PERCEIVED SOCIOECONOMIC STATUS, STRESS, RESILIENCE, AND HEALTH-RELATED QUALITY OF LIFE AMONG URBAN ADULTS

BY

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Dedicated to my parents and my abuela
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The number of individuals living in an urban environment is expected to grow (Seto, Güneralp, & Hutyra, 2012). There have been recent calls to examine public health-related quality of life in urban neighborhoods (United States Department of Health and Human Services, 2015).

This study is anchored in the environmental stress model (Baum, Singer, & Baum, 1981) and a health disparities framework. The environmental stress model posits that neighborhood characteristics (e.g., crowding, noise) may create experiences that negatively impact health (e.g., stress; Baum, Singer, & Baum, 1981). Furthermore, individual characteristics (e.g., resilience) may mitigate the impact of adverse neighborhood characteristics. The health disparities framework suggests that there are multiple social determinants of health and that eliminating health disparities requires: (1) documenting the disparities, (2) understanding the multilevel factors that create the disparity, and (3) developing and implementing interventions to reduce the disparity.

The following hypotheses were investigated: (1) perceived socioeconomic status will positively predict health-related quality of life, (2) perceived socioeconomic status will negatively predict perceived stress, (3) perceived stress will negatively predict health-related
quality of life, (4) the relationship between perceived socioeconomic status and health-related quality of life will be mediated by perceived stress, (5) the relationship between perceived stress and health-related quality of life will be mediated by resilience, and (6) resilience will positively predict health-related quality of life.

Data were collected from 301 adult participants who self-identified as living in an urban environment in the United States. Data were analyzed using structural equation modeling. All hypotheses, except for Hypothesis 1, were supported by the analyses. Specifically, it was found that perceived socioeconomic status had a significant negative relationship with perceived stress; additionally, perceived stress had a significant negative relationship with health-related quality of life. It was also found that resilience mitigated the impact of perceived stress on health-related quality of life. The findings from the proposed study contribute to the growing body of literature examining the health impact of an urban environment.
CHAPTER 1
INTRODUCTION

Nature of Problem

According to the U.S. Census Bureau (2010), 80.7% of the population of the United States lives in an urban environment. This is a 12.7% increase since the 2000 U.S. Census (U.S. Census Bureau, 2010). Furthermore, the number of individuals living in an urban environment is projected to grow in the coming decades (Seto, Güneralp, & Hutyra, 2012). There have been recent calls to examine public health-related quality of life in urban neighborhoods (United States Department of Health and Human Services, 2015). Psychologists, especially those interested in determinants of health, are ideal professionals to study health-related quality of life in such neighborhoods.

There are several definitions and classification systems used in the United States to identify urban and rural environments. The U.S. Census Bureau (2010) defines an urban area as a territory that includes at least 2,500 people. Furthermore, the U.S. Census Bureau (2010) identifies two types of urban areas--those with 50,000 or more people (i.e., “urbanized areas”) and those with at least 2,500 but less than 50,000 people (i.e., “urban clusters”). Additionally, the United States Department of Agriculture (USDA; 2013) has developed the Rural-Urban Continuum Codes that classify counties on a 9-level scale based on population, urbanization, and adjacency to a metro area. Finally, the National Center for Health Statistics (NCHS; 2013) has developed a 6-level scale to monitor the health of rural and urban individuals.

Research investigating the psychological and physical health effects of urban environments have defined two key terms--urbanization and urbanicity. Urbanization is a process by which an area increases in population and density over time, whereas urbanicity refers to elements or characteristics of the urban area at the present time (i.e., the impact of living in an
urban environment over time; Vlahov and Galea, 2002). It has been suggested that the effects of urbanicity are of greater importance to health researchers (Hall, Kaufman, & Ricketts, 2006). Urbanicity has been associated with a number of psychological health concerns such as depression, anxiety, and psychosis (Penkalla & Kohler, 2014) and physical health concerns such as obesity (Xu & Wang, 2015).

Research suggests that an individual’s subjective perception of his or her environment (e.g., rural or urban) has an effect on his or her thinking, feeling, and behavior. For example, studies have found that natural environments (i.e., environments low in urbanization) improved performance on memory and impulse control tasks (Kaplan & Berman, 2010). Furthermore, a neuroimaging study has shown that individuals living in an urban environment exhibit greater amygdala activation during stress inducing tasks than their nonurban counterparts (Lederbogen et al., 2010).

Additionally, the United Nations has recognized that those living in urban environments are at a greater risk for communicable and non-communicable diseases (Allender, Wickramasinghe, Goldacre et al. 2011), hypertension, and the metabolic syndrome (Sobngwi, Mbanya, Unwin et al., 2004; Weng, Liu, Wang et al., 2007). Furthermore, the results of a recent study suggest that individuals who live in low density areas experience higher levels of quality of life (Fassio, Rollero, & De Piccoli, 2013). These results also suggest that individuals who live in high density areas such as many urban areas would experience a lower quality of life.

Health-related quality of life (HQoL) is a multidimensional construct that refers to subjective (self-perceived) physical, psychological, and social functioning (Bottomley, 2002). Research suggests that subjective measures of health status may have more predictive power than objective measures of health status (Shah et al., 2014). Lower HQoL has been found to be
significantly associated with an increased prevalence of obesity (Wang, Sereika, Styn et al., 2013) and asthma (Fedele, Mullins, Eddington et al., 2009), and lower levels of stress management (Sung, Chiu, Lee et al., 2013).

Even though individuals who live in urban areas are likely to have a lower quality of life, it is noteworthy that individuals who live in urban areas also tend to be wealthier than their rural counterparts. Yet, in spite of their higher incomes in urban areas compared to rural areas, individuals who live in urban areas experience a disproportionate prevalence of chronic illnesses (Lederbogen et al., 2011) and chronic stress (Lederbogen et al., 2011; Abbott, 2012). This reality might be due to the fact that individuals who live in urban environments experience unique stress factors that affect their health, such as frequent exposure to violence, preoccupation with safety, and high population densities (Miller & Townsend, 2005). Research has shown that perceived stress is positively associated with a number of adverse physical health outcomes such as cardiovascular disease and cancer (Cohen, Janicki-Deverts, & Miller, 2007).

Perceived stress is the experience of stress in response to life situations (Cohen, Kamarck, & Mermelstein, 1983). Lazarus (1966, 1977) suggests that many health researchers operate under the common assumption that the impact of a stressful event is largely determined by one’s perception of that situation’s stressfulness. Research studies have shown that there is a negative relationship between perceived stress and perceived health (Teh et al., 2013), including among members of urban populations (Young et al., 2004).

In addition to the clear link between stress and health experienced by urban adults, research suggests that chaos in the immediate environment (e.g., noise, substandard housing, and, family turmoil) may play an important role in determining health (Evans, Gonnella, Marcynyszyn et al., 2005). A longitudinal study examining early life experiences found that
chaotic environments significantly predicted later adverse psychosocial and physical difficulties (Evans & Cassells, 2014). Furthermore, given the nature of these adverse environmental conditions, it may be reasonable to conclude that many of these conditions (i.e., noise, substandard housing, and family turmoil) may be the result of or accentuated by urban environments and associated urbanicity. Thus, urban environments may have a direct and indirect influence on psychological and physical health.

Not all population groups in urban environments or in rural environments are affected equally by stressors. Individuals from low socioeconomic (SES) backgrounds who live in either of these environments experience a greater amount of physical and psychological stressors (Evans & Kim, 2013; Brody et al., 2013) compared to individuals in these environments from higher SES backgrounds. Urban low SES individuals as compared to urban high SES individuals are more likely to often experience difficulties with public transportation, population density, safety/violence concerns, and residential instability (Diez Roux & Mair, 2010). Additionally, low-income children experience a disproportionate amount of chaotic environmental factors (Evans, Li, & Whipple, 2013).

Despite the numerous studies examining the effect of SES on psychological and physical health, research suggests that SES is not a discrete categorical descriptor (Dow & Rehkopf, 2010). Traditional indicators of SES (e.g., family income, education, and occupation) typically do not account for intra-individual and inter-individual variations in personal experience of socioeconomic status (Goodman et al., 2007).

Perceived SES takes into account an individual’s personal experience of risk and her/his perceptions of relative social status (Cohen et al., 2008). Furthermore, some measures of perceived SES (e.g., The MacArthur Scale of Subjective Social Status) recognize SES as
functioning on a gradient (Adler & Stewart, 2007). An individual’s perception of his or her socioeconomic status has been linked with that individual’s reaction to stressful events (McEwen & Gianaros, 2010). Additionally, research indicates that perceived SES is predictive of self-rated health, even after adjusting for objective measures of SES (e.g., income; Goodman et al., 2007). Thus, perceived SES contributes unique information (e.g., personal experience) not captured by objective measures of SES (e.g., income) when predicting self-rated health.

The role of resilience in coping with the stress of urban life is not clear. Resilience has been defined as an individual’s ability to cope with and adapt to adversity (Newman, 2003). Resilience may mitigate the effects of perceived stress on health status such as the presence of chronic illnesses (Kinman & Grant, 2011), and consequently, improve HQoL. Psychologists can work with clients to help build resilience (Padesky & Mooney, 2012), including clients living in an urban environment, from low SES backgrounds, and experiencing an adverse amount of stress. Research suggests that resilience-building programs have been effective in increasing and sustaining resilience (Vanhove et al., 2015).

