

2011

# Age and Coping as Predictors of Physical Health and Psychological Well-being: The Role of Poverty Status as a Moderator

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Age and Coping as Predictors of Physical Health and Psychological Well-being:

The Role of Poverty Status as a Moderator

by

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Presented to the Graduate and Research Committee

of Lehigh University

in Candidacy for the Degree of

Doctor of Philosophy

in

Counseling Psychology

Lehigh University

March 31, 2010

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May 20, 2011

The Certificate of Approval

Approved and recommended for acceptance as a dissertation in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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## ABSTRACT

Attention to the positive aspects and optimal patterns of “successful aging” (Rowe & Kahn, 1998) has permeated the health and aging fields during the past decade (e.g., Cooper, Bebbington, Katona, & Livingston, 2009; Reichstadt, Depp, Palinkas, Folsom, & Jeste, 2007). In contrast with work in the 1970s and 1980s that focused on disability and disease, research on “successful aging” places the focus on the thriving biological, psychological, and social aspects of aging (Bowling, 2006; Diener, Suh, Lucas, & Smith, 1999). Despite emerging research in this area (see Depp, Glatt, & Jeste, 2007), many questions remain unanswered with regards to health disparities among targeted groups (James, 2009), including those of lower socioeconomic status (SES; Adler, 2009). Accordingly, within the biopsychosocial framework (Barsky, Cleary, & Klerman, 1992; Bowling, 2006; Fylkesnes & Forde, 1991), the present study examined poverty status as a moderator of the relationships of age and coping as predictors of self-reported physical health and psychological well-being.

Utilizing baseline data from the National Institute on Aging’s Healthy Aging in Neighborhoods of Diversity Across the Life Span study (HANDLS; Evans et al., in press), 3724 participants were selected via multi-stage sampling in an urban area to be representative of individuals ages of 30 and 64 years ( $M = 47.73$ ,  $SD = 9.34$ ), lower and higher SES (i.e., below and above 125% poverty status), among African Americans and Whites, and men and women. Self-reported physical health and psychological well-being were measured from a global, multi-dimensional view utilizing the well-established 12-item Short-Form Health Survey (SF-12; Ware, Kosinski, & Keller, 1996). Coping styles

were measured using the Brief COPE (Carver, 1997) based on the Lazarus and Folkman (1984) model of stress and the Carver and Scheier (1981, 1990) model of behavioral self-regulation.

For the present study, a confirmatory factor analysis was conducted on the Brief COPE to confirm the fit of the seven-factor structure derived from a previously conducted exploratory factor analysis (Carr et al., 2008). A modified seven-factor model, with correlated measurement errors for the two positive reframing items and the two self-blame items was retained for a path analysis that examined age and coping as predictors of physical health and psychological well-being. Multiple-group path analysis (Bollen, 1989) was used to test this path model for individuals above ( $n = 1537$ ) and below ( $n = 2187$ ) the 125% poverty threshold. The moderation effects model hypothesizing differences by poverty status for seven of the relationships of age and coping as predictors of physical health and psychological well-being was tested and showed good fit [ $\chi^2(13, N = 3724) = 26.351, p = .015, CFI = .997, TLI = .959, RMSEA = .017$ ] and fit significantly better ( $p = .035$ ) than a model with all relationships equal across poverty group. Moderation was found of the relationship between age and psychological well-being but not for the relationships between coping and physical health and psychological well-being. These results extend previous research and yield important findings for the delivery of services to adults living in poverty, including the need for medical and mental health interventions to improve psychological well-being.

## CHAPTER I

### Introduction

Successful aging during adulthood has been defined as maintaining physical health and psychological health or well-being (Rowe & Kahn, 1998). However, research typically indicates that adults at mid-life and older self-report poorer physical health compared to their younger adult counterparts (e.g., Blake, Codd, & O'Meara, 2000; Larson, Schlundt, Patel, Beard, & Hargreaves, 2008). On the other hand, findings regarding age differences in self-reported psychological well-being are inconsistent; some research indicates that adults at mid-life and older report more positive psychological well-being compared to younger adults (e.g., Windsor, Rodgers, Butterworth, Anstey, & Jorm, 2006). Other studies show no significant differences in psychological well-being compared to younger adults (e.g., Luo et al., 2003). In some studies, coping (Lazarus & Folkman, 1984) predicts self-reported physical health and psychological well-being (Penley, Tomaka, & Wiebe, 2002), yet findings regarding these relationships are also inconsistent. One factor that may explain these inconsistent relationships is poverty status (Graham, 2007). However, the interactions of both age and coping with poverty status and whether these interactions may explain individual differences in self-reported physical health and psychological well-being (SRPP) have been unexplored in the literature. Thus, the aim of the present study is to determine how the relationships between age and SRPP and coping and SRPP are moderated by poverty status in a cross-sectional sample of community-dwelling adults aged 30 to 64 years.

### *Age as a Predictor of Physical Health and Psychological Well-being*

Cross-sectional research has indicated consistently that adults at mid-life or later self-report poorer physical health as compared to younger adults. Specifically, research has indicated that adults aged 45 and older report poorer physical health compared to adults below 45 (Fylkesnes & Forde, 1991; Jenkinson, Chandola, Coulter, & Bruster; 2001; Larson et al., 2008) and that adults aged 60 to 64 report poorer physical health compared to adults aged 40 to 44 (Windsor et al., 2006). Additional cross-sectional studies examining the linear relationship between age and self-reported physical health found age to be negatively related to self-rated physical health (Blake et al., 2000; Denton & Walters, 1999; Luo et al., 2003; Ziersch et al., 2005). However, these studies have several limitations. Foremost, only two of the studies were conducted on an American sample (Larson et al., 2008; Luo et al., 2003). Further, the dichotomization of age to examine age differences in self-reported physical health results in a loss of information about true age differences (MacCallum, Zhang, Preacher, & Rucker, 2002). The present study will address these limitations by examining age as a continuous predictor of SRPP within a U.S. sample.

In contrast to the consistent findings of lower self-reported physical health for older individuals, the relationship of age to self-reported psychological well-being is less clear. For instance, cross-sectional research conducted by Windsor et al. (2006) indicated that adults aged 60 to 64 report greater psychological well-being than adults aged 40 to 44. Another study found adults aged 45 to 54 reported greater psychological well-being than adults aged 25 to 44 (Scott, Tobias, Sarfati, & Haslett, 1999). Similarly, Schwartz,

Meisenhelder, Yunsheng, and Reed (2003) reported that self-reported psychological well-being for individuals aged 25 to 75 increased with age, and Ziersch et al. (2005) found self-reported psychological well-being increased with age for individuals aged 18 to 90. In contrast to both sets of findings, further research has found no age group differences between the 25 to 44 and 45 to 64 age groups (Larson et al., 2008) and no linear relationship between age and self-reported psychological well-being (Luo et al., 2003). A closer examination of these inconsistent findings reveals that the two studies indicating no relationship were composed of lower education American samples. Additional research is needed to ascertain the effect of socioeconomic status indicators on the relationship between age and self-reported psychological well-being for a U.S. sample.

#### *Coping Style as a Predictor of Physical Health and Psychological Well-being*

Coping (Lazarus & Folkman, 1984) has also been found to predict SRPP. Coping refers to an individual's cognitions and behaviors used to manage the internal and external demands of their environment that are appraised as taxing or exceeding the individual's resources that has relevance to his or her well-being (Folkman, Lazarus, Gruen, & DeLongis, 1986). Coping may be characterized by both an individual's coping style and coping processes. Coping style, as compared to coping processes, presumes that strategies involve habitual problem-solving thoughts and actions to manage demands and are at least moderately stable across diverse situations and, over the long term, affect adaptational outcomes (Carver & Scheier, 1994; Costa, McCrae, & Zonderman, 1987; Costa, Zonderman, & McCrae, 1991; Haan, 1969; Folkman et al., 1986), including self-reported health. Coping processes, on the other hand, refer more narrowly to the

interaction between person and situation or event, whereby an individual's coping efforts are different depending on the current circumstances (Folkman & Lazarus, 1985). The present study will investigate coping style and its influence on SRPP.

Although considerable research has examined the direct influence of coping processes on SRPP for community-dwelling adults, the relationship of coping style and SRPP has only been examined for community-dwelling adults in one known study (Farley, Galves, Dickinson, & Perez, 2005). Results of that study indicated that an avoidance coping strategy – use of denial – was negatively related to psychological well-being; none of the other coping styles included in the Farley et al. study were significant predictors of self-reported physical health and psychological well-being. It is important to note that 96% of the patients at the clinic through which the Farley et al. study was conducted lived below the 200% federal poverty line and 67% lived below the 100% federal poverty line. Thus, with the exception of denial, coping styles may not be a strong predictor of SRPP for individuals living in poverty. Given the limited information available, the relationship between coping style and SRPP may be better understood by examining what is known about the relationship between coping processes and SRPP.

Using a meta-analysis, Penley et al. (2002) reviewed 34 studies of the relationship of coping processes to self-reported and objective physical health as well as self-reported psychological well-being outcomes in community-dwelling adult samples. The relationships between positive coping strategies and SRPP were inconsistent, with some strategies positively predicting physical health and psychological well-being, and others negatively predicting or indicating no relationship to physical health or psychological



well-being. For the other categories of coping strategies included in the meta-analysis, social support was found to negatively predict both physical health and psychological well-being, and avoidance coping and negative coping were unrelated to physical health and negatively related to psychological well-being. Although not included in Penley et al.'s meta-analysis, other research has consistently found religious coping style to be positively related to psychological well-being (e.g., Ano & Vasconcelles, 2004) but unrelated to physical health (Farley et al., 2005; Schwartz et al., 2003).

A comparison of the results from the Penley et al. (2002) meta-analysis and the Farley et al. (2005) study are presented in Table 1. Although these reviews used different measurements of coping, the strategies they examined may be categorized into four classifications based on previous empirical findings and recommendations (e.g., Ano & Vasconcelles, 2004; Carver, Scheier, & Weinbraub, 1989; Folkman & Moskowitz, 2004): positive coping, negative coping, social support, and avoidance. For positive coping, the Farley et al. findings clearly indicated that positive coping styles were unrelated to both physical health and psychological well-being, but Penley et al.'s findings were inconsistent for the outcomes. Specifically, one of the positive coping strategies positively predicted physical health, but the other three strategies were unrelated to physical health. In addition, Penley et al. found that one positive coping strategy was positively related to psychological well-being, two strategies were unrelated, and one other strategy was negatively related to psychological well-being. In contrast, negative coping strategies were unrelated to physical health in both investigations and to

psychological well-being in the Farley et al. study, although Penley et al. found that negative coping processes negatively predicted psychological well-being.

The Penley et al. (2002) and Farley et al. (2005) studies were also inconsistent regarding social support and avoidance coping strategies. Pertaining to social support, Penley et al. found this coping process negatively related to both physical health and psychological well-being, and the Farley et al. study found no relationship to exist. In addition, all avoidance coping strategies in the Penley et al. and Farley et al. studies were unrelated to physical health. However, the findings for avoidance coping and psychological well-being were inconsistent across the studies. In the Farley et al. study, as stated previously, one avoidance coping style – denial – was negatively related to psychological well-being, and the other avoidance coping styles were unrelated to psychological well-being. In contrast, all three avoidance processes in the Penley et al.'s meta-analysis were negatively related to psychological well-being.

In summary, a comparison of Penley et al.'s (2002) meta-analysis and Farley et al.'s (2005) study reveals that the relationship for all four coping categories, including positive coping, negative coping, social support, and avoidance coping, and physical health and psychological well-being were inconsistent between the two studies, with the exception of negative coping for physical health (i.e., both studies found no relationship between negative coping and physical health). Participants in the Farley et al. study, which found only one significant relationship between coping style and SRPP, were primarily individuals living below the poverty line. Given these inconsistent findings, the present study investigates poverty status as a moderator of the relationship between

coping style and SRPP. Findings for the relationship between religious coping and SRPP consistently indicate that religious coping positively predicts self-reported psychological well-being, and religious coping is unrelated to self-reported physical health. The present study also seeks to replicate and extend these findings.

#### *Poverty Status as a Moderator*

In situations where inconsistent relationships between variables are found, Frazier, Tix, and Barron (2004) have stated examining a moderator of these relationships may be important to determine “for whom” the predictor is more strongly related to the outcome. One factor that may interact with the relationships between age and self-reported psychological well-being and coping style and SRPP is poverty status. Poverty is one of the most frequently measured dimensions of socioeconomic status (Adler & Ostrove, 1999) and refers to those individuals living below the federal poverty level. Poverty is based on a composite of family income, family size, and ages of the family members (U.S. Census Bureau, 2008a) and is one way to operationalize the lack of resources available to, and the financial stressors facing, adults (Rudkin & Markides, 2002).

