the time	Some of the time	A little of the time	None of the time
☐1	☐2	☐3	☐4	☐5

To put your answers in context, I would like to have some personal information about you. You will not be identified by the information given, and all answers will remain confidential. Please check or write in your answer. Please skip any question you do not want to answer.

1.) What is your Gender? ☐Female ☐Male

2.) What is your approximate yearly income (from all sources)?
☐ under $5,000
☐ $5,000 to less than $10,000
☐ $10,000 to less than $20,000
☐ $20,000 to less than $30,000
☐ $30,000 or more

3.) What is your current employment status?
☐ full-time
☐ part time
☐ unemployed, seeking work
☐ unemployed, not seeking work
☐ retired
☐ homemaker

4.) What is your current marital status?
☐ never married
☐ married
☐ widowed
☐ separated/ divorced

5.) Highest level of education completed
☐ Elementary (0-8 years)
☐ Some high school (1-3 years)
☐ High school graduate (4 years)
☐ Some college (1-3 years)
☐ College graduate (4 or more years)

6.) Why did you choose to live in your current residence? (rank in order)

☐ It is the only thing I can afford
☐ It is the only thing available
☐ It is close to friends/family
☐ It is close to work
☐ It is close to public transportation

7.) Do you have a disability? ☐yes ☐no

8.) What is your age? _____

9.) What is your race/ethnicity? _____

10.) How many people live in your home? _____under age 18 _____over age 18

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