Williams, Priest, and Anderson (2016) highlighted a critical need for biopsychosocial research examining (a) the linkages between variables such as race, social class, and experiences of discrimination and health outcomes, and (b) the mechanisms involved in these linkages. These authors emphasize that resilience is often omitted in the discussions of such research, and they predict that the study of resilience in disadvantaged communities (e.g., low SES individuals) will likely emerge as an influential topic in future research. The present study is unique in that it examines resilience and its relationship with health-related quality of life among members of a disadvantaged community.
The present study is anchored in the environmental stress model (Baum, Singer, & Baum, 1981) and a health disparities framework. The environmental stress model (Baum, Singer, & Baum, 1981; Wandersman et al., 1983) is a useful theoretical framework for studying perceived stress and HQoL in urban neighborhoods. The environmental stress model posits that neighborhood characteristics (e.g., noise, crowding, pollution) create perceived stressful experiences, which in turn can negatively impact health status; additionally, individual characteristics (e.g., coping strategies, resilience) can mitigate the relationship between perceived stress and health (Wandersman & Nation, 1998). Furthermore, this model acknowledges the role of socioeconomic status as a factor that may exacerbate or reduce the effects of neighborhood characteristics and stress on health.

The health disparities framework suggests that there are several social determinants of health and that eliminating health disparities (e.g., high stress and low health-related quality of life experienced by individuals lower on the socioeconomic status spectrum; Kilbourne, Switzer, Hyman et al., 2006) requires (1) detection of the disparity, (2) understanding of the disparity, and (3) amelioration of the disparity through multi-level interventions (Kilbourne et al., 2006). This study contributes to understanding quality of life disparities among urban adults.

This study is consistent with the goals of a report of the 2005 American Psychological Association’s Task Force on Urban Psychology. These goals are: (1) understanding and ameliorating problems associated with urban living, (2) promoting and sustaining aspects of urban life that promote individual and societal growth, and (3) encouraging research, training, and practice that address urban concerns, such as violence and community development. In this report, the task force identified several areas of research for urban psychologists, including the following areas: (1) studying strengths and assets in urban communities, (2) studying
psychological processes in the context of both physical and social environments, and (3) studying physical and mental health in urban environments. This study is unique in that it addresses the three aforementioned areas of needed research. Additionally, this study uses a strengths-based approach by investigating resilience, a modifiable variable that may reduce the deleterious effects of perceived stress on health-related quality of life among individuals residing in an urban environment.

Proposed Study Aim and Hypotheses

The aim of the following study is to examine whether perceived socioeconomic status, perceived stress, and resilience are predictors of self-reported health-related quality of life among a sample of adults living in an urban environment. The following hypotheses were investigated:

1. Perceived socioeconomic status will positively predict health-related quality of life. Specifically, as the levels of perceived socioeconomic status increases, the levels of health-related quality of life will increase.

2. Perceived socioeconomic status will negatively predict perceived stress. Specifically, as the levels of perceived socioeconomic status increases, the levels of perceived stress will decrease. Conversely, as the levels of perceived socioeconomic status decreases, the levels of perceived stress will increase.

3. Perceived stress will negatively predict health-related quality of life. Specifically, as the levels of perceived stress increases, the levels of health-related quality of life will decrease. Conversely, as the levels of perceived stress decreases, the levels of health-related quality of life will increase.

4. The relationship between perceived socioeconomic status and health-related quality of life will be mediated by perceived stress. Specifically, greater levels of perceived stress will strengthen the inverse relationship between perceived socioeconomic status and health-related quality of life.

5. The relationship between perceived stress and health-related quality of life will be mediated by resilience. Specifically, greater levels of resilience will weaken the inverse relationship between perceived stress and health-related quality of life.

6. Resilience will positively predict health-related quality of life. Specifically, as the levels of resilience increases, the levels of health-related quality of life will increase.
CHAPTER 2
REVIEW OF THE LITERATURE

This chapter includes a broad overview of the literature on health-related quality of life and a detailed overview of health-related quality of life among urban adults. Additionally, this chapter includes an overview of certain variables that might affect health-related quality of life among urban adults. These variables are: (1) perceived socioeconomic status, (2) perceived stress, and (3) resilience. Furthermore, a discussion of resilience as a mediator between perceived stress and health-related quality of life is presented.

Health-Related Quality of Life

Health-related quality of life is a multidimensional construct that refers to subjective (i.e., self-perceived) physical, psychological, and social functioning (Bottomley, 2002). Health-related quality of life is a unique term in that it is a global measure of health that encompasses more than an individual’s health status. Health status commonly refers to an individual’s freedom from the effects of disease and disability (Bergner, 1985; Crane, 1992; Johnson & Wolinskey, 1993). Traditionally, health status has been reserved for medical indicators of health, such as physical functioning and the presence or absence of disease. Research has acknowledged that non-medical indicators (e.g., psychological and social variables) exist that impact health, such as income, lack of freedom, and quality of environment (Guyatt, Feeny, & Patrick, 1993). Therefore, health-related quality of life is a unique and important construct because it acknowledges the role of these psychological and social non-medical indicators along with medical indicators (e.g., physical functioning) on health and quality of life.

Research indicates that these three variables (i.e., physical functioning, psychological functioning, and social functioning) have an effect on quality of life. First, lower levels of physical functioning are linked to increased health care costs (Fried, Bradley, Williams et al.,
2001), increased risk of disability (Jorritsma, Dijkstra, De Vries et al., 2014), and decreased quality of life (Litwin, Nied, & Dhanani, 1998). Second, lower levels of psychological functioning have been linked to lower levels of quality of life (Suurmeijer, Reuvenkamp, & Aldenkamp, 2001), regardless of physical functioning. Furthermore, one study found that psychological functioning was more important than physical functioning in maintaining quality of life (O’Doherty, Hickey, & Hardiman, 2010). Third, lower levels of social functioning have been linked to higher rates of depression (Lam, Filteau, & Milev, 2011) and lower levels of quality of life (Wang, Chen, Tan et al., 2016). Thus, research suggests that physical functioning, psychological functioning, and social functioning impact quality of life. This lends support to the use of health-related quality of life as an informative global measure of health.

**Health-Related Quality of Life among Urban Adults**

Health-related quality of life has been examined among specific samples of urban adults with chronic medical conditions, such as those who are HIV positive (McDonnell, Gielen, O’Campo et al., 2005), obese (Wanat, Kovarik, Shuman et al., 2014), and experience irritable bowel syndrome (Li, Patten, Hilsden et al., 2003). There is a dearth of research examining issues of health-related quality of life among non-specific samples of urban adults in the United States. The lack of research examining health-related quality of life among non-specific samples of urban adults is alarming given that 50% of adults in the United States do not have a chronic medical condition (Ward, Schiller, & Goodman, 2014) and there is a known negative relationship between the density of an environment and the levels of quality of life among the residents of that environment (Fassio, Rollero, & De Piccoli, 2013).

Despite the lack of research examining health-related quality of life among non-specific samples of urban adults, evidence suggests that these individuals are likely to experience adverse health, likely leading to lower health-related quality of life. For example, urban adults are at a
higher risk for developing communicable and non-communicable diseases (Allender, Wickramasinghe, Goldacre et al. 2011), hypertension, and metabolic syndrome (Sobngwi, Mbanya, Unwin et al., 2004; Weng, Liu, Wang et al., 2007). Thus, despite being understudied, non-specific samples of urban adults are likely to experience lower health-related quality of life.

A small body of research has examined factors associated with health-related quality of life among non-specific samples of urban adults. One study found that urban individuals who are married, employed, have higher incomes, and had higher levels of education had higher physical health-related quality of life functioning (Der-Mortirosian, Cordasco, & Washington, 2013). This same study (Der-Mortirosian, Cordasco, & Washington, 2013) found that among urban individuals, education was positively correlated to mental health-related quality of life and depression and posttraumatic stress disorder were negatively correlated with mental health-related quality of life. The small body of research examining health-related quality of life among urban adults serves as evidence that a greater body of research is needed.

**Perceived Socioeconomic Status**

Perceived socioeconomic status is a measure of indicators of socioeconomic status (e.g., family income, education, and occupation) that accounts for intra-individual and inter-individual variations in personal experience of socioeconomic status (Goodman et al., 2007). Perceived socioeconomic status has been related to health outcomes (Goodman et al., 2007). These health outcomes include body fat distribution (Adler et al., 2000), depression (Demakakos, Nazroo, Breeze et al., 2008), physical functioning status (Hu, Adler, Goodman et al., 2005), oral health (Sanders, Slade, Turrell et al., 2006), and self-rated health (Demakakos et al., 2008), including self-rated physical health (de Castro, Gee, Takeuchi, 2010). Furthermore, perceived socioeconomic status has been associated with perceived stress (Hamad, Fernald, Karlan et al., 2005) and cortisol habituation to stress (Adler et al., 2000).
Interestingly, the relationship of perceived socioeconomic status and many health outcomes persists even after adjustments for objective measures of socioeconomic status (Ostrove, Adler, Kuppermann et al., 2000). Furthermore, one study found that perceived socioeconomic status was more strongly related to psychological and physical functioning than objective socioeconomic status (Adler, Epel, Castellazzo et al., 2000). There have been several explanations offered as to why perceived socioeconomic status may be more strongly related to health outcomes and psychological and physical functioning.

Kraus, Piff, & Keltner (2009) suggest that socioeconomic status is composed of both an individual’s material resources (e.g., disposable income, assets) and their perceived rank in society. This concept of socioeconomic status seems to have been adopted by many proponents of perceived socioeconomic status. Proponents of perceived socioeconomic status argue that perceived socioeconomic status accounts for slight, but significant variations in social standings not captured by objective measures of socioeconomic status (Gong, Xu, Takeuchi, 2011). Furthermore, these proponents suggest that perceived socioeconomic status may be better at capturing difficult to measure concepts such as education quality and familial support structures (Nobles, Weintraub, & Adler, 2013). Given the subjective nature of socioeconomic status and the research that supports its use, the American Psychological Associations Task Force on Socioeconomic Status recommended that researchers investigate subjective (i.e., perceived) measures of socioeconomic status in their research (Saegert et al., 2006).