With regards to the former relationship, no known studies have examined the interaction between age and poverty status and its relationship to self-reported psychological well-being. However, one study examined the interaction between age and education, an additional indicator of socioeconomic status, and its relationship to self-reported psychological well-being among community-dwelling adults (Marmot & Furher, 2004). This study examined adults aged 25 to 74 and found a significant interaction

between age and education for self-reported psychological well-being as measured by depression for women only. However, no follow-up tests were conducted, and therefore the nature of the interaction is unknown. Nonetheless, this preliminary finding indicates poverty status may be an important moderator to examine for the relationship between age and self-reported psychological well-being.

To understand how poverty status may interact with age to predict self-reported psychological well-being and with coping style to predict SRPP, it is important to examine how the moderator is related to the outcome variables of interest. Although no known research has examined the direct relationship between poverty and SRPP among community dwelling adults, several studies have examined other indicators of socioeconomic status as predictors of SRPP. Research has indicated higher levels of income (Watson, Firman, Baade, & Ring, 1996) and education (Gallo, Smith, & Cox, 2006; Loge & Kaasa, 1998) to be positively related to SRPP. Given these findings, poverty status may have a buffering effect (Frazier et al., 2004) on the relationship between age and self-reported psychological well-being. For example, age may be positively related to psychological well-being for adults above poverty level but negatively related to psychological well-being for adults below poverty level. These hypothesized relationships would explain the previous inconsistent findings in the relationship between age and self-reported psychological well-being.

In contrast to poverty status having a buffering, or moderating, effect for individuals above poverty level for the relationship between age and psychological well-being, poverty status may have a buffering effect for individuals below poverty level for

the relationships between coping styles and SRPP. For example, for the category of negative coping and psychological well-being, findings in the Penley et al. (2002) meta-analysis indicated that negative coping processes were negatively related to psychological well-being, whereas the Farley et al. (2005) study found no relationship between negative coping styles and psychological well-being. Therefore, it may be the case that no relationship exists between negative coping and psychological well-being for individuals below poverty level (the predominant sample in the Farley et al. study), but for individuals above poverty level, negative coping is negatively related to psychological well-being. Pertaining to positive coping and psychological well-being, the findings were unclear for the Penley et al. (2002) meta-analysis, and therefore the investigation of poverty status of a moderator of this relationship will be exploratory in this study.

Pertaining to social support, Farley et al. (2005) found no relationship between social support coping style and SRPP. However, Penley et al. (2002) found social support as a coping process to negatively predict physical health and psychological well-being. Interestingly, Penley et al. reported that controllability (i.e., the belief that a particular stressor is unable to be managed or avoided) moderated this relationship, such that seeking social support was negatively related to physical health and psychological well-being for controllable stressors and unrelated for uncontrollable stressors. This finding for controllability supports poverty status as a moderator of the relationship between social support and SRPP because living in poverty is often viewed as a stressor that is uncontrollable from the perspective of the individual (Bullock, 1999; Bullock & Limbert, 2003). In light of these findings, it may be the case that social support and SRPP are

unrelated for individuals below poverty level and negatively related for individuals above poverty level.

A similar pattern emerged for avoidance coping in the Penley et al. (2002) study. Although avoidance coping was unrelated to physical health, controllability moderated the relationship in the Penley et al. finding, so that distancing negatively predicted physical health when the stressor was controllable but not for uncontrollable stressors. Therefore, despite the overall findings for no relationship between avoidance coping and physical health, an exploratory analysis for poverty status as a moderator of this relationship will be conducted in the current study. The findings for the relationship between avoidance coping and psychological well-being were inconsistent. Avoidance coping was found to negatively predict psychological well-being for the Penley et al. meta-analysis; however, only denial was found to negatively predict psychological well-being in Farley et al.'s (2005) study. Farley et al.'s evidence that the majority of avoidance strategies are unrelated to psychological well-being for individuals in poverty contrasted with Penley et al.'s finding of a negative relationship between these variables lends support to the hypothesis that avoidance coping may be unrelated to psychological well-being for individuals below poverty level but negatively related to psychological well-being for individuals above poverty level.

#### *Research Questions and Hypotheses*

Given this review of literature and limitations in previous findings, the following research questions and hypotheses will be investigated (see Table 2).

*Research Question 1:* Does age predict self-reported physical health and psychological well-being for individuals above the poverty level and individuals below the poverty level?

*Hypothesis  $H_{1(a)}$ :* Age will be negatively related to self-reported physical health for both individuals above the poverty level and individuals below the poverty level.

*Hypothesis  $H_{1(b)}$ :* Poverty status will moderate the relationship between age and self-reported psychological well-being; age will be positively related to self-reported psychological well-being for individuals above the poverty level but not related to self-reported psychological well-being for individuals below the poverty level.

*Research Question 2:* Does coping predict self-reported physical health and psychological well-being for individuals above the poverty level and individuals below the poverty level?

*Hypothesis  $H_{2(a)}$ :* Positive coping, negative coping, and religious coping will be unrelated to physical health, and religious coping will positively predict psychological well-being for both individuals above the poverty level and individuals below the poverty level.

*Hypothesis  $H_{2(b)}$ :* Poverty status will moderate the relationships of negative coping, social support, and avoidance coping to psychological well-being as well as the relationship of social support to physical health. In each case, a negative

relationship is hypothesized for individuals above poverty level, and non-significant relationships are hypothesized for individuals below poverty level.

*Hypothesis H<sub>2(c)</sub>*: The relationships of positive coping to psychological well-being and avoidance coping to physical health are posed as exploratory analyses, and therefore no specific hypotheses are made regarding poverty status as a moderator.



## CHAPTER II

### Review of the Literature

#### *Successful Aging*

Rowe and Kahn's (1998) research-based model of "successful aging" identifies a relatively new approach to the study of aging as compared to previous work in the 1970s and 1980s. Whereas prior research focused on a preoccupation with disability and disease, Rowe and Kahn's model focuses on understanding aging in all its aspects – biological, psychological, and social – and also with attention to the positive aspects and optimal patterns of aging (Diener, Suh, Lucas, & Smith, 1999; Rowe & Kahn, 1998). The foundation for the "successful aging" model came from the MacArthur Foundation study, which was conducted between 1987 and 1997 and sought to determine the factors that predict successful physical and psychological well-being for older adults. Since the completion of the MacArthur Foundation's study, organizations such as The National Institute on Aging and other units of the National Institutes of Health have established funded research programs aimed at understanding successful aging (Rowe & Kahn, 1998) for middle-aged adults as well, including the Healthy Aging in Neighborhoods of Diversity Across the Life Span study (HANDLS; Evans et al., in press).

To determine the specific factors that predict successful aging, it is important to define this construct. A wide variety of definitions for successful aging have been reported in the literature (e.g., Andrews, Clark, & Luszcz, 2002; Freund & Baltes, 1998; Ouwehand, de Ridder, & Bensing, 2007; Vaillant & Mukamal, 2001). This study will use the widely used criteria developed by Rowe and Kahn (1998), namely that the goal of

“successful aging” is to maintain low risk of disease and disease-related disability, high physical and mental function, and active engagement with life. The focus of the current investigation is on predictors of the second and third components – high physical and mental function and active engagement with life, which encompass physical health and psychological well-being. Rowe and Kahn state that these concepts include not only positive objective information about an adult’s ability to function, but also positive perceptions of one’s own health status. Other researchers concur and assert that positive ratings of physical health and psychological well-being are important indicators of successful aging (Freund & Baltes, 1998; Vaillant, 2004; World Health Organization, 1952). In fact, self-rated health is a strong predictor of mortality (Benyamini & Idler, 1999; DeSalvo, Bloser, Reynolds, He, & Muntner, 2006; Idler & Benyamini, 1997; Kaplan et al., 2007; Pietz & Petersen, 2007; Singh-Manoux et al., 2007) and health service utilization (Hansen, Fink, Frydenberg, & Oxhoj, 2002; McCullough & Laurenceau, 2004).

#### *Self-rated Physical Health and Psychological Well-being*

Self-ratings of physical health and psychological well-being (SRPP) reflect an individual’s perceptions of his or her health status. The components that most accurately define these constructs have also been the subject of considerable investigation (Smith, Shelley, & Dennerstein, 1994; see also Segovia, Bartlett, & Edwards, 1989; Worsley, 1990). Nonetheless, it is clear from the literature that SRPP are not simple unitary entities; they involve multiple dimensions (Diener et al., 1999). For purposes of the present investigation, eight domains of functioning --- four domains for self-rated

physical health and four domains for self-rated psychological well-being --- are used to represent these constructs. The four domains that represent self-rated physical health are physical functioning (i.e., ability to perform moderate activity), role-physical (i.e., accomplishment of work), bodily pain, and general health. The latter domain includes the common question often utilized in research as the gold standard of self-perceived health: “In general, would you say your health is excellent, very good, good, fair, or poor?”. Similarly, the four domains that represent self-rated psychological well-being include reports of vitality (i.e., energy), social functioning (i.e., ability to engage in social activities), role-emotional, and mental health (i.e., feeling calm and also feeling depressed). This classification is based on the 12-Item Short-Form Health Survey (SF-12; Ware, Kosinski, & Keller, 1996), which was developed from the original SF-36 (Ware, Kosinski, & Gandek, 1993) and is commonly used to measure the dimensions of SRPP (Wetzler, Lum, & Bush, 2000). A review of the literature in the present study will examine predictors of SRPP as measured in this multidimensional view (i.e., SF-12, SF-36), rather than a unidimensional perspective (e.g., number of chronic diseases and depression).

Assessments of SRPP typically fall in two categories: age-comparative and global (Roberts, 1999). Age-comparative assessments ask individuals to self-report health in comparison to others of his or her age. As a result, the reference group chosen by the individual is that of age-similar peers. This type of self-assessment is also referred to as social comparison (Festinger, 1954; Wills, 1991). On the other hand, global assessments, such as the SF-12 (Ware et al., 1996), ask respondents to self-report their health without

comparison to another group. Consequently, individuals choose the reference group by which to compare their ratings of health. In this case, individuals typically appraise his or her health relative to a point in the past (Roberts, 1999). This is also referred to as temporal comparison (Albert, 1977; Robinson-Whelen & Kiecolt-Glaser, 1997). This latter form of assessment has been identified as a more comprehensive assessment and meaningful indicator of perceived health (Roberts, 1999). According to Idler (1992), to evaluate one's health along a self-selected dimension ultimately fuses information about the individual's health status with his or her judgment about what that status means. Research has consistently demonstrated that judgment regarding the meaning of one's health status for global measures of SRPP requires a biopsychosocial perspective (Bowling, 2006; Fylkesnes & Forde, 1991; Rowe & Kahn, 1998). In other words, it is essential to consider a combination of medical or biological, psychological, and socio-cultural (Barsky, Cleary, & Klerman, 1992; Fylkesnes & Forde, 1992) influences in the investigation of predictors of SRPP. The current study will utilize a path model to simultaneously investigate age, coping styles, and poverty status as representing biological, psychological, and social predictors influencing SRPP.

#### *Age as a Predictor of SRPP*

Because aging can be associated with losses in many life domains (Vaillant, 2004), one might expect to see poorer perceptions of physical health with increased age among community-dwelling adults (Leventhal, Forster, & Leventhal, 2007). When self-reported physical health is measured in a multidimensional view (i.e., SF-12 [Ware et al., 1996] and SF-36 [Ware et al., 1993]), cross-sectional research consistently supports this

notion (Blake et al., 2000; Denton & Walters, 1999; Fylkesnes & Forde, 1991; Jenkinson et al., 2001; Larson et al., 2008; Luo et al., 2003; Windsor et al., 2006; Ziersch, 2005). Nonetheless, several limitations of these studies should be noted. Foremost, only two studies were conducted on an American sample, and these samples were limited to African Americans (Larson et al., 2008) and individuals with mild to severe back pain (Luo et al., 2003). Additionally, more than half of these studies dichotomized age to examine age differences in self-reported physical health (Fylkesnes & Forde, 1991; Jenkinson et al., 2001; Larson et al., 2008; Windsor et al., 2006). These studies designated individuals aged 44 as separate from individuals aged 45, and all but one (Jenkinson et al., 2001) further split age into smaller groupings. This dichotomization practice results in a loss of information about true age differences (MacCallum et al., 2002). The present study will address these limitations, examining age as a continuous predictor for a sample composed of both White and African-American community-dwelling adults in the United States.