**Perceived Stress**

It has been suggested that stress is largely determined by one’s appraisal of a situation that induces stress (Lazarus, 1966; Lazarus, 1977). Perceived stress refers to an individual’s subjective appraisal of stress in this situation (Cohen, Kamarck, & Mermelstein, 1983). Therefore, perceived stress is a subjective measure of stress. Perceived stress differs from
objective measures of stress in that objective measures suggest that the stressful situation is the sole cause of a stress response (Cohen, Kamarck, & Mermelstein, 1983). Specifically, objective measures of stress do not recognize an individual’s subjective appraisal of the stressful situation. Subjective measures of stress, such as perceived stress, imply that cognitions (i.e., subjective appraisal) mediate the relationship between the stressful event and stress (Mason, 1971). Proponents of perceived stress suggest that stress occurs when environmental demands exceed the individual’s capacity to handle those environmental demands (Lazarus & Folkman, 1984; Richardson, Shaffer, Falzon et al., 2012). For example, the subjective appraisal component of stress is the realization that the environmental demands exceed the individual’s capacity to handle those demands.

It has been suggested that perceived stress may influence the development of physical illness by causing negative cognitive states (e.g., depression, anxiety); these negative cognitive states can then increase disease risk (Cohen, Janicki-Deverts, & Miller, 2007). There is a large body of literature examining the link between perceived stress and disease risk. Perceived stress has been positively associated with higher cortisol levels (Ruiz, Fullerton, Brown et al., 2001), suppressed immune functioning (Burns, Drayson, Ring et al., 2002), susceptibility to infectious disease (Culhane, Rauh, McCollum et al., 2001), and engagement in fewer health practices (Cohen & Williamson, 1988).

A second body of literature examining perceived stress indicates that perceived stress does not affect all sociodemographic groups equally. For example, perceived stress has been positively associated with sexual minority status (Jabson & Bowen, 2014) and being a woman and negatively associated with education and income (Cohen & Janicki-Deverts, 2012). Furthermore, research indicates that perceived stress has been positively associated with urban
environment characteristics such as lack of access to outdoor parks (Feda, Seelbinder, Baek et al., 2014). Among urban adults, perceived stress was found to be positively associated with lower disease control, poor quality of life, and lower medication adherence (Wisnivesky, Lorenzo, Feldman et al., 2010).

**Resilience**

There are a multitude of definitions for resilience (Luthar, Chicchetti, & Becker, 2000). One popular definition is that resilience is the process of successful adaptation when faced with significant adversity (Luthar, Chicchetti, & Becker, 2000). Similar definitions of resilience have been given by Masten (1994), Masten, Best, & Garmezy (1990), and Rutter (1987;1990). Yet, there has been considerable debate on the fundamental characteristics of resilience. Specifically, there has been much debate regarding whether or not resilience is a dynamic process (Luthar, Chicchetti, & Becker, 2000). A dynamic process is characterized by constant change. Previous conceptualizations of resilience have referred to resilience as a personality trait (i.e., static, unchanging). Modern conceptualizations of resilience now consider resilience as dynamic (Rutter, 2012). Given the dynamic nature of resilience, it is likely that resilience can be fostered or learned.

There is a growing amount of evidence suggesting that resilience can be learned (McAllister & McKinnon, 2008). In other words, there is evidence that individuals can acquire resilient qualities. One way to acquire resilient qualities is through cognitive-behavioral techniques that reshape explanatory styles (McAllister & McKinnon, 2008). For example, Seligman (1998) suggested that optimism can be learned, thus changing our explanatory style. Intervention studies have shown that explanatory styles can be changed (Kleiman, Miller, & Riskind, 2012; Wain, Kneebone, & Cropley, 2011). Furthermore, interventions found in the literature indicate that resilience-building interventions are successful (Dolbier, Smith Jaggars, &
Steinhardt, 2010), including resilience-building interventions in randomized control trials (Macedo, Wilheim, Gonçalves et al., 2014). The success of resilience-building interventions is particularly noteworthy given the protective nature of resilience and its association with mental and physical health.

Research on resilience gained significant traction with the seminal longitudinal study examining the protective factors of Hawaiian children (Werner, Bierman, & French, 1971; Werner & Smith, 1977). Resilience was one of the protective factors that these researchers examined. The children of this study who displayed resilience were less likely to experience the deleterious effects (e.g., delinquency, mental and physical illness) of adverse environments than their non-resilient counterparts (Werner, Bierman, & French, 1971). Since this study, resilience has been studied in a diversity of contexts. Of note, are the studies examining resilience and aspects of mental and physical health. Resilience has been positively associated with self-efficacy, self-esteem, internal locus of control, and optimism (Stewart & Yuen, 2011). Furthermore, it has been found that cardiac and diabetic patients who exhibit resilience have better adjustment to illness (Stewart & Yuen, 2011).

**Resilience as a Mediator between Perceived Stress and Health-Related Quality of Life**

There have been no known studies examining resilience as a mediator of the relationship between perceived stress and health-related quality of life. This reality is worrisome, given the known links between perceived stress and health-related quality of life. Research shows that there is a negative relationship between perceived stress and health-related quality of life (Wisnivesky et al., 2010). Thus, there is a need to examine the role of resilience in this relationship. It is possible that resilience may serve as a protective factor by mitigating the effects of perceived stress on health-related quality of life.
Research shows that perceived stress has a negative relationship with resilience (Wilks & Croom, 2008). Additionally, research shows that there is a positive relationship between resilience and mental functioning (Hu, Zhang, & Wang, 2015), physical functioning (Schurre, Odden, & Goins, 2013; Silverman, Molton, Alschuler et al., 2015), and social functioning (Silverman, Molton, Alschuler et al., 2015). Furthermore, one study found that resilience acted as a significant mediator between the relationship of stress and life satisfaction (a concept somewhat similar to quality of life; Kimhi & Shamai, 2004). Life satisfaction has been used as an indicator of quality of life in various research studies (Frisch, Cornell, Vilanueva et al., 1992; Endicott, Nee, Wilma et al., 1993). Thus, while no study has examined the role of resilience in the relationship between perceived stress and health-related quality of life, past studies have indicated that there is a relationship between stress and resilience and between resilience and mental functioning, physical functioning, and social functioning (i.e., the components of health-related quality of life). Therefore, it is likely that resilience plays a role in the relationship between perceived stress and health-related quality of life.
CHAPTER 3
METHODS

Participants

Participants included 301 adults who utilize Amazon Mechanical Turk (MTURK). A total of 7 (2.3%) of the participants were removed because they indicated that they did not currently reside in an urban environment. Furthermore, a total of 10 (3%) of the participants were removed because they failed at least one of the three validity checks. The final sample consisted of 284 participants.

Participant inclusion criteria were: (a) age 18 or older, (b) self-identifies as currently residing in an urban environment in the United States, (c) has access to the internet, and (d) reads English. The exclusion criteria are: (a) age 17 or below, (b) self-identifies as currently residing in a non-urban environment, (c) does not reside in the United States, (d) does not have access to the internet, and (e) does not read English.

The racial/ethnic distribution of the sample is as follows: 82.1% White, 10.6% Asian American, 9.3% African American, 9% Hispanic/Latino, .7% Pacific Islander, .7% “other”. These numbers exceed 100% because participants were allowed to identify with more than one race/ethnicity. There are 120 (42.3%) females and 164 (57.7%) males. Participants range from 19 to 74 years old, with a mean age of 33.37 years old (SD = 9.76). The mean USDA Rural-Urban Continuum Code of the participants in this sample is 1.59 (SD = 1.22), indicating that most individuals lived in a metropolitan area with a population of 250,000 or more. Additionally, the mean National Health Statistics code of the participants in this sample is 2.04 (SD = 1.27), indicating that most individuals lived in a large central metropolitan area or a large fringe metropolitan area (i.e., a suburb of a large metropolitan area). Most participants (84.6%) indicated that they are currently employed. See Table 3-1 for more demographic information.
These data suggest that the current sample is similar to the total sample of adults on MTURK. The racial/ethnic distribution of MTURK users is as follows: 71.8% White, 7.1% African American/Black, 5.6% Hispanic, 8.6% “other”, and 7.1% of individuals who do not identify their race (Levay, Freese, & Druckman, 2016). Most MTURK users (53.9%) identify as male and the average is 31.6 (Levay, Freese, & Druckman, 2016). Regarding employment status, 57.4% identify as “working now”, 13.9% as “unemployed”, 1.9% as “temporarily laid off”, and 22.3% as “student”; the remainder of individuals (4.5%) identify as “retired”, “homemaker”, and “permanently disabled” (Levay, Freese, & Druckman, 2016). These data suggest that the current sample is similar to the total sample of adults on MTURK.

Instruments

Demographic Data Questionnaire (DDQ)

The DDQ is a researcher-created questionnaire used to assess specific demographic information from each participant. The DDQ was used to assess (a) current county of primary residence, (b) zip code of primary residence, (c) city of primary residence, (d) number of years in current urban residence, (e) total number of years in urban residences, (f) county of upbringing, (g) zip code of upbringing, (h) city of upbringing, (i) race/ethnicity, (j) gender orientation, (k) age, (l) occupational status, (m) mode of transportation, (n) total hours spent commuting to work each day, (o) number of chronic health conditions, and (p) chronic health conditions. The present study used only the following data from the DDQ: (a) current county of primary residence, (b) zip code of primary residence, (c) city of primary residence, (d) race/ethnicity, (e) gender orientation, (f) age, (g) occupational status, (h) number of chronic health conditions, and (i) chronic health conditions.

The MacArthur Scale of Subjective Social Status (MSSSS; Adler & Stewart, 2007)
The MSSSS is a self-report ladder-shaped scale used to measure perceived social status. There are two versions of the MSSSS. One version measures traditional indicators of socioeconomic status. This version asks participants to rate their perceived social status among others in the United States. The other version measures perceived standing in the community. This version asks participants to rate their perceived social status among others in their community. The version used to measure traditional indicators of socioeconomic status was used in the present study. Instructions to the individual who completes the MSSSS are to select the rung on the ten-rung ladder-shaped scale on which they feel they stand. Higher rungs have higher scale scores and indicate higher self-perceived socioeconomic status. Studies using this measure have reported adequate reliability (Operario, Adler, & Williams, 2004; Giatti, do Valle Camelo, de Castro Rodrigues et al., 2012).