Whereas the findings for the relationship between age and physical health are consistent, findings regarding the relationship between age and self-reported psychological well-being are inconsistent. Some research indicates more positive reports with increased age (Scott et al., 1999; Schwartz et al., 2003; Windsor et al., 2006; Ziersch et al., 2005), and other studies indicate no differences with increased age (Larson et al., 2008; Luo et al., 2003). A closer examination of these inconsistent findings reveals that the two studies indicating no relationship between age and self-reported psychological well-being were composed of lower education American samples. In both Larson et al.

and Luo et al., 53% of the individuals included in their samples had at least a high school education. Comparison of this value to U.S. Census demographics from 2003, in which 85% of adults have a post-high school education (U.S. Census Bureau, 2004), shows that educated adults are under-represented in the existing research. The only other study using an American sample in which 86% had at least a high school education found a positive relationship between age and self-reported psychological well-being (Schwartz et al., 2003). The four remaining studies reporting a positive relationship between age and self-reported psychological well-being were composed of Australian and New Zealand samples, and only Ziersch et al. (2005) provided information about socioeconomic status. However, only median annual income was reported, and therefore the range of income for the entire sample is unclear. Further, Ziersch et al. (2005) was the only study to utilize a path analysis to analyze the relationships between age and SRPP. Clearly, additional research is needed to ascertain the effect of socioeconomic status indicators on the relationship between age and self-reported psychological well-being for U.S. samples using a more sophisticated analysis method (Diener et al., 1999) such as a path model.

### *Coping Styles*

Age as a biological factor is not the only indicator of SRPP. Psychological and social factors, according to the successful aging model (Rowe & Kahn, 1998) and self-regulation theories, also influence how individuals experience and evaluate their health status (Leventhal et al., 2007; Vaillant, 2004). As such, coping style as a psychological resource (Freund et al., 1999; Ouwehand et al., 2007; Ptacek & Gross, 1997; Somerfield & McCrae, 2000; Wood, Joseph, & Linley, 2007) is also examined as a predictor of

SRPP in the current investigation. According to Lazarus (2000), subjective health and well-being is a criterion that should be used for evaluating the success of coping efforts. A leading model in the area of stress and coping is that of Lazarus and Folkman (1984). This model emphasizes a person-environment relationship (Lazarus, 2000), whereby an individual constructs meaning from a social and physical environment. In their view, stress, as the first component of the model, can be thought of as part of a complex, organized biosocial-psychological whole (Lazarus, 2000) that may endanger well-being (Folkman et al., 1986). It consists of two processes – (1) cognitive appraisals, composed of primary and secondary appraisals, and (2) coping. In primary appraisal, the individual evaluates whether an encounter is to be identified as a threat, challenge, or loss. In secondary appraisal, the individual determines how to respond to overcome harm or to improve the prospects for benefit (Folkman et al., 1986). Coping, the second component of the model, refers to the individual's cognitive and behavioral efforts to manage the internal and external demands of the person-environment transaction.

Whereas previous research has identified coping strategies as problem-focused and emotion-focused (e.g., Folkman & Lazarus, 1980), adaptive and maladaptive (e.g., Voss, Müller, & Schermelleh-Engel, 2006) or functional and dysfunctional (e.g., McIlvane, Popa, Robinson, Houseweart, & Haley, 2008), the current investigation presumes that coping styles are psychological resources (Freund et al., 1999; Ouwehand et al., 2007; Ptacek & Gross, 1997; Somerfield & McCrae, 2000; Wood et al., 2007). In other words, as consistent with the contextual approach to coping and positive psychology (Folkman & Moskowitz, 2003; Nelson & Cooper, 2005), coping strategies

are not inherently good or bad (Lazarus & Folkman, 1984). It is an individual's performance on the outcome selected in the study (e.g., self-reported physical health and self-reported psychological well-being) that determines the effectiveness of the coping style. For the purposes of the present investigation, the coping strategies utilized include religious coping, positive coping, negative coping, social support, and avoidance coping, classifications that are based on previous empirical findings and recommendations (e.g., Ano & Vasconcelles, 2004; Carver, Scheier, & Weinbraub, 1989; Folkman & Moskowitz, 2004). With the exception of religious coping, each of these coping style categories incorporates several coping responses widely accepted by researchers in the coping field. It is important to note that individuals may utilize multiple coping strategies with regard to the stressors they encounter. For instance, an individual is not classified as being an "avoidant copier," but rather may utilize avoidance more frequently than positive coping.

*Coping Style Versus Coping Process.* Coping style is a conceptualization of coping that is contrasted with coping process. These terms are used interchangeably with dispositional coping and situational coping, respectively (Punamäki et al., 2008). Coping style, as a psychological variable for the present investigation, refers to an individual factor and habitual way of dealing with stressors that developed early in life (Carver & Scheier, 1994; Haan, 1969). In fact, it has been proposed that an individual's coping style may be related to his or her enduring personality traits (e.g., Carver & Scheier, 1994; Costa et al., 1991; Jang, Thordarson, Stein, Cohan, & Taylor, 2007). Coping styles are assumed to be relatively stable across time and situations (Aldwin, Yancura, &



Boeninger, 2007). Alternatively, coping processes involve situational states and are presumed to change from one situation to another depending on the nature and appraisal of a stressful encounter (Folkman & Lazarus, 1985). Both coping processes and coping styles are conscious and intentional (Cramer, 2000); however, coping styles also involve a level of unconscious mechanisms. The nature of the relationship between coping style and process is unknown (Punamäki et al., 2008). However, some researchers argue that they are overlapping concepts, with dispositional coping determining the choice of situational coping (Ayers, Sandler, West, & Roosa, 1996; Carver & Scheier, 1994; Ferguson, 2001).

This trait-state distinction is important when understanding subjective physical health and psychological well-being. Essentially, no gold standard exists for the measurement of coping (Folkman & Moskowitz, 2004). However, coping style measures identify the appraisals and responses to stressors that have developed over time (Carver & Scheier, 1994; Folkman & Moskowitz, 2004). Similarly, as stated previously, global self-rated health is not the sole result of one's current level of health, but rather is a dynamic evaluation, judging trajectory and the accumulation of processes during one's lifetime (Idler & Benyamini, 1997). Given that coping style and self-rated health measures assess evaluations that have developed over time, coping style measures serve as better indicators of SRPP as compared to coping process measures. Further, because coping styles are stable across diverse stressful situations, over the long term, they affect adaptational outcomes including SRPP (Costa et al., 1987; Folkman et al., 1986). The trait-type nature of coping styles disposes an individual to a general appraisal for how to

respond to stressors (Folkman & Moskowitz, 2004), which in turn disposes him or her to a general perception of physical health and psychological well-being. In fact, some have claimed psychological well-being is an enduring disposition itself (Diener et al., 1999; Ormel, 1983; Stones & Kozma, 1986). In summary, coping style focuses on environment more broadly as compared to those researchers examining the individual and situation or event (e.g., McCrae, 1984) related to coping processes.

*Coping Styles as a Predictor of SRPP.* Despite the shared measurement component of coping style and SRPP, namely that they both measure self-assessments that have developed over time, as compared to coping process and SRPP, a thorough review of the literature yields only one study that has examined the relationship between coping styles and SRPP from a multidimensional view (i.e., utilizing the SF-12 [Ware et al., 1996] or SF-36 [Ware et al., 1993]) for community-dwelling adults (Farley et al., 2005). This study explored the relationship between coping style and SRPP as measured by the SF-36 for non-Hispanic White, Mexican-citizen, and Mexican-Americans. Although socioeconomic status for the sample was not reported, poverty level was reported for the clinic through which this study was conducted. According to the study's authors, 96% of the patients served by the clinic lived below the 200% federal poverty line, and 67% lived below the 100% federal poverty line. Results indicated that, for all three ethnic groups, only one avoidance coping strategy – use of denial – was a significant predictor of psychological well-being; specifically, higher levels of avoidance coping were related to poorer psychological well-being. None of the other coping styles (i.e., denial, behavioral disengagement, self distraction, self blame, planning, active

coping, humor, acceptance, religion, positive reframing, emotional support, and instrumental support) predicted physical health and psychological well-being.

*Coping Processes as a Predictor of SRPP.* Unlike the Farley et al. (2005) study, most research on coping and SRPP does not involve relatively “healthy” community-dwelling adult populations, multidimensional measures of SRPP, or the examination of coping styles as a predictor of SRPP. Foremost, most research on coping and SRPP involves individuals dealing with specific (and usually severe) medical conditions (Park & Adler, 2003), and therefore little information is available about the effects of coping on SRPP among “healthy” general populations. Further, the research efforts focused on less-healthy populations typically assess SRPP using a single-dimension measure related to the condition of the participants. This approach is consistent with the overwhelming emphasis in the literature on negative states pertaining to aging and health (Diener et al., 1999; Rowe & Kahn, 1998). A focus on coping among “healthy” community-dwelling adults would contribute to research efforts focusing on successful aging and the positive contributions to SRPP. Even more prevalent in the literature is the use of coping processes to examine the relationship between coping and SRPP, rather than coping styles. Nonetheless, because the populations included in the existing literature are dealing with specific medical conditions or transient life issues, the demands and responses to situational stressors (i.e., health-, job-, relationship-related) pertaining to the condition or issue should be assessed in order to predict the physical or mental health outcome of interest. However, when examining a “healthy” adult population, understanding how one

generally responds or copes with stressors is most important for predicting the broader multidimensional view of physical health and psychological well-being.

Because limited information is available regarding the relationship between coping styles and SRPP for community-dwelling adults, an examination of the literature pertaining to coping processes and SRPP may aid in understanding the relationships between these constructs. Penley et al. (2002) conducted a meta-analytic review of 34 studies to examine the relationship between coping processes and self-reported and objective physical health and self-reported psychological well-being outcomes among community-dwelling adult samples with specific medical conditions and life issues. Interestingly, their results revealed few positive relationships between the coping processes and physical and mental health outcomes. The only category of coping to positively predict SRPP was positive coping, yet the relationships of the strategies within this category to SRPP were inconsistent. Specifically, self-control had a positive relationship with physical health, but all other strategies (i.e., problem-focused coping, planful problem solving, and positive reappraisal) were unrelated to physical health. Pertaining to psychological well-being, problem-focused coping positively predicted psychological well-being, self-control and positive reappraisal negatively predicted psychological well-being, and planful problem solving was not found to be related to psychological well-being. For the other categories of coping strategies in the meta-analysis, social support was found to negatively predict both SRPP, and avoidance coping and negative coping were negatively related to psychological well-being and were unrelated to physical health.

*A Comparison of Coping Styles and Coping Processes as Predictors of SRPP.* A comparison of the results from the Penley et al. (2002) meta-analysis and the Farley et al. (2005) study are presented in Table 1. Although both reviews examined different measurements of coping, the strategies they examined may be combined into the categories of positive coping, negative coping, social support, and avoidance. Foremost, for positive coping, Penley et al. assessed self-control, problem-focused coping, planful problem solving, and positive reappraisal, and Farley et al. assessed acceptance, active coping, planning, and positive reframing. Whereas Penley et al.'s findings were inconsistent across the positive coping processes they studied, the Farley et al. findings were clear that positive coping styles were unrelated to SRPP. Herein lies an important inconsistency for further exploration in the present study. With regard to avoidance coping, Penley et al. assessed distancing, escape avoidance, and wishful thinking, whereas Farley et al. assessed denial, behavioral disengagement, and self-distraction. All coping strategies were found to have no relationship with physical health. However, this is unexpected given previous researchers' suggestions that avoidance strategies may be detrimental to physical health (Lazarus, 1991). Interestingly, Penley et al. found the controllability of the stressor to moderate the relationship between distancing and physical health, so that distancing negatively predicted physical health when the stressor was controllable but not for uncontrollable stressors. Additionally, the findings for psychological well-being were inconsistent. Whereas all three avoidance coping processes in Penley et al.'s meta-analysis negatively predicted psychological well-being,

only the denial coping style in the Farley et al. study negatively predicted psychological well-being.

Inconsistencies were also found between these two investigations for the coping strategies of social support and negative coping. Pertaining to social support, the Penley et al. (2002) meta-analysis found this strategy, defined as one construct – seeking social support – to be negatively related to both physical health and psychological well-being, whereas the Farley et al. (2005) study found there to be no relationship for the two types of social support – emotional support and instrumental support – and SRPP. Once again, however, Penley et al. found controllability to moderate this relationship, so that seeking social support was negatively related to physical health and psychological well-being for controllable stressors but was unrelated for uncontrollable stressors. Finally, Penley et al. assessed negative coping strategies including confrontive coping, accepting responsibility, and self-blame, and Farley et al. assessed venting and self-blame. All of these strategies were consistently found to have no relationship to physical health. However, Penley et al. found each of the negative coping processes to negatively predict psychological well-being, whereas the Farley et al. study found no relationship between negative coping styles and psychological well-being.

Several possible explanations exist for the inconsistencies found for the results of these two investigations. First, the differences may be due to the type of coping strategies and measures employed, i.e., process vs. style. However, if the view that these concepts are overlapping, with dispositional coping determining the choice of situational coping (Ayers et al., 1996; Carver & Scheier, 1994; Ferguson, 2001) is accurate, this may not be

the most plausible explanation. Second, the inconsistencies may be the result of the measurements of physical and psychological well-being. In Penley et al.'s (2002) meta-analysis, most of the measurements were unidimensional and the physical health outcomes included objective measures in addition to subjective self-report measures. On the other hand, Farley et al. used the multidimensional SF-36 (Ware et al., 1993) to measure SRPP. Third, because it combines the results of many studies, a meta-analysis can provide a more accurate statistical conclusion and often yields results inconsistent with the results found in individual studies. Specifically, the meta-analysis conducted by Penley et al. yields an overall effect size after combining the individual correlation coefficients for the relationships found in 34 studies. A fourth possible contributor to the inconsistencies found in these studies, and the focus of the current investigation, is the role of poverty status. Farley et al.'s (2005) sample was composed primarily of individuals living below the poverty line. This sample characteristic may moderate the relationships between coping and SRPP (Baron & Kenny, 1986), thereby explaining the inconsistencies found in these two investigations. A more detailed investigation of poverty as a moderating variable will be reviewed in the following section.

*Religious Coping as a Predictor of SRPP.* Religious coping, not included in Penley et al.'s (2002) meta-analysis, received little attention in the psychological literature until relatively recently. According to Folkman and Moskowitz (2004), religious coping “has now become one of the most fertile areas for theoretical consideration and empirical research” (p. 759). This increased focus on religious coping is the result of a large body of research indicating religion plays an important role in the

stress process with regard to primary (Park & Cohen, 1993) and secondary appraisal (Folkman & Moskowitz, 2004; Seybold & Hill, 2001). Further, increasing evidence shows that religious involvement affects mental and physical health (Bergin, 1983; George, Ellison, & Larson, 2002; Powell, Shahabi, & Thoresen, 2003; Seybold & Hill, 2001; Thoresen & Harris, 2002). Although religious involvement is not synonymous with religious coping (Folkman & Moskowitz, 2004), individuals involved in religion often utilize active forms of coping pertaining to their religious and spiritual beliefs and practices (Baider et al., 1999; Holland et al., 1999). As such, some have theorized that religious coping serves as a mediator between religious and spirituality beliefs and physical health and psychological well-being (Park, 2007). Gallup polls show that 93% of Americans believe in God or a universal spirit, 90% pray, and 83% say religion is very or fairly important to them (The Gallup Organization, 2006). Thus, for many Americans, religious coping may be a prominent response to environmental stressors.

Ano and Vasconcelles (2005) conducted a meta-analysis of 49 studies examining the relationship between religious coping and psychological well-being. Although their operational definition of coping differed from the traditional literature on this topic, a close examination of studies included in the meta-analysis reveals that the measurement of religious coping included not only religious coping processes but also religious coping styles (e.g., Alferi, Culver, Carver, Arena, & Antoni, 1999). Nonetheless, similar to the Penley et al. (2002) meta-analysis, the psychological well-being outcomes utilized in the studies for this meta-analysis were unidimensional in focus and specific to “less-healthy” populations. Findings revealed that positive religious coping strategies (e.g., benevolent



religious reappraisals, collaborative religious coping, seeking spiritual support) were positively related to psychological well-being.

In contrast to the numerous studies that have examined the relationship between religious coping and self-reported psychological well-being, a survey of the literature examining religious coping style as a predictor of self-reported physical health reveals only two studies (Farley et al., 2005; Schwartz et al., 2003). Additionally, though the findings for psychological well-being indicate a positive relationship between religious coping and psychological well-being, Farley et al. and Schwartz et al. found no relationship to exist between religious coping style and self-reported physical health as measured by the SF-36 (Ware et al., 1993). The sample characteristics for socioeconomic status in these studies were mixed. Farley et al.'s participants were primarily below the poverty line, and Schwartz et al.'s participants were predominantly well-educated, employed, and of higher income levels.

#### *Summary of Findings for Age and Coping as Predictors of SRPP*

In summary, a review of the literature examining age as a biological predictor of SRPP and coping as a psychological predictor of SRPP reveals important findings for the purposes of the present study. Pertaining to the first examination between age and SRPP, age has a consistently negative relationship with self-reported physical health. However, few studies have examined this relationship for American samples. The present investigation seeks to support previous findings for an American sample and hypothesizes that age will negatively predict self-reported physical health. In contrast to these findings for physical health, inconsistencies are found for the relationship between

age and self-reported psychological well-being. Some studies indicate more positive reports of psychological well-being with increased age, whereas others indicate no difference with increased age. Interestingly, the two studies finding no relationship were composed of lower education American samples. As such, socioeconomic status indicators may influence the relationship between age and self-reported psychological well-being for an American sample. The following section will review support for the hypothesis that poverty status, one indicator of socioeconomic status, serves as a moderator of the relationship between age and self-reported psychological well-being.

In regards to the second examination between coping and SRPP, only one known study has examined the relationship between coping styles (i.e., positive coping, negative coping, social support, and avoidance coping) and SRPP. A comparison of this study's results to the results of a meta-analysis examining the relationship between coping processes and physical health and psychological well-being reveals a number of inconsistencies important to the present investigation. As shown in Table 1, the results for all four coping categories of positive coping, negative coping, social support, and avoidance coping, were inconsistent between the two studies for physical health and psychological well-being, with the exception of negative coping for physical health (i.e., both studies found no relationship between negative coping and physical health). A similar pattern emerged in the literature for coping as a predictor of SRPP as was observed in the literature for age as a predictor of self-reported psychological well-being. For the studies finding no relationship between age and psychological well-being, participants were composed of less educated Americans. Similarly, participants in the

Farley et al. (2005) study finding few significant relationships between coping styles and SRPP were composed primarily of individuals living below the poverty line. Given these inconsistent findings, the present study will investigate poverty status as a moderator of the relationship between the coping style categories of positive coping, negative coping, social support, avoidance coping and SRPP. Findings for the relationship between religious coping and SRPP consistently indicate that religious coping positively predicts self-reported psychological well-being, and religious coping is unrelated to self-reported physical health. The present study will seek to replicate and extend these findings.

#### *Poverty Status as a Moderator*

*Moderation.* Moderation is identified as an interaction between the independent variable and a second independent variable (the moderating variable) to influence the dependent variable of interest (Frazier et al., 2004). Moderating variables are most often introduced in research when an inconsistent relation and/or, unexpectedly, no main effect are found for a particular relationship (Baron & Kenny, 1986; Frazier et al., 2004). Both of these conditions have been met for the current investigation. In social and psychological research, a moderating effect frequently determines “what” or “for whom” a variable most strongly predicts an outcome variable (Frazier et al., 2004). Pertaining to the present study, for example, the effect of age on self-reported psychological well-being may depend on the poverty status of the individual. In other words, age may positively predict self-reported psychological well-being for individuals above the poverty level. However, for individuals below the poverty level, no relationship may exist between age and psychological well-being. In this case, poverty status serves as the condition under

which the strength of the effect of age on self-reported psychological well-being varies (Baron & Kenny, 1986). The present study examines poverty status as a moderator of the relationship between age and self-reported psychological well-being and also the relationship between various categories of coping styles and SRPP.

*Poverty in the United States.* Poverty, as a social variable in the present investigation, represents an important indicator of socioeconomic status. In general, measures of socioeconomic status are meant to provide information about an individual's access to social and economic resources. Poverty has been defined as "the extent to which an individual does without resources," including financial, emotional, mental, spiritual, physical and support systems (Payne, 2003, p. 16). The poverty line is widely used to monitor the economic well-being of a society (Brooks-Gunn, Duncan, & Aber, 1997; Moore & Redd, 2002) and helps to identify sub-groups of people who may be at risk for disadvantages or negative outcomes (Moore, Vandivere, & Redd, 2006). The definition of poverty is a social construct, and therefore it differs by country. Some wealthier countries use absolute and relative income measures (e.g., household income below 60 percent median household income adjusted for household size and composition, as used in Britain), and middle and low-income countries use indicators based on housing quality, access to amenities, and ownership of assets (such as land, animals, and farming materials; Graham, 2007). In the United States, the world's richest country (Graham, 2007), poverty is defined by a composite of family income, family size, and ages of the family members (U.S. Census Bureau, 2008a).

Despite the image of the United States as the most affluent country in the world (Rank, 2004), its rate of poverty is among the highest of all industrialized nations (Graham, 2007). In 2007, 37.3 million or 12.5% of people lived below the poverty threshold (U.S. Census Bureau, 2008b). This figure has remained relatively stable over the past 30 years (DeNavas-Walt, Proctor, & Lee, 2006), although it has improved significantly from figures as low as 22.2% from the late 1930s to 1970s (Ross, Danziger, & Smolensky, 1987). The majority of individuals living in poverty in the United States are found in urban areas (Jargowsky, 1997; Jennings, 1994; Wolf, 2007), with some figures estimating that 85% of high-poverty neighborhoods (i.e., those with poverty rates of at least 40 percent) are located in metropolitan areas (Jargowsky, 1997). In 1999, the poverty rate of central cities was 16.4, compared to 8.3 percent in suburban areas (U.S. Bureau of the Census, 2000). It is this urban poverty population that is the focus of the current investigation.

*Theoretical Positions on the Origins of Urban Poverty.* Four major sociological theories explain the origins of urban poverty (Wolf, 2007): social stratification (including segregation and racism; e.g., Gould, 1999; Harrington, 1962), lack of access to social capital (e.g., Coleman, 1988; Rankin & Quane, 2000), cultural and value norms (e.g., Jencks, 1992; Rodman, 1963), and social policies (Murray, 1984; Piven & Cloward, 1993). Wolf recently integrated these theories into a conceptual framework that aids in the understanding of how the social environment impacts the poor's well-being and the resulting attitudes and behaviors among the poor, particularly for African Americans (see Figure 1). According to Wolf, the framework for understanding the sociological concept

of urban poverty begins with the structural force of racism inherent in the U.S. culture. Racism, in turn, leads to residential segregation in inner-city neighborhoods, and both racism and segregation impact the number of jobs in urban areas. Limited job availability consequently leads working and middle-class African-Americans to migrate out of the inner-city neighborhoods, which in combination with racism and residential segregation results in social isolation among the poor who remain in the city. Finally, the socially isolated poor lack access to connections with human and social capital, which in turn results in a change in community values and aspirations for these individuals. Given its relevance to the present study, the latter path between lack of human and social capital and changes in values and aspirations is reviewed in greater detail.

One major sociological theory states that a lack of access to social capital is a primary contributor to poverty (e.g., Coleman, 1988; Rankin & Quane, 2000). Social capital encompasses not only financial resources (Loury, 1981), but also the strength and trust of interpersonal relationships within families and neighborhoods (Coleman, 1988). The intergenerational transfer of social capital experienced by families and communities is a main focus of this theory (Wolf, 2007), with poverty conceptualized as being handed down from one generation to the next as a result of income inequality and the lack of a redistributive welfare system in America (Jennings & Kushnick, 2004; Loury, 1981). The majority of individuals living in poverty in U.S. urban settings fall into the category of generational poverty (Harrington, 1962; Portes, 1998), which refers to those individuals living in poverty for two generations or longer (Payne, 2003). Situational poverty, on the other hand, refers to a shorter period of time and is caused by circumstance (i.e., death,

illness, divorce, etc.; Payne, 2003). Although both the financial resources and social resources passed down from one generation to the next might be assumed to be lacking for individuals experiencing generational poverty (e.g., Payne, 2003), researchers have unexpectedly found that individuals living in high-poverty neighborhoods are more socially active and engage in community participation to a greater extent than individuals living in wealthier neighborhoods (Rankin & Quane, 2000; Wilson, 1987). Some researchers state this finding suggests a limitation to the theory (Wolf, 2007). However, as consistent with the contextual approach to coping and positive psychology (Folkman & Moskowitz, 2003; Nelson & Cooper, 2005), social support as a resource and coping strategy may be a strength that is highly valued among individuals living in poverty (Sousa & Eusébio, 2005).