**Perceived Stress Scale (PSS-10; Cohen, Kamarch, & Mermelstein, 1983)**

The PSS-10 is a ten-item self-report measure designed to assess the level of stress an individual perceives in her/his life. Items on the PSS-10 are rated on a 5-point Likert scale ranging from 0 (never) to 4 (very often). A sample item is “In the last month, how often have you been upset because of something that happened unexpectedly?” In a comprehensive review by Lee (2012), the PSS-10 was identified as a scale with acceptable psychometric properties. The review by Lee (2012) found that the Cronbach’s alpha for the PSS was greater than .70 in 11 out of 12 studies that used this measure. The Cronbach’s alpha for this study was .93.

**The 14-Item Resilience Scale (RS-14; Wagnild & Young, 1993)**

The RS-14 is a 14-item self-report measure designed to assess the level of an individual’s resilience. Items are rated on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). A sample item is “I usually manage one way or another”. A methodological review of nineteen resilience scales included that the RS-14 has been shown to have adequate
psychometric properties (Windle, Bennet, & Noyes, 2011). The study describing the
development of the RS-14 reported that the Cronbach’s alpha for this scale was found to be .89. The Cronbach’s alpha for this study was .95.

**RAND-36 (Hays, Sherbourne, & Mazel, 1993)**

The RAND-36 is a 36-item self-report measure designed to assess mental and physical health-related quality of life. The RAND-36 measures eight health-related concepts: physical functioning, role limitations caused by physical health problems, role limitations caused by emotional problems, social functioning, emotional well-being, energy/fatigue, pain, and general health perceptions. Items are answered in a variety of ways, including Likert responses, Likert-type responses, and “Yes” or “No” responses. A sample item is “compared to one year ago, how would you rate your health in general now?” Answers for this question range from 1 (much better now than one year ago) to 5 (much worse now than one year ago). The RAND-36 has been shown to have adequate psychometric properties (VanderZee et al., 1996). VanderZee et al. (1996) reported that the Cronbach’s alpha for the RAND-36 ranges from .71 to .93. The Cronbach’s alpha for this study was .97. The Cronbach’s alpha for each subscale of this measure were Physical functioning .95, Role limitations caused by physical health problems .86, Role limitations caused by emotional problems .82, Social functioning .88, Emotional well-being .900, Energy/fatigue .87, Pain .81, and General health perceptions .90.

**Procedure**

The present study began after it was approved by the Institutional Review Board at the University of Florida. Potential participants who are currently living in an urban environment in the United States were invited to complete the assessment battery via Amazon Mechanical Turk (MTURK)--an internet data collection service. MTURK is a marketplace with over 100,000 users who complete tasks for compensation (Buhrmester, Kwang, & Gosling, 2011). Participants
are informed of possible tasks on the home screen of their MTURK account. Data collected from MTURK are at least as reliable as data collected via traditional methods (Buhrmester, Kwang, & Gosling, 2011). Additionally, research indicates that MTURK users are demographically diverse (Mason & Suri, 2012; Buhrmester, Kwang, & Gosling, 2011; Paolocci, Chandler, & Ipeirotis, 2010).

Prior to beginning the assessment battery, participants were presented with an informed consent form, which was the first image to display on the screen of their computer, and which informed participants that no identifying information would be collected. Participants were notified that they would receive $2 for completing the assessment. Participants acknowledged having read the informed consent form prior to beginning the assessment battery. The assessment battery included 72 items and was estimated to take approximately 15 minutes to complete.

Participants who completed the assessment battery received $2 for their time through the MTURK system. This compensation amount is significantly more than that for completing assessments of a similar length (i.e., 50 cents; Buhrmester, Kwang, & Gosling, 2011), and slightly above the average United States minimum wage for a 15-minute task. Despite the compensation rate being commensurate with minimum wage, research suggests that compensation-level has a negligible effect on data quality ($\alpha = .73 - .93$, mean $\alpha = .87$). This research finding suggests that low compensation rates do not affect data quality; rather, low compensation rates produce a slower data collection speed (Buhrmester, Kwang, & Gosling, 2011).
### Table 3-1. Demographic information

<table>
<thead>
<tr>
<th></th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>243 (85.6%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>41 (14.4%)</td>
</tr>
<tr>
<td><strong>Number of chronic health conditions</strong></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>197 (69.4%)</td>
</tr>
<tr>
<td>1</td>
<td>55 (19.4%)</td>
</tr>
<tr>
<td>2</td>
<td>24 (8.5%)</td>
</tr>
<tr>
<td>3</td>
<td>6 (2.1%)</td>
</tr>
<tr>
<td>4</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>5+</td>
<td>2 (0.7%)</td>
</tr>
<tr>
<td><strong>Specific chronic health conditions</strong></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>23 (8.1%)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>15 (5.3%)</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>4 (1.4%)</td>
</tr>
<tr>
<td>Cancer</td>
<td>2 (0.7%)</td>
</tr>
<tr>
<td>Other</td>
<td>73 (25.7%)</td>
</tr>
<tr>
<td><strong>Region of residence</strong></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>50 (17.6%)</td>
</tr>
<tr>
<td>Midwest</td>
<td>50 (17.6%)</td>
</tr>
<tr>
<td>South</td>
<td>93 (32.7%)</td>
</tr>
<tr>
<td>West</td>
<td>91 (32.0%)</td>
</tr>
</tbody>
</table>
CHAPTER 4
RESULTS

This chapter presents the results of the analyses conducted to address the hypotheses set forth in this study. The results are divided into six major parts: (1) results from preparatory analyses, including means and standard deviations for the whole participant sample; (2) bivariate correlations among the variables of interest; (3) results from converting the RAND-36 data into a physical health component score and a mental health component score; (4) bivariate correlations among the variables of interest, including the aforementioned RAND-36 component scores; (5) analyses to test the research question; and (6) results from the revised structural equation model used to test the hypotheses specified in this study.

Results from the Preparatory Analyses

Data from the measures of subjective social status, perceived stress, resilience, and health quality of life showed multivariate and univariate normality. Thus, the assumptions of the General Linear Model (GLM) and univariate and multivariate analyses were met. The means and standard deviations for the participant sample are presented in Table 4-1.

Correlations among the Variables of Interest

Bivariate correlations were conducted to examine the associations among the variables of interest in this study among the sample of participants. Results are presented in Table 4-2.

Results from Converting the RAND-36 Data into Component Scores

A physical health component score and a mental health component score were created from the eight RAND-36 subscales using suggestions by Ware et al. (1994). These authors suggest multiplying each RAND-36 subscale z-score by its respective coefficient and summing the eight products. The coefficients were determined by running an oblique (promax) two factor
exploratory factor analysis in MPLUS7 with all eight subscales of the RAND-36. The promax rotated loadings are presented in Table 4-3.

**Correlations among the Variables of Interest**

Bivariate correlations were conducted to examine the associations among the variables of interest in this study, including the aforementioned component scores. Results are presented in Table 4-4.

**Differences between Demographic Variables and Variables of Interest**

A series of analyses of variances (ANOVAs) were performed to examine whether differences between the demographic variables (i.e., race/ethnicity, gender orientation, occupational status, and region of residence) and the variables of interest exist. There were no significant differences between race/ethnicity and scores on socioeconomic status \[F(5, 277) = 1.231, p = .295\], perceived stress \[F(5, 277) = .266, p = .931\], resilience \[F(5, 277) = .720, p = .609\], the physical health component score \[F(5, 277) = .808, p = .545\], and the mental health component score \[F(5, 277) = .322, p = .900\].

There were no significant differences between gender orientation (i.e., female and male) and scores on socioeconomic status \[F(1, 282) = .052, p = .820\], perceived stress \[F(1, 282) = 2.761, p = .098\], and resilience \[F(1, 282) = .080, p = .777\]. The individuals who identified as females in the present study scored significantly lower than the individuals who identified as male on the physical health component score \[F(1, 282) = 8.295, p < .05\] and mental health component score \[F(1, 282) = 4.696, p < .05\].

There were significant differences between occupational status (i.e., employed versus unemployed) and scores on socioeconomic status \[F(1, 282) = 14.911, p < .001\], perceived stress \[F(1, 282) = 6.347, p < .05\], resilience \[F(1, 282) = 12.835, p < .001\], the physical health component score \[F(1, 282) = 16.178, p < .001\], and the mental health component score \[F(1, 282) = \]
Individuals who identified as unemployed endorsed a lower level of socioeconomic status, resilience, and scores on the physical health component score. Additionally, individuals who identified as unemployed endorsed higher levels of perceived stress and higher scores on the mental health component score.

There were no significant differences between region and scores on socioeconomic status \([F(1, 280) = 1.45, p = .28]\) and the physical health component score \([F(1, 280) = 1.96, p = .12]\). There were significant differences between region and scores on perceived stress \([F(1, 280) = 4.92, p < 0.05]\), resilience \([F(1, 280) = 3.05, p < .05]\), and the mental health component score \([F(1, 280) = 3.85, p < .05]\). Individuals living in the Midwest had lower scores of perceived stress than individuals living in the South and the West. Additionally, individuals living in the Midwest had higher scores of resilience than individuals living in the West. Finally, individuals living in the Midwest had higher scores on the mental health component than individuals living in the South.

A series of linear regressions were performed to examine whether a significant association between age and the variables of interest exist. Age was not significantly associated with scores on socioeconomic status \((\beta = -.027, p = .635)\), perceived stress \((\beta = .012, p = .848)\), resilience \((\beta = .025, p = .663)\), and the mental health component score \((\beta = -.009, p = .882)\). Age was significantly associated with scores on the physical health component score \((\beta = -.196, p < .001)\). Means and standard deviations are presented in Table 4-5.