In Wolf's (2007) framework, limitations in social capital among the inner-city poor impact the values and aspirations of those living in generational poverty. The proponents of the sociological theory who highlight cultural and value norms as contributors to poverty (e.g., Jencks, 1992; Rodman, 1963) state that, for individuals not born into economic privilege, high tolerance for traditionally deviant behaviors and low educational and financial aspirations (Harrington, 1962; Wolf, 2007) are rational accommodations to the circumstances in their failing communities (Gould, 1999; Harrington, 1962). Another distinctive perception among individuals in generational poverty is that their situation is viewed as uncontrollable (Bullock, 1999; Bullock & Limbert, 2003). This perception among individuals living in poverty has important implications for several of the hypotheses pertaining to poverty as a moderator in the

present study. Living in generational poverty in an urban setting is not a temporary or situational stressor, but rather a stable stressor that is deemed uncontrollable.

Because individuals in generational poverty experience their situation as uncontrollable, they may be more likely to utilize different methods of coping with their life circumstances. For instance, it has been demonstrated that individuals with lower income, education, and occupational status, additional indicators of socioeconomic status, are more likely to utilize avoidance coping as compared to individuals of higher standing in these areas (Billings & Moos, 1981; Holohan & Moos, 1987; Menaghan & Merves, 1984). Avoidance coping, characterized by active attempts to evade confronting the problem, is typically viewed as a maladaptive coping strategy (Billings & Moos, 1981) and therefore likely to negatively impact physical health. Nonetheless, it has been widely accepted that, for individuals facing limited financial resources (e.g., living below poverty level), engaging in avoidance may be adaptive (Baltes & Baltes, 1990; Heckhausen & Schulz, 1995) in order to maintain control in an environment characterized by more severe, wide-ranging losses (Freund, Li, & Baltes, 1999). As such, avoidance coping may be better viewed as a psychological resource (Freund et al., 1999; Ouwehand et al., 2007; Ptacek & Gross, 1997; Somerfield & McCrae, 2000; Wood et al., 2007) for individuals living in poverty.

*The Relationship Between Poverty and SRPP.* To understand whether poverty status interacts with age and coping to predict SRPP, it is important to examine how the moderator is related to the outcome variables of interest. According to Idler and Benyamini (1997), self-rated health reflects the presence or absence of resources that can



attenuate decline in health. As such, poverty status in the present investigation is an important social resource that may influence SRPP for community-dwelling adults (Conger & Donnellan, 2007; Freund et al., 1999). Although no known research has examined the direct relationship between poverty and a multi-dimensional measure of SRPP among community dwelling adults, several studies have examined other indicators of socioeconomic status as predictors of SRPP. However, only one study utilized an American sample (Gallo et al., 2006). Gallo et al., using the SF-12, found that greater education positively predicted scores on all subscales except social functioning and vitality. As such, education predicted self-reported physical health, but the results for psychological well-being were mixed. The two remaining studies utilizing Norwegian and Australian samples found that greater education predicted higher SRPP for all subscales (Loge & Kaasa, 1998), and greater income positively predicted SRPP for all subscales except the mental health scale (Watson et al., 1996).

Additional research has examined socioeconomic status indicators as predictors of unidimensional measures of physical health and psychological well-being. Moore, Adler, Williams, & Jackson (2002) found that neither education nor income served as a direct predictor of psychological distress or physical health. Nonetheless, the psychological health measure focused primarily on mental health symptoms, and the physical health measure was composed of a single-item asking the participant to rate their overall health. One study found individuals living in poverty in Mexico were more likely to report lower subjective well-being in various areas of life as compared to less-poor individuals (Lever, Piñol, & Uralde, 2005). Two additional studies found greater education, income, and

occupational status positively predict health status (Denton & Walters, 1999) and negatively predict depression (Biafora, 1995).

A number of studies have also examined odds ratios for different groups of income, education, and occupational status to predict unidimensional measures of SRPP. Investigations for non-American samples indicate that individuals with greater education have a lower risk of rating their health as poor or very poor as compared to those with less education (Bobak, Pikhart, Hertzman, Rose, & Marmot, 1998), and individuals who have basic education and are unemployed have a greater risk for poor mental health as compared to those who have a higher level (i.e., tertiary) of education and are employed (Talala, Huurre, Aro, Martelin, & Prattala, 2007). Further, those with lower income have a greater risk for fair or poor self-rated health as compared with individuals with higher income (Shibuya, Hashimoto, & Yano, 2002). Based on these findings, it appears higher levels of socioeconomic status (e.g., income, occupation, education) are generally related to a greater risk of positive self-reports of physical health and psychological well-being.

*Moderation Hypothesis for Age as a Predictor of Self-reported Psychological Well-being.* Recall that the findings for age as a predictor of self-reported psychological well-being were inconsistent. Whereas some research found age to positively predict psychological well-being, other studies found no relationship. As stated previously, the two studies finding no relationship between age and psychological well-being were composed of lower-education American samples. Given the research indicating that income, education, and occupation generally serve as positive predictors of self-reported psychological well-being, it may be the case that poverty status have a buffering effect

(Frazier et al., 2004). In other words, age positively predicts psychological well-being for individuals above the poverty level. However, for individuals below the poverty level, there is no relationship between age and self-reported psychological well-being.

No known studies have examined poverty status as a moderator of the relationship between age and self-reported psychological well-being. However, one study examined the interaction between age and education, an additional indicator of socioeconomic status, and its relationship to self-reported physical health as measured by the SF-36 and a depression scale among community dwelling adults (Marmot & Furher, 2004). Despite using only a unidimensional measure for psychological well-being (i.e., depression), a significant interaction effect was found between age and education for women only. However, no follow-up tests were conducted, and therefore the nature of the interaction is unknown. Further, similar to other studies examining age differences in SRPP, this study dichotomized age into three groups, 25-39, 40-59, and 60-74, and therefore the power to detect the interaction for men was likely attenuated. Nonetheless, this preliminary finding indicates poverty status as an indicator of socioeconomic status may be an important moderator to examine for the relationship between age and self-reported psychological well-being.

*Moderation Hypotheses for Coping as a Predictor of SRPP.* The majority of the findings for coping as a predictor of SRPP were also inconsistent. Pertaining to positive coping, findings for the Farley et al. study, which was composed primarily of individuals living below the poverty line, were clear: positive coping was unrelated to SRPP. In contrast, the findings for positive coping in Penley et al.'s meta-analysis were less clear.

For physical health, one strategy – self-control – was found to positively predict physical health, and all others yielded no relationship to physical health. Nonetheless, because the present study does not examine self-control in its measure of positive coping, it is hypothesized that for individuals above poverty level, just as for individuals below poverty level, there will be no relationship between positive coping and physical health. For psychological well-being, however, Penley et al. found one positive coping strategy to positively predict psychological well-being, two positive coping strategies to negatively predict psychological well-being, and one other positive coping strategy was unrelated to psychological well-being. Because these findings are unclear, poverty status as a moderator of the relationship between positive coping and psychological well-being will be explored. No hypothesis will be made regarding this relationship.

For the category of negative coping, results indicated that the relationship between negative coping and physical health were clear, whereas the relationship between negative coping and psychological well-being were inconsistent. Pertaining to the former relationship, both studies indicated negative coping was unrelated to physical health. Therefore, no moderation effects will be examined for the relationship between negative coping and physical health. On the other hand, findings for psychological well-being indicated that negative coping processes were negatively related to psychological well-being in the Penley et al. meta-analysis, whereas the Farley et al. study found no relationship between negative coping styles and psychological well-being. As consistent with these findings, it is hypothesized that no relationship will be found between negative coping and psychological well-being for individuals below poverty level, and for

individuals above poverty level the category of negative coping will negatively predict psychological well-being.

Pertaining to social support, Farley et al. found there to be no relationship between social support coping style and both SRPP. However, Penley et al. found social support as a coping process to negatively predict physical health and psychological well-being. Interestingly controllability moderated this relationship, such that seeking social support was negatively related to physical health and psychological well-being for controllable stressors but not for uncontrollable stressors. This further supports poverty status as a moderator of the relationship between social support and SRPP because, as previously reviewed, living in poverty is often viewed as a stressor that is uncontrollable from the perspective of the individual (Bullock, 1999; Bullock & Limbert, 2003). Given these previous findings, it is hypothesized that for individuals below poverty level there will be no relationship between social support and SRPP, and for individuals above poverty level social support will negatively predict SRPP.

A similar pattern emerged for avoidance coping with regard to controllability as a moderator in the Penley et al. (2002) study. Avoidance coping was found to be unrelated to physical health for both studies. However, once again controllability moderated the relationship for the Penley et al. finding, so that distancing negatively predicted physical health when the stressor was controllable but not for uncontrollable stressors. Therefore, despite the overall findings for no relationship between avoidance coping and physical health, an exploratory analysis for poverty status as a moderator of this relationship will be conducted in the current study. No hypothesis for this relationship will be presented.

The findings for psychological well-being were inconsistent. Avoidance coping was found to negatively predict psychological well-being for the Penley et al. meta-analysis. However, only denial was found to negatively predict psychological well-being in Farley et al.'s study. The two other avoidance strategies – behavioral disengagement and self-distraction – were not found to predict psychological well-being. Qualitatively, it is important to note that denial was the only strategy in the Farley et al. study found to be significantly related to SRPP. Nonetheless, given that the majority of avoidance strategies were unrelated to psychological well-being, it is hypothesized that avoidance coping will be unrelated to psychological well-being for individuals below poverty level, and avoidance coping will negatively predict psychological well-being for individuals above poverty level. In other words, avoidance coping would serve as a protective factor for community-dwelling adults in poverty. In support of this hypothesis, Penley et al. suggest that the inconsistencies between the nonsignificant relationship found in their meta-analysis between distancing and physical health and previous research (e.g., Lazarus, 1991) findings that distancing, as well as other avoidance coping strategies, is negatively related to physical health may be due to moderating factors including socioeconomic status. See Table 2 for a review of the hypotheses for the present study.

## CHAPTER III

### Method

#### *Participants*

Participants included 3724 community-dwelling adults aged 30 – 64 years ( $M = 47.73$ ,  $SD = 9.34$ ) drawn from 12 pre-determined census tracts in Baltimore City, Maryland and sampled representatively across a wide range of demographic variables. Those participants above the 125% threshold in the present study were identified as above poverty ( $n = 2187$ ), and participants below this level were identified as below poverty ( $n = 1537$ ). Participants included 1695 men and 2028 women (1 participant did not indicate gender), and 2201 identified as African American and 1523 as White. For the categorization of race, individuals identifying as multi-ethnics were included and categorized by the group with which they most strongly identified. Multi-ethnic individuals who identified strongly with neither African Americans nor Whites were excluded from the present study. Years of education ( $M = 12.17$ ,  $SD = 2.65$ ) ranged from 1 (i.e., first grade) to 19 (i.e., professional or technical graduate degree including Ph.D., M.D., J.D). Nineteen hundred fifteen participants endorsed affiliation with a religious group, and 1714 reported no affiliation with a religious group. Ninety-five participants did not report this information.

#### *Measures*

*Demographic Questionnaire.* A demographic questionnaire, as part of the household in-home interview, was used to obtain participants' date of birth, sex, race, education, family income, family size, ages of family members, and religious affiliation.

Even though previous research has primarily examined age group differences in SRPP, no rationale has been given for using these age groupings. Further, artificially dichotomizing continuous variables or identifying age groups results in a loss of information about individual differences, reduction in power to detect interaction effects, and spurious significant interactions (Frazier et al., 2004; MacCallum et al., 2002). In contrast, retaining the true nature of continuous variables results in fewer Type I and Type II errors for detecting moderator effects as compared to procedures that involve the use of artificial groups (Bissonnette, Ickes, Bernstein, & Knowles, 1990; Mason, Tu, & Cauce, 1996). Therefore, the present study examined age as a continuous predictor.