**Analyses to Test the Study Hypotheses**

A structural equation model (SEM) with maximum likelihood estimation (Figure 1-1) using SPSS AMOS 24 was used to investigate the following hypotheses: (1) perceived socioeconomic status will positively predict health-related quality of life; (2) perceived socioeconomic status will negatively predict perceived stress; (3) perceived stress will negatively
predict health-related quality of life; (4) the relationship between perceived socioeconomic status and health-related quality of life will be mediated by perceived stress; (5) the relationship between perceived stress and health-related quality of life will be mediated by resilience; and (6) resilience will positively predict health-related quality of life.

Overall, the model was a good fit. Chi-square [(4, N= 284) = 8.389, p = .07] indicated acceptable fit and suggested that the data does not significantly depart from the model. Absolute fit indices and incremental fit indices were used to assess model fit. RMSEA (=.062) pointed to excellent fit. The following other fit indicators also suggested that the model fit was excellent: CFI= .990, TLI=.986, IFI= .994, and NFI=.990 (Hooper, Coughlan, & Mullen, 2008).

Results indicated that perceived socioeconomic status was a significant negative predictor of perceived stress (β = -.290, p < .001), perceived stress was a significant negative predictor of health-related quality of life (β = -.515, p < .001), and perceived stress significantly mediated the relationship between perceived socioeconomic status and health-related quality of life, 95% CI [.152 .319]. Contrary to the study hypotheses, resilience (p = .284) and perceived socioeconomic status (p = .934) did not significantly predict health quality of life. Furthermore, resilience did not mediate the relationship between perceived stress and health-related quality of life, 95% CI [-0.90 .020].

The aforementioned results provide partial support for the study hypotheses. The predictors of stress (i.e., socioeconomic status) explained 7.5% of the variance in stress, the predictors of resilience (i.e., socioeconomic status and perceived stress) explained 50.2% of the variance in resilience, and the predictors of health-related quality of life (i.e., socioeconomic status, perceived stress, and resilience) explained 75.7% of the variance in health-related quality of life.
Analyses to Test the Study Hypotheses Using a Revised Model

Given the partial support for the hypotheses, the variables specified in the hypotheses were further investigated. Potential multicollinearity was observed between the perceived stress variable and the resilience variable. This multicollinearity is evidenced by the high correlation (-.71) between the two variables. Multicollinearity exists when there is a strong correlation between two or more predictor variables (Field, 2009). It is known that variables that are excessively collinear may lead to suppression (Beckstead, 2012). Suppression occurs when the inclusion of one predictor variable impacts the relationship of another predictor variable with the dependent variable in a regression equation (Conger, 1974).

In order to remedy the suspected suppression caused by the aforementioned highly collinear variables, a higher order latent variable was created to control for the shared variance between perceived stress and perceived resilience in the structural equation model, resulting in a revised version of this model. See Figure 4-2. Overall, the chi-square analysis showed that the revised structural equation model had a good fit [(4, N = 284) = 8.389, p = .07]. Absolute fit indices and incremental fit indices were used to assess model fit. RMSEA (=.062) indicated an excellent fit. The following other indicators also suggested that the model fit was excellent: CFI=.994, TLI=.986, IFI=.974, NFI=.990 (Hooper, Coughlan, & Mullen, 2008).

Results indicated that perceived socioeconomic status was a significant negative predictor of perceived stress (β = -.290, p < .001), perceived stress was a significant negative predictor of health-related quality of life (β = -1.826, p < .001), perceived stress significantly mediated the relationship between perceived socioeconomic status and health-related quality of life 95% CI [.152 .319], resilience significantly mediated the relationship between perceived stress and health-related quality of life 95% CI [-5.249 -4.562], and resilience was a significant positive predictor of health-related quality of life (β = 4.801, p < .001). Contrary to the study hypotheses,
perceived socioeconomic status did not significantly predict health-related quality of life (p = .934). Thus, the results from the revised model provide partial support for the hypotheses. The predictors of stress (i.e., socioeconomic status) explained 7.5% of the variance in stress, the predictors of resilience (i.e., socioeconomic status and perceived stress) explained 50.2% of the variance in resilience, and the predictors of health-related quality of life (i.e., socioeconomic status, perceived stress, and resilience) explained 76.7% of the variance in health-related quality of life.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Possible Range</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective Social Status(^1)</td>
<td>0 to 9</td>
<td>4.25</td>
<td>1.41</td>
</tr>
<tr>
<td>Resilience(^2)</td>
<td>7 to 98</td>
<td>75.40</td>
<td>15.42</td>
</tr>
<tr>
<td>Perceived Stress(^3)</td>
<td>0 to 40</td>
<td>15.16</td>
<td>8.05</td>
</tr>
<tr>
<td>Physical functioning(^4)</td>
<td>0 to 100</td>
<td>87.64</td>
<td>22.23</td>
</tr>
<tr>
<td>Role limitations caused by physical health problems(^4)</td>
<td>0 to 100</td>
<td>85.39</td>
<td>29.68</td>
</tr>
<tr>
<td>Role limitations caused by emotional problems(^4)</td>
<td>0 to 100</td>
<td>73.32</td>
<td>37.66</td>
</tr>
<tr>
<td>Social functioning(^4)</td>
<td>0 to 100</td>
<td>80.55</td>
<td>23.29</td>
</tr>
<tr>
<td>Emotional well-being(^4)</td>
<td>0 to 100</td>
<td>67.25</td>
<td>23.44</td>
</tr>
<tr>
<td>Energy/fatigue(^4)</td>
<td>0 to 100</td>
<td>54.08</td>
<td>22.65</td>
</tr>
<tr>
<td>Pain(^4)</td>
<td>0 to 100</td>
<td>80.12</td>
<td>21.93</td>
</tr>
<tr>
<td>General health perceptions(^4)</td>
<td>0 to 100</td>
<td>69.92</td>
<td>22.96</td>
</tr>
</tbody>
</table>

\(^1\)This variable is measured by the MacArthur Scale of Subjective Social Status (MSSS); a higher score indicates higher perceived socioeconomic status.

\(^2\)This variable is measured by the 14-Item Resilience Scale (RS-14); a higher score indicates higher perceived resilience.

\(^3\)This variable is measured by the Perceived Stress Scale (PSS); a higher score indicates higher perceived stress.

\(^4\)This variable is measured by the RAND-36; a higher score indicates higher health-related quality of life.
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subjective Social Status</td>
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<td></td>
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</tr>
<tr>
<td>2. Resilience</td>
<td>.244**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Perceived Stress</td>
<td>-.274**</td>
<td>-.709**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Physical Functioning</td>
<td>.059</td>
<td>.266**</td>
<td>-.352**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Role limitations caused by physical health problems</td>
<td>.074</td>
<td>.291**</td>
<td>-.441**</td>
<td>.654**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Role limitations caused by emotional problems</td>
<td>.138*</td>
<td>.379**</td>
<td>-.616**</td>
<td>.316**</td>
<td>.444**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Social functioning</td>
<td>.111</td>
<td>.418**</td>
<td>-.647**</td>
<td>.536**</td>
<td>.567**</td>
<td>.693**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Emotional well-being</td>
<td>.230**</td>
<td>.709**</td>
<td>-.860**</td>
<td>.367**</td>
<td>.473**</td>
<td>.614**</td>
<td>.659**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Energy/fatigue</td>
<td>.278**</td>
<td>.593**</td>
<td>-.769**</td>
<td>.334**</td>
<td>.454**</td>
<td>.538**</td>
<td>.545**</td>
<td>.775**</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Pain</td>
<td>.082</td>
<td>.304**</td>
<td>-.447**</td>
<td>.717**</td>
<td>.728**</td>
<td>.394**</td>
<td>.593**</td>
<td>.448**</td>
<td>.517**</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>11. General health perceptions</td>
<td>.246**</td>
<td>.414**</td>
<td>-.551**</td>
<td>.565**</td>
<td>.588**</td>
<td>.379**</td>
<td>.501**</td>
<td>.564**</td>
<td>.652**</td>
<td>.655**</td>
<td>--</td>
</tr>
</tbody>
</table>

* Correlation is significant at the p < .05 level.
** Correlation is significant at the p < .001 level.
Table 4-3. Promax rotated loadings used to create RAND-36 component scores

<table>
<thead>
<tr>
<th>Rand-36 Subscale</th>
<th>Physical Health Component</th>
<th>Mental Health Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Functioning</td>
<td>0.870</td>
<td>-0.108</td>
</tr>
<tr>
<td>Role limitations caused by physical health problems</td>
<td>0.762</td>
<td>0.077</td>
</tr>
<tr>
<td>Role limitations caused by emotional problems</td>
<td>0.060</td>
<td>0.643</td>
</tr>
<tr>
<td>Energy/fatigue</td>
<td>0.037</td>
<td>0.807</td>
</tr>
<tr>
<td>Emotional well-being</td>
<td>-0.112</td>
<td>0.998</td>
</tr>
<tr>
<td>Social functioning</td>
<td>0.341</td>
<td>0.515</td>
</tr>
<tr>
<td>Pain</td>
<td>0.914</td>
<td>-0.020</td>
</tr>
<tr>
<td>General health perceptions</td>
<td>0.509</td>
<td>0.323</td>
</tr>
</tbody>
</table>
Table 4-4. Correlations among variables of interest including RAND-36 physical and mental health component scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subjective Social Status</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Resilience</td>
<td>.244**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Perceived Stress</td>
<td>-.274**</td>
<td>-.709**</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Physical Health Component</td>
<td>.132*</td>
<td>.370**</td>
<td>-.537**</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>5. Mental Health Component</td>
<td>.243**</td>
<td>.639**</td>
<td>-.869**</td>
<td>.677**</td>
<td>--</td>
</tr>
</tbody>
</table>

* Correlation is significant at the p < .05 level.
** Correlation is significant at the p < .001 level.
Table 4-5. Means (M) and standard deviations (SD) of demographic variables for the study variables

<table>
<thead>
<tr>
<th></th>
<th>Socioeconomic Status</th>
<th>Perceived Stress</th>
<th>Resilience</th>
<th>Physical Health Component Score</th>
<th>Mental Health Component Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>occupational status</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>employed</td>
<td>4.41</td>
<td>1.39</td>
<td>14.58</td>
<td>8.25</td>
<td>76.93</td>
</tr>
<tr>
<td>unemployed</td>
<td>3.59</td>
<td>1.35</td>
<td>16.02</td>
<td>7.55</td>
<td>70.41</td>
</tr>
<tr>
<td>gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>4.35</td>
<td>1.46</td>
<td>15.93</td>
<td>8.18</td>
<td>76.51</td>
</tr>
<tr>
<td>male</td>
<td>4.26</td>
<td>1.37</td>
<td>13.97</td>
<td>8.07</td>
<td>75.68</td>
</tr>
<tr>
<td>race/ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hispanic</td>
<td>4.27</td>
<td>1.67</td>
<td>14.67</td>
<td>7.58</td>
<td>75.27</td>
</tr>
<tr>
<td>american indian/ alaska native</td>
<td>5.00</td>
<td>2.00</td>
<td>17.33</td>
<td>3.05</td>
<td>80.33</td>
</tr>
<tr>
<td>asian/ asian american</td>
<td>3.90</td>
<td>1.55</td>
<td>16.07</td>
<td>10.41</td>
<td>71.30</td>
</tr>
<tr>
<td>black/ african american</td>
<td>4.07</td>
<td>1.22</td>
<td>13.27</td>
<td>7.94</td>
<td>80.27</td>
</tr>
<tr>
<td>caucasian/ european american</td>
<td>4.35</td>
<td>1.37</td>
<td>14.79</td>
<td>8.05</td>
<td>76.00</td>
</tr>
<tr>
<td>region</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>northeast</td>
<td>4.44</td>
<td>.21</td>
<td>14.21</td>
<td>1.60</td>
<td>76.77</td>
</tr>
<tr>
<td>midwest</td>
<td>4.63</td>
<td>.25</td>
<td>11.87</td>
<td>1.23</td>
<td>81.03</td>
</tr>
<tr>
<td>south</td>
<td>4.08</td>
<td>.17</td>
<td>16.11</td>
<td>.98</td>
<td>73.98</td>
</tr>
<tr>
<td>west</td>
<td>4.23</td>
<td>.17</td>
<td>15.52</td>
<td>.89</td>
<td>74.67</td>
</tr>
</tbody>
</table>
Figure 4-1. Model to test the hypotheses.

* Relationship is significant at the p < .05 level.
** Relationship is significant at the p < .001 level.
Figure 4-2. Revised model to test the hypotheses.
* Relationship is significant at the p < .05 level.
** Relationship is significant at the p < .001 level.
CHAPTER 5
DISCUSSION

The number of adults residing in an urban environment is expected to continue growing in the coming decades. Given the increasing number of urban residents, there have been calls by the United States Department of Health and Human Services (2015) to examine health-related quality of life among urban adults.

The specific purpose of the present study was to examine the association of perceived socioeconomic status, perceived stress, and resilience with health-related quality of life among a sample of adults living in an urban environment. This study is unique in that it is the first study to investigate these variables in a single study involving urban adults residing in the United States. This chapter presents a summary of the findings in this study and interpretations of these findings. Additionally, this chapter includes the limitations, strengths, and implications of this study, including those for counseling psychologists. Conclusions drawn from this study are also included.

Summary of Hypotheses-Related and Other Findings

Descriptive Data

Subscale scores for the RAND-36 measure used in the present study to assess health-related quality of life were examined and compared to the subscales scores for the RAND-36 in a study conducted by VanderZee et al. (1996) that sought to determine the psychometric qualities of this measure using a non-clinical sample of 1,063 individuals. Mean scores and standard deviations for each of the health-related quality of life subscales in the VanderZee et al. (1996) study were as follows: Physical functioning (M = 81.9, SD = 23.2), Role limitations caused by physical health problems (M = 79.4, SD = 35.5), Role limitations caused by emotional problems (M = 84.1, SD = 32.3), Social functioning (M = 86.9, SD = 20.5), Emotional well-being (M =
76.8, SD = 18.4), Energy/fatigue (M = 67.4, SD = 19.9), Pain (M = 79.5, SD = 25.6), and General health perceptions (M = 72.7, SD = 22.7). Mean scores and standard deviations for the sample used in the present study can be found in Table 4-1. In sum, the sample in the present study scored lower than the sample in the VanderZee et al. (1996) study on the following health-related quality of life subscales: Social functioning, Role limitations caused by emotional problems, Emotional well-being, Energy/fatigue, and General health perceptions.

Additionally, studies examining the psychometric qualities of the other measures in the present study were reviewed. These measures are the MacArthur Scale of Subjective Social Status (MSSS), The 14-Item Resilience Scale (RS-14), and the Perceived Stress Scale (PSS). First, a large study conducted with 6981 participants found that participants identified with each rung of the MSSS with the following frequencies: 1.35% with the first and second rungs, 13.18% with the third and fourth rungs, 37.3% with the fifth and sixth rungs, 41.67% with the seventh and eighth rungs, and 6.5% with the ninth and tenth rungs (Adler, Singh-Manoux, Schwartz et al., 2008). Higher rungs indicate higher perceived socioeconomic status. Participants of the present study identified with each rung of the MSSS with the following frequencies: 1.8% with the first rung, 7.9% with the second rung, 23.3% with the third rung, 22.5% with the fourth rung, 24.7% with the fifth rung, 15.0% with the sixth rung, 4.0% with the seventh rung, 0.9% with the eighth rung, and 0% on the ninth and tenth rungs.

Second, a 2010 study that administered the RS-14 to 1161 participants reported a mean score of 76.17 (SD = 13.9; Wagnild, 2009). Higher scores on the RS-14 indicate higher resilience. Participants of the present study reported a mean score of 75.40 (SD = 15.42). Thus, participants of the present study reported slightly less resilience than did the participants in the Wagnild (2009) study.
Third, a study examining the PSS among 285 undergraduate students found a mean score of 17.40 (SD = 6.10) for men and a mean score of 18.4 (SD = 6.50) for women (Roberti, Harrington, & Storch, 2006). Higher scores on the PSS indicate a higher amount of perceived stress. Participants of the present study reported a mean score of 15.16 (SD = 8.05). Thus, participants of the present study reported less stress than did the participants in the Roberti, Harrington, and Storch (2006) study. Mean scores and standard deviations for the variables of interest among the sample used in the present study can be found in Table 4-1.

Differences between Demographic Variables and Variable of Interest

Analyses to investigate differences between the demographic variables and the variables of interest were performed. These analyses indicated that there were no significant differences between race/ethnicity and scores on socioeconomic status, perceived stress, resilience, the physical health component score, and the mental health component score. Additionally, these analyses indicated that there were no significant differences between gender (i.e., female and male) and scores on socioeconomic status, perceived stress, and resilience. These analyses indicated that the individuals who identified as female in the present study reported more difficulties with physical and mental health than the individuals that identified as male.

Individuals who identified as unemployed reported significantly lower scores on socioeconomic status and lower levels of resilience. Furthermore, the individuals who identified as unemployed reported significantly higher levels of perceived stress and more difficulties with physical health. Interestingly, the individuals who identified as unemployed reported less difficulties with mental health.

Individuals living in the Midwest reported significantly lower levels of perceived stress than individuals living in the South and West, individuals living in the Midwest reported significantly higher levels of resilience than individuals living in the West, and individuals living
in the Midwest reported significantly less mental health difficulties than individuals living in the South. There were no significant differences between region of residence and socioeconomic status and physical health functioning.

Finally, these analyses indicated that age had a significant and negative associated with physical health. That is, as age increased, more difficulties with physical health were reported. There was no significant association between age and socioeconomic status, perceived stress, resilience, and mental health functioning.

**Hypotheses**

Structural equation modeling (SEM) with a maximum likelihood estimation was used to investigate the following hypotheses: (1) perceived socioeconomic status will positively predict health-related quality of life; (2) perceived socioeconomic status will negatively predict perceived stress; (3) perceived stress will negatively predict health-related quality of life; (4) the relationship between perceived socioeconomic status and health-related quality of life will be mediated by perceived stress; (5) the relationship between perceived stress and health-related quality of life will be mediated by resilience; and (6) resilience will positively predict health-related quality of life.

The first model used to test the hypothesized relationships partially confirmed the stated hypotheses of the present study. First, there was a significant negative relationship between perceived socioeconomic status (i.e., Hypothesis 2). Second, there was a significant negative relationship between perceived stress and health-related quality of life (i.e., Hypothesis 3). Third, the relationship between perceived socioeconomic status and health-related quality of life was significantly mediated by perceived stress (i.e., Hypothesis 4). There were no significant relationships between perceived socioeconomic status and health-related quality of life (i.e.,
Hypothesis 1) and between resilience and health-related quality of life (i.e., Hypothesis 6); furthermore, the relationship between perceived stress and health-related quality of life was not significantly mediated by resilience (i.e., Hypothesis 5). The tested model showed good overall fit. It accounted for 7.5% of the variance in stress, 50.2% of the variance in resilience, and 76.7% of the variance in health-related quality of life.

Given the partial support for the hypotheses, intercorrelations between the variables of interest were examined. Two of the predictor variables (i.e., perceived stress and resilience) exhibited a high correlation. In order to remedy the effects of the high correlation between the two variables a revised model was created. In this revised model, a higher order latent variable was created. This higher order latent variable controlled for the shared variance of these two variables. Thus, only the unique variances of perceived stress and resilience would serve as predictors of health-related quality of life.