Poverty status was determined by 125% poverty threshold according to the 2000 Census. To determine poverty level, the U.S. Census Bureau (2008a) uses a set of money income thresholds (before taxes and excluding capital gains and noncash benefits such as food stamps) that vary by family size and ages of the family members. If a family's total income is less than the family's threshold based on the family size and ages of members, then that family and every individual in it is considered in poverty (U.S. Census Bureau, 2008a). According to the U. S. Census Bureau (2006), the 2000 poverty threshold for an adult under 65 years of age living alone was \$8,959, for a two-person household including one individual under 18 years was \$11,869, and for a three- and four-person household including one and two individuals under 18 years, respectively, was \$13,861 and \$18,052. A 125% poverty threshold, or the dollar amount used to determine poverty status, refers the threshold amount multiplied by 1.25. In the year 2000, 15.6% of the U.S. population was below 125% poverty threshold (U.S. Census Bureau, 2008b).



*Brief COPE.* The Brief COPE (Carver, 1997) is a 28-item, Likert-type self-report measure of both adaptive and maladaptive coping skills derived from the original COPE Inventory (Carver et al., 1989) and based on the Lazarus and Folkman (1984) model of stress and the Carver and Scheier (1981, 1990) model of behavioral self-regulation. The measure contains 14 subscales of two items each. Items were framed to assess an individual's dispositional rather than situational coping style, beginning with the phrase "When I am confronted with a difficult or stressful event,": (1) self-distraction (e.g., "I usually turn to work or other activities to take my mind off of things."), active coping (e.g., "I usually concentrate my efforts on doing something about the situation."), denial (e.g., "I usually say to myself, "This isn't real.""), substance use (e.g., "I usually use alcohol or other drugs to make myself feel better."), use of emotional support (e.g., "I usually get emotional support from others."), use of instrumental support (e.g., "I usually get help and advice from other people."), behavioral disengagement (e.g., "I usually give up trying to deal with it."), venting (e.g., "I usually say things to let my unpleasant feelings escape."), positive reframing (e.g., "I usually try to see it in a different light to make it seem more positive."), planning (e.g., I usually try to come up with a strategy about what to do."), humor (e.g., "I usually make jokes about it."), acceptance (e.g., "I usually accept the reality of the fact that it has happened."), religion (e.g., "I usually try to find comfort in my religion or spiritual beliefs."), and self-blame (e.g., "I usually criticize myself."). The items for the Brief COPE were framed to assess an individual's dispositional coping style, i.e., what an individual typically does when confronted with a difficult or stressful event. Responses were scored as 0 - "I usually don't do this at all," 1

- “I usually do this a little bit,” 2 - “I usually do this a medium amount,” and 3 - “I usually do this a lot.”

Internal consistency estimates for all subscales of the Brief COPE were reported by one study (Carver, 1997) on a convenience sample of 168 community residents participating in a study of recovery after Hurricane Andrew across three time points (baseline, six months, and one year). Cronbach coefficient alphas averaged across the three administrations in the Carver study were .71 for self-distraction, .68 for active coping, .54 for denial, .90 for substance abuse, .71 for using emotional support, .64 for using instrumental support, .65 for behavioral disengagement, .50 for venting, .64 for positive reframing, .73 for planning, .73 for humor, .57 for acceptance, .82 for religion, and .69 for self-blame. The primary reason for the lack of reported coefficient alphas for all subscales is because the majority of research utilizing the Brief COPE has selected one to three subscales specific to the variables of interest for their adult samples (e.g., Grant & Langan-Fox, 2007). According to the developer of the measure, this is considered an appropriate use of the Brief COPE inventory (Carver, 1997). Additional studies have utilized principal components analysis (e.g., Jacobson, 2005) and confirmatory factor analysis (e.g., David & Knight, 2008), and results have yielded various combinations of the 14 subscales. Carver (2007) recommends using data from each unique sample to re-determine the composition of higher-order factors for use in further research.

The subscales or higher-order factors derived from the factor analysis conducted in the current study were used as the independent variables in the path model, instead of

the individual items loading on latent variables, given that the religious coping, substance use coping, and humor coping subscales are each composed of two items or indicators.

Two indicators per factor in structural equation modeling may lead to estimation problems including a threat of empirical underidentification (Kenny, 1979). At least three indicators per factor are optimal for model identification (Bollen, 1989). Seven subscales from the Brief COPE were derived from a previously conducted exploratory factor analysis (Carr, Zonderman, Evans, & Kitner-Triolo, 2008) on a subset of the data for the sample utilized in this study: positive coping, negative coping, social support, avoidance coping, religious coping, substance use coping, and humor coping. For the present study, a confirmatory factor analysis was conducted on the Brief COPE to confirm the fit of the exploratory factor structure to the data for the larger sample used in this study.

Convergent and discriminant validity has been demonstrated for the original COPE for measures pertaining to optimism, control, self-esteem, hardiness, Type A personality, monitoring, and trait anxiety (see Carver et al., 1989).

*The Short-Form Health Survey (SF-12).* The SF-12 (Ware et al., 1996) is a 12-item, Likert-type inventory derived from the original Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36; Ware et al., 1993) and is regarded as the most widely used self-reported physical and mental health status measure (Jenkinson et al., 2001). Summary scores for physical health and mental health, represented by the physical component summary score (PCS; domains 1 – 4) and mental component summary score (MCS; domains 5 – 8), were devised from eight health-related domains: (1) physical functioning (2 items; e.g., Does your health now limit you with moderate activities such

as moving a table, pushing a vacuum cleaner, bowling or playing golf?); (2) role-physical, i.e., role limitations due to physical problems (2 items; e.g., During the past 4 weeks, have you accomplished less than you would like because of your physical health?); (3) bodily pain (1 item; i.e., During the past 4 weeks, how much did pain interfere with your normal work, including both work outside the home and housework?); (4) general health (1 item; i.e., In general, would you say your health is...); (5) mental health (2 items; e.g., How much time during the past 4 weeks have you felt calm and peaceful?); (6) role-emotional, i.e., role limitations due to emotional problems (2 items; e.g., During the past 4 weeks, have you accomplished less than you would like because of any emotional problems?); (7) social functioning (1 item; i.e., During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities [like visiting friends, relatives, etc.]); and (8) vitality (1 item; i.e., How much time during the past 4 weeks did you have a lot of energy?).

Unequal interval scores for the 12 items within the eight domains were adopted for SF-12 in order to maintain maximum comparability with the interpretation guidelines for SF-36 versions of PCS and MCS (Ware et al., 1996). For instance, physical functioning scores range from 0 (limited a lot) to 2 (not limited), whereas the social functioning score ranged from 0 (all of the time) to 4 (none of the time). As recommended by the developers of the SF-12 (Ware et al., 1996), the PCS and MCS scores are transformed to t-scores and have a mean of 50 and a standard deviation of 10. The minimum possible score is 0, and the maximum possible score is 100. Higher scores

represent better self-reported health. This measure is intended to be self-administered in two minutes or less by most respondents (Ware et al., 1996).

The reliability and validity of the SF-12 in the general U.S. population have been well documented (e.g., Ware et al., 1996). Internal consistency estimates have been found to range from .77 to .80 for PCS and .78 to .80 for MCS (Larson et al., 2008; Luo et al., 2003). Cronbach's alpha will also be computed for the PCS and MCS scores for this sample. Test-retest reliability coefficients of the PCS and MCS summary measures administered two weeks apart were found to be .89 and .76, respectively (Ware et al., 1996). Convergent validity has been demonstrated for the SF-12 summary scales of PCS and MCS with the SF-36 versions of PCS and MCS (Larson et al., 2008; Ware et al., 1996); in one study, correlations between SF-12 and SF-36 versions of PCS and MCS were found to be 0.951 and 0.969, respectively (Ware et al., 1996). Additionally, convergent validity has been demonstrated between PCS and MCS with measures of general health, stress, and depression (Luo et al., 2003), and between PCS and measures of activities of daily living, and MCS and measures of anxiety (King, Horowitz, Kassam, Yonas, & Roberts, 2005). Further, PCS-12 and MCS-12 have been found to be weakly correlated ( $r = 0.06$ ) with each other, thus demonstrating the independence of these scales (Ware et al., 1996).

### *Design*

The National Institute on Aging Intramural Research Program's Healthy Aging in Neighborhoods of Diversity Across the Life Span (HANDLS; Evans et al., in press) study is a multidisciplinary, prospective community-based epidemiologic longitudinal

study examining the influences and interactions of race and socioeconomic status (SES) on health in an urban population. Multi-stage sampling was utilized, whereby 12 pre-determined census tracts or clusters in Baltimore City were selected from the state of Maryland. Next, a recruitment and sampling contractor produced household listings for residential dwellings in each of 12 pre-determined census tracts. The contractor then performed doorstep interviews, identified eligible persons in each household, selected one or two eligible persons per household, and invited them to participate in the HANDLS study. Eligibility criteria included the following: age 30-64 years, able to provide informed consent, able to complete at least five measures administered in the baseline assessment, and possession of valid picture identification. Exclusion criteria included those individuals who were pregnant and within six months of active treatment of cancer (e.g., chemotherapy, radiation). Participants were sampled representatively across the ages of 30 and 64 years, among African Americans and Whites, men and women, and lower and higher SES (i.e., below and above 125% poverty status), and this initial sample served as a fixed cohort. The cross-sectional factorial design includes the four demographic variables of age, SES (i.e., 125% poverty status), sex, and race with approximately equal numbers of subjects per cell.

HANDLS is planned as a 20-year longitudinal study. Baseline assessment occurred in November 2004, and census tracts will be visited in a 3-year cycles for three months for a total of five follow-up assessments. At baseline, approximately 35% of households in each census tract were visited to collect the required 335 individuals to obtain an initial sample of 4,000 participants based on power analyses and assumptions

about attrition over 20 years. For a power of 80% and moderate effect size and given an anticipated attrition rate of 20% at baseline and 15% between subsequent assessments, it is expected that the necessary sample size of 1,680 will be obtained after approximately 20 years. At present (November 2008), the first follow-up assessment was in the process of being conducted. As such, for the purposes of this study, only baseline data were available for analysis.

### *Procedure*

Once participants were successfully recruited to participate in the HANDLS study and provided informed consent, baseline data collection included two phases: the household interview phase and medical research vehicle examination phase; all participant visits occur in the field. The first phase of the participant examination was conducted in a household in-home interview and included questionnaires regarding demographic information (e.g., date of birth, socioeconomic variables, sex, race) and the SF-12. The second phase of the examination was collected on mobile medical research vehicles with computer facilities inside the vehicles, and the examination included the Brief COPE measure. Participants wore headphones and were provided with questions read aloud from the Brief COPE on a computer in the medical research vehicle. Participants responded by pressing a number corresponding with their answer on the computer screen. As an incentive for participating in this study, participants received \$100 in the form of an ATM debit card at the end of the second phase visit. All data were kept in medical charts in locked file cabinets, and all clinical research forms were filed in locked file cabinets and kept within a locked medical record room.

In order to fully develop the methodology and logistical aspects for HANDLS, a pilot phase was developed prior to baseline data collection using a sample of convenience. According to the principal investigators (Evans et al., in press), Wave 1 and Wave 2 of the HANDLS pilot phase was successful in addressing its primary goal to assess the feasibility of conducting a community-based study using a mobile medical research vehicle; detailed planning involving staffing, security, permitting, water access, power supply; recruitment and retention techniques; and administration of research instruments. Additionally, the pilot phase was successful in collecting preliminary data to expand understanding about the possible causes of health disparities in the African American community and the effect of race and SES (i.e., 125% poverty threshold) on health.

#### *Statistical Analysis Plan*

*Confirmatory Factor Analysis.* In a previous exploratory factor analysis (Carr et al., 2008) using a subset of the data utilized in this study, seven subscales from the Brief COPE were derived: (1) positive coping, (2) negative coping, (3) social support, (4) avoidance coping, (5) religious coping, (6) substance use coping, and (7) humor coping. In the present study, a confirmatory factor analysis (CFA) was conducted on the Brief COPE to confirm the fit of the previously obtained exploratory factor structure to the data for the larger sample used in this study (see Figure 2). The baseline measurement model represents an independent clusters model whereby each of the 28 observed variables loads on only one of the 7 factors (McDonald & Ho, 2002). The measurement model was identified by the two-indicator rule (Bollen, 1989) with 329 degrees of freedom. The



CFA was assessed in Amos version 17.0 (Arbuckle, 2008) using the full information maximum likelihood (FIML) estimation method.