The revised model to test the data partially confirmed the hypotheses of the present study. First, results indicated that there was a significant negative relationship between perceived socioeconomic status and perceived stress (i.e., Hypothesis 2). Second, there was a significant negative relationship between perceived stress and health-related quality of life (i.e., Hypothesis 3). Third, the relationship between perceived socioeconomic status and health-related quality of life was significantly mediated by perceived stress (i.e., Hypothesis 4). Fourth, the relationship between perceived stress and health-related quality of life was significantly mediated by resilience (i.e., Hypothesis 5). Fifth, there was a significant positive relationship between resilience and health-related quality of life (i.e., Hypothesis 6). Finally, there was no significant relationship between perceived socioeconomic status and health-related quality of life (i.e., Hypothesis 1). The tested model showed overall good fit. It accounted for 7.5% of the variance
in stress, 50.2% of the variance in resilience, and 76.7% of the variance in health-related quality of life.

**Interpretations and Implications**

The results of the present study indicate that there was no significant relationship between perceived socioeconomic status and health-related quality of life among this sample of urban adults. These results are surprising and unexpected given that previous studies have found a significant positive relationship between socioeconomic status and health-related quality of life (Klein, Hofreuter-Gätingens, Lüdecke et al., 2016; Mielck, Vogelmann, & Leidl, 2014; Robert, Cherepanov, Palta, et al., 2009). Furthermore, two studies have found a significant positive relationship between perceived socioeconomic status and health-related quality of life (Kim & Park, 2015; Singh-Manoux, Marmot, Adler, 2005). The discrepancy between the results of this study and those of previous studies merit further investigation.

Many studies that have found a relationship between socioeconomic status and health-related quality of life used a sample consisting of urban participants from countries other than the United States (Wu & Zhang, 2016; Klein et al., 2016). Furthermore, many studies examined this relationship among individuals with chronic health conditions (Klein et al., 2016; Mielck, Vogelmann, & Leidl, 2014). It may be that the relationship between socioeconomic status and health-related quality of life is different among urban adults residing in the United States compared to adults residing in other countries. Additionally, it may be that the association of socioeconomic status with health-related quality of life is non-significant when there is an absence of a chronic health condition. Having a chronic health condition was not a variable required of the sample in the present study; only 30% of individuals in the present study endorsed having at least one chronic health condition.
Another potential source of discrepancy between the results of this study and those of previous studies examining the relationship between socioeconomic status and health-related quality of life may be the measure used to assess perceived socioeconomic status – the MacArthur Subjective Social Status Scale (MSSS). The authors of the MSSS report that there is a relationship between the MSSS and indicators of health, including overweight status (Goodman, Adler, Daniels, et al., 2003), mortality (Kopp, Skrabski, Kawachi, et al., 2005), depression (Goodman, Adler, Kawachi et al., 2001), cardiovascular risk (Ghaed & Gallo, 2007), and diabetes (Singh-Manoux, Adler, & Marmot, 2003). The aforementioned indicators of health represent specific physical health conditions (e.g., overweight status, diabetes), while health-related quality of life represents a broad definition of health (i.e., physical, psychological, and social). It may be that the MSSS does not have a significant relationship with health-related quality of life in this study because the MSSS does not focus on specific physical health conditions. No known studies using a sample of adults in the United States have examined the relationship between the MSSS and health-related quality of life.

Additionally, a significant positive relationship between the MSSS and health-related quality of life has been reported among a sample of British Civil Servants (Singh-Manoux, Marmot, Adler, 2005). Differences between samples from the United States and Britain may also account for the non-significant relationship between perceived socioeconomic status and health-related quality of life finding of the present study. One such difference may be the cultural importance of perceived socioeconomic status. It has been suggested that in past studies among samples in the United States, race is often used as a proxy for socioeconomic status (Smith, 2000). Given that many differences in British society are class-based (Gilligan, 2010), as
opposed to race-based such as in the United States, it may be that British individuals place a
greater importance on perceived socioeconomic status than objective socioeconomic status.

**Limitations**

There are several noteworthy limitations of this study. The present study did not consist
of a culturally diverse sample of participants. The vast majority of the sample used in this study
consisted of individuals who identified as White. This is likely to limit the generalizability of the
results to other populations. It is well known that racial/ethnic minorities (i.e., non-White
individuals) experience unique factors that influence their health and health-related quality of
life. Thus, it is likely that the predictor variables of interest (i.e., perceived socioeconomic status,
perceived stress, and resilience) may have different associations with health-related quality of
life among racial/ethnic minority individuals.

Another noteworthy limitation of this study is the method in which participants were
recruited. Participants were recruited via the online platform Amazon Mechanical Turk
(MTURK). There have been several criticisms raised against using MTURK, including
representativeness of sample and data quality (Paolacci, Chandler, Ipeirotis, 2010). Critics
suggest that MTURK samples may not be representative of the population of the United States.
Furthermore, critics suggest that data collected via MTURK may be of poor quality. Users of
MTURK tend to be younger (i.e., about 30 years old), more educated, underemployed, more
liberal, and less religious than the general population of the United States (Berinsky, Huber, &
Lenz, 2012; Paolacci et al., 2010; Shapiro, Chandler, & Mueller, 2013). Furthermore, MTURK
users do not represent the racial/ethnic make-up of the United States; MTURK is over-
representative of White and Asian Americans and under-representative of Hispanic and Black
Americans (Berinsky et al., 2012). The non-representativeness of the sample may limit the
generalizability of the results of this study.
Critics of MTURK have also suggested that the data received from samples obtained using this online platform may be of poor quality. Despite this suggestion, a major study examining the participant pool of MTURK users found that the quality of data obtained from these users was acceptable (Paolacci & Chandler, 2014). Furthermore, data quality for the present study was assessed by the inclusion of three validity checks throughout the assessment battery. Only ten participants failed one of the three validity checks. These participants were removed from the analyses. These facts suggest that the quality of the data obtained from MTURK users in the present study was acceptable.

Another limitation of this study is that self-report measures were used to obtain study data. It has been suggested that self-report measures can result in socially desirable responses by participants (DiMatteo, 2004). A study examining the response styles of MTURK users found that these users have a tendency to score high on social desirability (Shapiro et al., 2013). Given this limitation, future studies would likely benefit from using data derived from multiple sources such as health (i.e., as an indicator of health-related quality of life) and financial records (i.e., as an indicator of socioeconomic status). Additionally, future studies would likely benefit from controlling for social desirability.

**Strengths**

The present study has several noteworthy strengths. First, this is the first known study to examine the associations of perceived socioeconomic status, perceived stress, and resilience with health-related quality of life. Given the increasing rate of adults living in urban populations, it is important to examine the role of modifiable protective factors (e.g., resilience) in health-related quality of life. These protective factors may mitigate the adverse effects of perceived socioeconomic status and perceived stress on health-related quality of life. Furthermore, given
the modifiability of these protective factors, individuals can foster these protective factors with relative ease.

Second, the sample of the present study consisted of urban individuals from various geographic regions of the United States. No two urban regions are completely identical. For example, some urban regions are characterized by urban sprawl (e.g., Houston, Texas), whereas other urban regions are characterized by extreme density (e.g., New York, New York). A participant sample from various urban regions of the United States lends some support to the generalizability of the results of the present study; that is, the results from the present study likely capture an aggregate representation of all urban regions in the United States and therefore the results can likely be extended to many individuals residing in an urban environment in the United States.

Third, the measures used in the present study all demonstrated excellent psychometric qualities (Kline, 1999). For example, the Cronbach’s alphas of the measures (i.e., PSS, RS-14, and RAND-36) included were excellent. Cronbach’s alpha is a measure of scale reliability, which refers to whether the measure consistently reflects the construct it is intended to measure (Field, 2009). Thus, it is likely that the results of the present study are trustworthy.

Study Implications

The findings from this study have important implications for counseling psychologists. First, these psychologists are well-positioned to benefit from this study given that they can use their expertise in counseling settings to promote health-related quality of life among their clients by addressing resilience, a modifiable cognitive variable. Psychologists can employ resilience building strategies with their clients. One resilience building strategy is helping clients change their explanatory styles, particularly when faced with adversity. Resilience building strategies can help mitigate the effects of perceived socioeconomic status and perceived stress on health-
related quality of life. This is particularly noteworthy given the known adverse effect of socioeconomic status and stress on health-related quality of life and the intractability of socioeconomic status.

Second, the results from the present study supports use of a strengths-based approach in efforts by psychologists to promote mental and physical health of their clients. There have been calls by past American Psychological Association president Martin Seligman for psychologists to focus on concepts of psychological strengths in research (Smith, 2006).

The field of counseling psychology has been invested in the concept of a strengths-based psychological approach since its creation (Gelso & Woodhouse, 2003). Thus, the present study suggests that counseling psychologists are particularly well-suited to lead development of evidence-based interventions to promote resilience and to further examine the impact of such interventions on stress and health-related quality of life. Such research seems important given the assertion of Gelso and Woodhouse (2003) that despite counseling psychology’s investment in the concept of a strengths-based psychological approach, there are few empirical studies focusing on the topic.

Third, the results of this study support conducting future research examining the relationships among perceived socioeconomic status, perceived stress, resilience, and health-related quality of life among individuals and groups disproportionately impacted by health disparities. Confirmation of the results of the present study by future studies without the limitations (e.g., larger samples recruited from a diversity of methods) of the present study would further highlight the importance of interventions to promote resilience among urban adults in the United States. Such interventions may be critical in efforts to improve health-related quality of life among urban adults in the United States.
Conclusion

The purpose of the present study was to investigate the associations of perceived socioeconomic status, perceived stress, and resilience with health-related quality of life among a sample of urban adults in the United States. Focusing this study on urban adults is important because: (1) urban adults experience unique health disparities, (2) low-income urban adults experience a disproportionate number of these health disparities, and (3) the number of urban adults is expected to grow in the coming years.

The original model to study the hypotheses indicated provided partial support for the hypotheses. Multicollinearity between two variables of interest (i.e., perceived stress and resilience) was detected. Thus, a revised model to study the hypotheses of the present study was used to rectify the effects of the detected multicollinearity by controlling for the shared variance between perceived stress and resilience. The revised model provided further support for the hypotheses of the present study.