*Path Analysis.* Path analysis was used to test a model incorporating the relationships hypothesized in this study (see Figure 3). The model was analyzed in Amos version 17.0 (Arbuckle, 2008) using the FIML estimation method. Path analysis was used because of its unique ability to test an entire set of regression analyses simultaneously, estimate error variances, and provide measures of model fit (Schumacker & Lomax, 2004). Path analysis also enables the examination of moderator effects through the use of multiple-group models (Bollen, 1989). In the present study, the use of multiple-group analysis entailed specifying a series of progressively more restrictive path models, following Bollen's (1989) recommendations. Three nested path models allowed for an examination of the present study's hypotheses regarding main effects and moderation effects: 1) an initial baseline model B to examine model fit to the data, 2) a more restrictive model, B<sub>1</sub>, incorporating the five hypothesized main effects, and 3) a second more restrictive model, B<sub>2</sub>, to test for the seven moderation effects.

As an initial baseline model, model B specified the same model form for individuals above poverty and individuals below poverty, but allowed all paths to differ by poverty level. Obtaining good fit for this baseline model B indicates that it is appropriate to move on to testing the next, more restrictive model, B<sub>1</sub>. Model B<sub>1</sub> tests the five main effects hypotheses together, rather than individually; thus, each of the five paths hypothesized to be equal across poverty group (i.e., the main effects) are set to equality. These paths included the relationships between age and PH, positive coping and

PH, negative coping and PH, religious coping and PH, and religious coping and PW. In this model, each of the other paths are allowed to differ for individuals above poverty and individuals below poverty. Comparing this more restrictive model to the baseline model tests whether the paths hypothesized to be equal across poverty levels (i.e., main effects) were equal or not. In other words, if the chi-square difference test comparing the fit of model B and model B<sub>1</sub> is not statistically significant, indicating no significant change in model fit, then the constraints that these paths were equal for individuals above poverty and individuals below poverty would not be rejected: in other words, the main effects hypotheses of model B<sub>1</sub> would be supported. However, if the chi-square test for the model comparison were significant, indicating that the more restrictive model B<sub>1</sub> fit significantly worse than baseline model B, then B<sub>1</sub> (i.e., the main effects hypotheses) would be rejected.

The second more restrictive model, B<sub>2</sub>, would provide an overall test of the seven moderation effects hypotheses. In model B<sub>2</sub>, all the paths hypothesized to differ for individuals above poverty and individuals below poverty (i.e., moderation effects) would be constrained to equality across poverty groups. These paths included the relationships between age and psychological well-being (PW), positive coping and PW, negative coping and PW, social support and PW, social support and physical health (PH), avoidance coping and PW, and avoidance coping and PH. Because model B<sub>2</sub> is nested within the previous two models, the constraints set in B<sub>1</sub> would remain for model B<sub>2</sub> assuming model B<sub>1</sub> in the previous step was not rejected. In other words, if the main effects hypotheses were supported, the equality constraints set in model B<sub>1</sub> for the paths

hypothesized to be equal across poverty level would remain for the model testing of B<sub>2</sub>. As a result, all paths in model B<sub>2</sub> are constrained to equality, and model B<sub>2</sub> is compared to model B<sub>1</sub> to test for moderation. On the other hand, if model B<sub>1</sub> were rejected in the previous model comparison, then model B<sub>2</sub> would not include the main effects constraints from model B<sub>1</sub>, and model B<sub>2</sub> would be compared to the baseline model B to test for moderation. This second more restrictive model B<sub>2</sub>, when compared to either the baseline model or model B<sub>1</sub>, would determine whether the paths hypothesized to differ by poverty level (i.e., moderation effects) were indeed significantly different. If a model comparison revealed that the additional constraints of model B<sub>2</sub> do not significantly change the fit of the model, then the constraints that these paths were equal for individuals above poverty and individuals below poverty would not be rejected. The paths would be set to equality in this final model, and the moderation effects hypotheses would not be supported. However, if the model comparison revealed that model B<sub>2</sub> fit significantly worse than model B or B<sub>1</sub>, then model B<sub>2</sub> would be rejected, and the paths would be allowed to differ, supporting the hypothesis of moderation.

As shown in Figure 5, the path model for the current study specified a model composed of 12 observed variables including 10 exogenous or predictor variables (i.e., age, religious coping, avoidance coping, negative coping, social support, positive coping, humor coping, substance use coping, gender, and race) and 2 endogenous or outcome variables (i.e., physical health and psychological well-being). Gender (male/female) and race (White/African American), specified as exogenous variables, were included as covariates in the path model. Although humor coping and substance use coping were not

specified in the path model as predictors of physical health or psychological well-being, these variables were included in the model as exogenous variables to maintain the Brief COPE structure based on the previously conducted CFA.

*Goodness-of-Fit Criteria.* Several goodness-of-fit indices were used to evaluate model fit: the chi-square statistic, goodness-of-fit index (GFI; Jöreskog & Sörbom, 1989), comparative fit index (CFI; Bentler, 1990), Tucker Lewis index (TLI; Bollen, 1990), and root-mean-square error of approximation (RMSEA; Steiger, 1990). The chi-square statistic measures the absolute fit of the model to the data, although it is subject to sample size bias (Bentler, 1990; Hu & Bentler, 1999); nonsignificant values indicate close fit to the data. For GFI, an absolute fit index assessing how well the model reproduces the sample data, a value above .90 is considered to indicate an acceptable fit (Bentler & Bonett, 1980), and a value above .95 is considered a good fit (Schumacker & Lomax, 2004) of the model to the data. The CFI and TLI test the proportionate improvement in fit by comparing the target model with a more restricted, nested baseline model; a value of .90 is acceptable (Bentler & Bonett, 1980; Bollen, 1990; Hu & Bentler, 1999), a value of .95 indicates a good fit, and a value at or close to 1.00 indicates an excellent fit (Browne & Cudeck, 1993). RMSEA demonstrates a close fit of the model at a value at .05 and exact fit of the model at a value of .00; a value between .05 and .08 is also considered acceptable (Brown & Cudeck, 1993). For purposes of the present study, a final model was selected when the majority – three of the five – fit indices demonstrate an acceptable fit.

*Missing Data.* Prior to conducting the confirmatory factor analysis and path analysis, a search for missing data and examination of multivariate normality were conducted. Because the data collection was done in two phases, some participants who completed the demographic questionnaire and Brief COPE in the first phase did not agree to complete the Brief COPE in the second phase, and therefore missing data is more prevalent for the Brief COPE measure. Over half of the participants had missing data for either the Brief COPE or the SF-12 ( $n = 1,962$ ). For the Brief COPE measure utilized in the CFA, 40.13% of the total number of possible datapoints were missing. For the SF-12 measure utilized in the path analysis, 27.51% of the total number of possible datapoints were missing. The method of full information maximum likelihood (FIML) estimation (see, e.g., Enders & Bandalos, 2001) was selected to estimate the model parameters given the missing data in the present study. Note that the Goodness-of-Fit Index (*GFI*) cannot be calculated when FIML estimation is used. Further, when FIML estimation is utilized, modification indices, which can be used to engage in post hoc model modification (Weston & Gore, 2006), are not estimated. Therefore, if modification indices are necessary to improve the fit of the CFA and/or path analysis models to the data, a two-step approach (see, e.g., Mearns, Gray, & Garrett, 2004) will be used to account for missing data: 1) listwise deletion in SPSS for missing data, followed by 2) model estimation in Amos 17.0 with the smaller sample using complete data.

*Normality of the Data.* The assumption of multivariate normality necessary for confirmatory factor analysis and path analysis was assessed via univariate and bivariate normality statistics. Univariate normality was examined via the symmetry and flatness

(i.e., skewness and kurtosis) of the distribution for the 28 Brief COPE items, 7 Brief COPE subscales, physical component summary t-score, mental component summary t-score, and age. Curran, West, and Finch (1996) suggest that univariate normality is assumed if skewness values are not greater than an absolute value of 2 and kurtosis values are not greater than an absolute value of 7. Bivariate normality was examined using scatterplots for each pair of the 28 items and each pair of factors including age, the Brief COPE subscales, physical component summary t-score, and mental component summary t-score (Stevens, 2002).

## CHAPTER IV

### Results

Prior to addressing the two research questions and hypothesized main and moderation effects for age as a predictor of physical health and psychological well-being and coping as a predictor of physical health and psychological well-being (see Table 2), an examination of univariate and multivariate normality of the data is performed. Next, results of the confirmatory factor analysis (CFA) for the Brief COPE measure are presented. The factor structure derived from the CFA for the Brief COPE is then utilized in the path analysis. Subsequently, multiple-group path analyses are presented utilizing three nested models. Results from the first model comparison test the hypotheses regarding main effects, and results from the second model comparison test the hypotheses regarding moderation effects.

#### *Normality of the Data*

Both the symmetry and the flatness of the distribution were within acceptable limits (i.e., not greater than absolute values of 2 and 7, respectively; Curran et al., 1996) for each of the 28 Brief COPE items (skewness range =  $-0.723$  to  $2.097$ ,  $SE = .058$ ; kurtosis range =  $-1.395$  to  $3.709$ ;  $SE = .117$ ). The symmetry and the flatness of the distribution were also within acceptable limits for age (skewness =  $-0.116$ ,  $SE = .040$ ; kurtosis =  $-0.998$ ,  $SE = .080$ ), positive coping (skewness =  $-0.427$ ,  $SE = .052$ ; kurtosis =  $-0.530$ ,  $SE = .104$ ), negative coping (skewness =  $0.342$ ,  $SE = .052$ ; kurtosis =  $-0.435$ ,  $SE = .104$ ), social support (skewness =  $0.251$ ,  $SE = .052$ ; kurtosis =  $-0.576$ ,  $SE = .104$ ), avoidance coping (skewness =  $0.691$ ,  $SE = .052$ ; kurtosis =  $0.355$ ,  $SE = .104$ ), religious coping

(skewness = -.293,  $SE = .052$ ; kurtosis = -1.339,  $SE = .104$ ), substance use coping (skewness = 1.953,  $SE = .052$ ; kurtosis = 3.246,  $SE = .104$ ), humor coping (skewness = .723,  $SE = .052$ ; kurtosis = -.378,  $SE = .104$ ), physical component summary t-score (skewness = -.211,  $SE = .046$ ; kurtosis = 1.539,  $SE = .091$ ), and mental component summary t-score (skewness = -.586,  $SE = .046$ ; kurtosis = .754,  $SE = .091$ ). Each pair of the 28 items and each pair of factors including age, the Brief COPE subscales, physical component summary t-score, and mental component summary t-score were plotted in a scatterplot, and the relatively elliptical scatter of the data in the plots that was observed provided evidence for bivariate normality (Stevens, 2002). Based on the univariate and bivariate normality of the Brief COPE items and the Brief COPE factors, the assumption of multivariate normality necessary for confirmatory factor analysis and path analysis was assumed to have been satisfied.

#### *Confirmatory Factor Analysis*

The fit of the seven-factor Brief COPE model using FIML estimation did not meet the criteria for acceptable fit,  $\chi^2(329, N = 3724) = 2568.259, p < .001, CFI = .886, TLI = .859, RMSEA = .043$ . To obtain modification indices for use with improving the fit of the model, listwise deletion was employed to exclude the 1962 participants with missing data, yielding a smaller sample of 1762 participants who had complete data on all Brief COPE items. This complete data sample was aged 30 – 64 years ( $M = 47.88, SD = 9.116$ ), had 776 men and 986 women, 901 individuals above the poverty level and 861 individuals below the poverty level, and 1088 African American and 674 White individuals. An independent groups  $t$ -test revealed no significant difference in age



between the group with complete data on all Brief COPE items ( $M = 47.88$ ;  $SD = 9.116$ ,  $n = 1,762$ ) and the individuals missing at least one Brief COPE item ( $M = 47.59$ ;  $SD = 9.529$ ),  $t(3722) = 0.935$ ,  $p = .350$ ). Also, a 2 x 2 chi-square test indicated that the distribution of males and females was not significantly different when comparing the sample with complete data to the sample with at least one missing item,  $\chi^2(1, N = 3723) = 2.982$ ,  $p = .084$ .

Using the complete data sample, the fit of the seven-factor Brief COPE model yielded similar goodness-of-fit values as compared to the model estimated using FIML,  $\chi^2(329, N = 1762) = 2058.962$ ,  $p < .001$ ,  $GFI = .917$ ,  $CFI = .886$ ,  $TLI = .869$ ,  $RMSEA = .055$ .  $CFI$  and  $TLI$  were below the desired minimum value of .90. However, all the indicators had significant loadings ( $p < .001$ ) on the latent factor to which they were assigned. The factors were significantly correlated with each other ( $p < .05$ ), with the exception of humor coping and religious coping ( $p = .071$ ), negative coping and religious coping ( $p = .955$ ), social support and avoidance coping ( $p = .059$ ), substance use coping and social support ( $p = .059$ ), and avoidance coping and religious coping ( $p = .880$ ). Because this baseline model A was not a good fit to the data, modification indices for this model were examined. The largest modification index indicated that correlating the measurement errors for the two positive reframing items would improve the fit of the model. Given that the two items represent the same underlying construct within the Brief COPE, shared method variance is likely (Cole, Ciesla, & Steiger, 2007); thus, this correlation was added to the model.