The results from this study suggest that urban individuals may experience adversities (e.g., low socioeconomic status and high perceived stress) that have a negative effect on health-related quality of life. Furthermore, the results of this study suggest that resilience may mitigate the impact of low socioeconomic status and high perceived stress on health-related quality of life. The role of resilience in mitigating the impact of low socioeconomic status and high perceived stress on health-related quality of life is important because resilience is a modifiable psychological variable. Thus, psychologists can work with their clients to foster resilience in order to improve health-related quality of life.
APPENDIX A
DEMOGRAPHIC DATA QUESTIONNAIRE

Directions: Please answer all questions that apply to you. Your answers will not be shared with others. For questions with bubbles (O), completely fill in the bubbles, like this: ●

Do you currently live in an urban environment?
O Yes
O No

Please enter your current county of primary residence. ______________

Please enter your zip code of primary residence. _________________

Please enter your city of primary residence. _______________________

Please enter the number of years you have been residing in your current urban residence. ______________

Please enter the total number of years you have resided in an urban environment. ______

Please enter your county of upbringing (urban or rural). If your upbringing occurred in multiple counties, please enter the county in which you resided for the longest amount of time. ______________

Please enter the zip code for the place of your upbringing (urban or rural). If your upbringing occurred in multiple zip codes, please enter the zip code for the place in which most of your upbringing occurred.

Please enter your city of upbringing (urban or rural). If your upbringing occurred in multiple cities, please select the city in which you resided for the longest amount of time.

Do you consider yourself to be Hispanic or Latino?
O No, not Hispanic or Latino
O Yes, Hispanic or Latino

Do you consider yourself to be any of the following races? (bubble-in all that apply)
(Note: Even if you consider yourself to be Hispanic/Latino and/or African American or Black, you may also consider yourself to be one or more of the following races.)
O American Indian or Alaska Native
O Asian or Asian American
O Black or African American
O Caucasian/White/European American
O Native Hawaiian or other Pacific Islander
O Other: ___________________________________________________________

(Please write in your race if it is not listed)
What is your gender orientation?
O Female
O Male

What is your age? ________

What is your occupational status?
O Employed
O Unemployed

On a typical day, what is your mode of transportation?
O My own automobile (e.g., car, motorcycle, scooter)
O City transportation (e.g., subway, bus, tram)
O Bicycle/Walk

How many total hours a day do you spend commuting to and from work?
O On a normal day, I do not commute
O Less than 1 hour a day
O 1 to 2 hours a day
O 2 to 3 hours a day
O 3 to 4 hours a day

Please identify the number of chronic health conditions that you are currently experiencing? Examples of chronic health conditions are heart disease, diabetes cancer, hypertension, diabetes, and obesity.
O No chronic health conditions
O 1 chronic health condition
O 2 chronic health conditions
O 3 chronic health conditions
O 4 chronic health conditions
O 5 or more chronic health conditions

Please select any chronic health conditions you are currently experiencing. You can select more than one.
O Hypertension
O Diabetes
O Cardiovascular disease
O Cancer
O Other, please specify:
APPENDIX B
THE MACARTHUR SCALE OF SUBJECTIVE SOCIAL STATUS

Think of this ladder as representing where people stand in the United States. At the top of the ladder are people who are the best off – those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off – those who have the least money, least education, and the least respected jobs or no job. The higher up you are on the ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder?
Think of this ladder as representing where people stand in their communities. People define community in different ways; please define it in whatever way is most meaningful to you. At the top of ladder are the people who have the highest standing in their community. At the bottom are the people who have the lowest standing in their community.

Where would you place yourself on this ladder?
APPENDIX C
PERCEIVED STRESS SCALE

Directions: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate how often you felt or thought a certain way.

1. In the last month, how often have you been upset because of something that happened unexpectedly?
   O Never
   O Almost never
   O Sometimes
   O Fairly often
   O Very often

2. In the last month, how often have you felt that you were unable to control the important things in your life?
   O Never
   O Almost never
   O Sometimes
   O Fairly often
   O Very often

3. In the last month, how often have you felt nervous and "stressed"?
   O Never
   O Almost never
   O Sometimes
   O Fairly often
   O Very often

4. In the last month, how often have you felt confident about your ability to handle your personal problems?
   O Never
   O Almost never
   O Sometimes
   O Fairly often
   O Very often

5. In the last month, how often have you felt that things were going your way?
   O Never
   O Almost never
   O Sometimes
   O Fairly often
   O Very often
6. In the last month, how often have you found that you could not cope with all the things that you had to do?
   O  Never
   O  Almost never
   O  Sometimes
   O  Fairly often
   O  Very often

7. In the last month, how often have you been able to control irritations in your life?
   O  Never
   O  Almost never
   O  Sometimes
   O  Fairly often
   O  Very often

8. In the last month, how often have you felt that you were on top of things?
   O  Never
   O  Almost never
   O  Sometimes
   O  Fairly often
   O  Very often

9. In the last month, how often have you been angered because of things that were outside of your control?
   O  Never
   O  Almost never
   O  Sometimes
   O  Fairly often
   O  Very often

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
    O  Never
    O  Almost never
    O  Sometimes
    O  Fairly often
    O  Very often
APPENDIX D
14-ITEM RESILIENCE SCALE (RS-14)

**Directions:** Please read each statement and click on the O that best indicates your feelings about
the statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I usually manage one way or another.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>2. I feel proud that I have accomplished things in my life.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>3. I usually take things in stride.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>4. I am friends with myself.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>5. I feel that I can handle many things at a time.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>6. I am determined.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>7. I can get through difficult times because I’ve experienced difficulty before.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>8. I have self-discipline.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>9. I keep interested in things.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>10. I can usually find something to laugh about.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>11. My belief in myself gets me through hard times.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>12. In an emergency, I’m someone people can generally rely on.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>13. My life has meaning.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
<tr>
<td>14. When I’m in a difficult situation, I can usually find my way out of it.</td>
<td>O O O O O O O O</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E
RAND-36

Directions: Please read each statement and click on the O that best indicates your feelings about the statement.

1. In general, would you say your health is:
   O Excellent
   O Very good
   O Good
   O Fair
   O Poor

2. Compared to one year ago, how would you rate your health in general now?
   O Much better now than one year ago
   O Somewhat better now than one year ago
   O About the same
   O Somewhat worse now than one year ago
   O Much worse now than one year ago

The following items are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much?

<table>
<thead>
<tr>
<th>Activity Description</th>
<th>Yes, Limited a Lot</th>
<th>Yes, Limited a Little</th>
<th>No, Not Limited at All</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>5. Lifting or carrying groceries</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>6. Climbing <strong>several</strong> flights of stairs</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>7. Climbing <strong>one</strong> flight of stairs</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>8. Bending, kneeling, or stooping</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>9. Walking <strong>more than a mile</strong></td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>10. Walking <strong>several blocks</strong></td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>11. Walking <strong>one block</strong></td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>12. Bathing or dressing yourself</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities as a **result of your physical health**?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Cut down the amount of time you spent on work or other activities</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>14. <strong>Accomplished less</strong> than you would like</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>15. Were limited in the <strong>kind</strong> of work or other activities</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>16. Had <strong>difficulty</strong> performing the work or other activities (for example, it took extra effort)</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

During the **past 4 weeks**, 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)?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. Cut down the <strong>amount of time</strong> you spent on work or other activities</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>18. <strong>Accomplished less</strong> than you would like</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>19. Didn’t do work or other activities as <strong>carefully</strong> as usual</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

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

- O  Not at all
- O  Slightly
- O  Moderately
- O  Quite a bit
- O  Extremely

21. How much **bodily** pain have you had during the **past 4 weeks**?

- O  None
- O  Very mild
- O  Mild
- O  Moderate
- O  Severe
- O  Very severe
22. **During the past 4 weeks,** how much did **pain** interfere with your normal work (including both work outside the home and housework)?

- O Not at all
- O A little bit
- O Moderately
- O Quite a bit
- O Extremely

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**…

<table>
<thead>
<tr>
<th></th>
<th>All of Time</th>
<th>Most of the Time</th>
<th>A Good Bit of the Time</th>
<th>Some of the Time</th>
<th>A Little of the Time</th>
<th>None of the Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. Did you feel full of pep?</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>24. Have you been a very nervous person?</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>25. Have you felt so down in the dumps that nothing could cheer you up?</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>26. Have you felt calm and peaceful?</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>27. Did you have a lot of energy?</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>28. Have you felt downhearted and blue?</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>29. Did you feel worn out?</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>30. Have you been a happy person?</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>31. Did you feel tired?</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
32. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?
   • All of the time
   • Most of the time
   • Some of the time
   • A little of the time
   • None of the time

How TRUE or FALSE is each of the following statements for you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Definitely True</th>
<th>Mostly True</th>
<th>Don’t Know</th>
<th>Mostly False</th>
<th>Definitely False</th>
</tr>
</thead>
<tbody>
<tr>
<td>33. I seem to get sick a little easier than other people</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>34. I am as healthy as anybody I know</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>35. I expect my health to get worse</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>36. My health is excellent</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
LIST OF REFERENCES


Guillermo Wippold was born in Houston, Texas in 1988. He graduated with honors from The University of Texas at Austin in 2010 with a Bachelor of Arts in Psychology and a Bachelor of Arts in Spanish and Hispanic Studies. He then received his Master of Science in Counseling Psychology from the University of Florida in 2014 and his Doctor of Philosophy in Counseling Psychology from the University of Florida in 2018. At the University of Florida, Guillermo completed psychology practica at the University of Florida Counseling and Wellness Center, UF Health Medical Psychology, UF Health Vista Inpatient Consultation-Liaison Program, and Equal Access Clinic Free Therapy Night. He served as clinical co-director of Equal Access Clinic Free Therapy Night, a volunteer-run mental health clinic that provided free services to uninsured members of the Gainesville, FL community. He is completed his Predoctoral Psychology Internship at the University of Kansas Medical Center. Guillermo’s research interests include health disparities, stress, and resilience.