In this modified model  $A_m$ , all factor loadings were again in the expected direction and significant ( $p < .001$ ), and the correlation between the measurement errors for the two positive reframing items was estimated to be .306 ( $p < .001$ ). This modified model represented a significant improvement in fit over the proposed model ( $\Delta\chi^2(1, N = 1762) = 147.222, p < .001$ ). However, *CFI* and *TLI* still did not meet the criteria for acceptable fit,  $\chi^2(328, N = 1762) = 1911.740, p < .001, GFI = .923, CFI = .896, TLI = .880, RMSEA = .052$ . Therefore, the modification indices were examined for this model, and the largest modification index was added to the modified model: correlating the measurement errors for the two self-blame items. As with the previous model modification, the scale-specific property of the two items representing the same construct provides evidence for shared method variance (Cole et al., 2007).

The addition of this modification resulted in three of the five fit indices meeting the criteria for acceptable fit, ( $\chi^2(327, N = 1762) = 1694.699, p < .001, GFI = .932, CFI = .910, TLI = .896, RMSEA = .049$ ) and represented a significant improvement in fit over the proposed model ( $\Delta\chi^2(1, N = 1762) = 217.040, p < .001$ ). This final modified seven-factor model,  $A_f$ , was chosen as the best-fitting model and was retained for the path analysis (see Figure 4). The standardized factor loadings for each of the items by factor were significant and are provided in Table 3. The correlation between the measurement errors for the two self-blame items was estimated to be .399 ( $p < .001$ ). All factors were significantly correlated with each other ( $p < .05$ ), with the exception of humor coping and religious coping ( $p = .073$ ), negative coping and religious coping ( $p = .657$ ), social support and avoidance coping ( $p = .060$ ), substance use coping and social support ( $p =$

.062), and avoidance coping and religious coping ( $p = .851$ ). To confirm these findings within the full dataset, the final modified model  $A_m$  was also analyzed using FIML estimation with the full dataset and had virtually identical goodness-of-fit statistics. See Table 4 for a summary of the model fit and model comparison values for the Baseline Model (A), Modified Model ( $A_m$ ), and Final Model ( $A_f$ ).

### *Path Analysis*

*Descriptive Statistics.* Means, standard deviations, and intercorrelations for age, gender, race, the Brief COPE subscales of positive coping, negative coping, social support, avoidance coping, religious coping, substance use coping, and humor coping, and the SF-12 subscales of physical component summary (PCS) and mental component summary (MCS) for individuals above poverty, individuals below poverty, and the total sample are shown in Table 5. An examination of the correlation coefficients indicated that, at the bivariate level, the hypothesized relationships between age and PCS and MCS were in the expected directions and were statistically significant ( $p < .05$ ). Age was negatively correlated with PCS for individuals above ( $r = -.18$ ) and below ( $r = -.09$ ) poverty and positively correlated with MCS for individuals above poverty ( $r = .10$ ). Positive coping was positively correlated with MCS for individuals below poverty ( $r = .09$ ). Negative coping was positively correlated with PCS for individuals above ( $r = .08$ ) and below ( $r = .17$ ) poverty and negatively correlated with MCS for individuals above ( $r = -.16$ ) and below ( $r = -.17$ ) poverty. Avoidance coping was positively correlated with PCS for individuals below poverty ( $r = .11$ ) and negatively correlated with MCS for individuals above ( $r = -.17$ ) and below ( $r = -.19$ ) poverty.

*Model Testing.* The first model estimated, model B, specified the same configural model form for individuals above poverty and individuals below poverty, but allowed all path estimates to differ by poverty. This model had a good fit to the data,  $\chi^2(8, N = 3724) = 20.523, p = .009, CFI = .997, TLI = .938, RMSEA = .021$ . The main effects and moderation effects hypothesized in the current study were then tested using this model as a baseline. In the next, more restrictive model, B<sub>1</sub>, the five main effects hypotheses (see Table 2) were tested by constraining the paths between age and physical health (PH), positive coping and PH, negative coping and PH, religious coping and PH, and religious coping and psychological well-being (PW) to equality across poverty groups. Model B<sub>1</sub> also represented a good fit to the data,  $\chi^2(13, N = 3724) = 26.351, p = .015, CFI = .997, TLI = .959, RMSEA = .017$ . Using the chi-square difference test, this more constrained model was compared to the baseline model to provide an overall test of whether the five paths hypothesized to be equal across poverty levels (i.e., the main effects) were indeed equal. A comparison of these models indicated that constraining the aforementioned paths to be equal for individuals above poverty and individuals below poverty did not significantly change the fit of the model,  $\Delta\chi^2(5, N = 3724) = 5.829, p = .323$  (see Table 6). Thus, the constraints that the paths between age and PH, positive coping and PH, negative coping and PH, religious coping and PH, and religious coping and PW were equal for individuals above poverty and individuals below poverty were not rejected, and the main effects paths were retained for the second more restrictive model B<sub>2</sub>.

To test the moderation effects, the seven paths hypothesized to be different across poverty (i.e., age and PW, positive coping and PW, negative coping and PW, social

support and PH, social support and PW, avoidance coping and PH, and avoidance coping and PW) were constrained to equality in the second more restrictive model B<sub>2</sub>. This model B<sub>2</sub> represented a good fit to the data,  $\chi^2(20, N = 3724) = 41.440, p = .003, CFI = .995, TLI = .957, RMSEA = .017$ . Using the chi-square difference test, model B<sub>2</sub> was compared to model B<sub>1</sub> to provide an overall test of whether there are moderation effects for the aforementioned direct paths. A comparison of these models indicated that constraining these paths to be equal in model B<sub>2</sub> for individuals above poverty and individuals below poverty significantly decreased model fit,  $\Delta\chi^2(7, N = 3724) = 15.089, p = .035$ . Thus, the constraints that these paths were equal for individuals below poverty and individuals above poverty was rejected, and the moderation effects hypotheses were supported. As a result, model B<sub>1</sub> was selected as the final model. Standardized parameter estimates for individuals above poverty and individuals below poverty in the final model B<sub>1</sub> are shown in Table 7.

Although the omnibus test of moderation effects supported the aforementioned hypotheses as a whole, individual 1 degree of freedom *post hoc* tests were conducted to investigate whether the seven individual paths hypothesized to be moderated by poverty level were indeed individually moderated by poverty level. In each of these tests, the individual paths were constrained to equality across poverty groups, and this more restrictive model was compared to model B<sub>1</sub>, the final model. Only the constrained path of age as a predictor of psychological well-being (PW) significantly decreased model fit,  $\Delta\chi^2(1, N = 3724) = 9.224, p = .002$ , thereby indicating poverty level moderated this relationship. All other paths did not significantly change the fit of the model: positive

coping and PW,  $\Delta\chi^2(1, N = 3724) = 1.331, p = .249$ ; negative coping and PW,  $\Delta\chi^2(1, N = 3724) = 0.003, p = .959$ ; social support and physical health (PH),  $\Delta\chi^2(1, N = 3724) = 0.232, p = .630$ ; social support and PW,  $\Delta\chi^2(1, N = 3724) = 0.087, p = .768$ ; avoidance coping and PH,  $\Delta\chi^2(1, N = 3724) = 0.158, p = .691$ ; and avoidance coping and PW,  $\Delta\chi^2(1, N = 3724) = 1.305, p = .253$ . Therefore, despite the moderation effects hypotheses being supported as a whole, these other paths were not moderated by poverty level.

An examination of the parameter estimates for the individual paths, as shown in Table 7, for the main effects and moderation effects allows for further interpretation of the findings. The first model comparison of the multiple-group path analyses supported the inclusion of main effects for the relationships between age and PH, positive coping and PH, negative coping and PH, religious coping and PH, and religious coping and PW. For both individuals above and individuals below poverty, age negatively predicted physical health ( $p < .001$ ), and no relationship was found between religious coping and physical health ( $p = .240$ ); both relationships supported the hypotheses for these main effects. Unexpectedly, although non-significant relationships were hypothesized, positive coping negatively predicted physical health ( $p = .034$ ), and negative coping positively predicted physical health ( $p < .001$ ). Further, although a positive relationship was hypothesized, religious coping negatively predicted psychological well-being ( $p < .001$ ).

The second model comparison of the multiple-group path analyses supported the inclusion of the hypothesized moderation effects as a whole. However, at the individual parameter level, only the parameter estimates for the path between age and psychological well-being were in line with the hypothesis that the relationship would be significant for

individuals above poverty but not for individuals below poverty. Specifically, age was positively related to psychological well-being for individuals above poverty ( $p < .001$ ), but non-significantly related to psychological well-being for individuals below poverty ( $p = .653$ ). For the paths between negative coping and PW, social support and PH, social support and PW, and avoidance coping and PW, the parameter estimates for individuals above and individuals below poverty were either both significant or both nonsignificant. Specifically, as shown in Table 7, negative coping and avoidance coping negatively predicted psychological well-being for both individuals above ( $p = .003$  and  $p < .001$ , respectively) and individuals below ( $p = .013$  and  $p < .001$ , respectively) poverty. The relationships for social support and physical health and for social support and psychological well-being were nonsignificant for individuals above ( $p = .279$  and  $p = .911$ , respectively) and individuals below ( $p = .757$  and  $p = .646$  respectively) poverty. The paths between positive coping and PW and avoidance coping and PH were posed as exploratory, and results revealed that positive coping positively predicted psychological well-being for both individuals above ( $p = .003$ ) and individuals below ( $p < .001$ ) poverty, and avoidance coping and physical health was nonsignificant for individuals above ( $p = .566$ ) and individuals below ( $p = .349$ ) poverty.

## CHAPTER V

### Discussion

Attention to the positive aspects and optimal patterns of aging, as highlighted in Rowe and Kahn's (1998) research-based model of "successful aging", has permeated the health and aging fields during the past decade (e.g., Cooper, Bebbington, Katona, & Livingston, 2009; Reichstadt, Depp, Palinkas, Folsom, & Jeste, 2007; Willcox, Willcox, Shimajiri, & Kurechi, 2007; Windsor, 2009). In contrast with previous work in the 1970s and 1980s focused on a preoccupation with disability and disease, research on "successful aging" requires a focus on the thriving and compensatory biological, psychological, and social aspects of aging (Bowling, 2006; Diener et al., 1999). Recent research has shed light on this emerging area of exploration (see Depp, Glatt, & Jeste, 2007); however, many questions remain unanswered with regards to health disparities among targeted groups (James, 2009), including those of lower socioeconomic status (Adler, 2009). Accordingly, within the biopsychosocial framework (Barsky et al., 1992; Bowling, 2006; Fylkesnes & Forde, 1991), the present study examined poverty status (a social factor) as a moderator of the relationships of age (a biological factor) and coping (a psychological factor) as predictors of self-reported physical health and psychological well-being, important indicators of successful aging (Freund & Baltes, 1998; Vaillant, 2004; World Health Organization, 1952).

Utilizing baseline data from the National Institute on Aging's Healthy Aging in Neighborhoods of Diversity Across the Life Span study (HANDLS; Evans et al., in press), the present study was the first investigation to examine poverty status as a



moderator of the relationships of age and coping to psychological well-being and physical health. Using the HANDLS data, participants were selected via multi-stage sampling in an urban area and representatively across the ages of 30 and 64 years, lower and higher SES (i.e., below and above 125% poverty status), among African Americans and Whites, and men and women. A further strength of the present study is that self-reported physical health and psychological well-being were measured from a global, multi-dimensional view utilizing the well-established 12-item Short-Form Health Survey (SF-12; Ware et al., 1996), as compared to a uni-dimensional measure (e.g., number of chronic diseases, depression). Utilizing the advanced statistical methodology of multi-group path analysis, results of the present study provide important findings for poverty status as a moderator of the relationships of age and coping as predictors of self-reported physical health and psychological well-being (Roberts, 1999). This chapter presents the findings for research questions 1 and 2 in light of previous empirical research as well as important implications for theory, research, and practice.

### *Findings*

*Question 1.* Does age predict self-reported physical health and psychology well-being for individuals above the poverty level and individuals below the poverty level?

The data provided support for the hypotheses regarding age as a predictor of physical health and age as a predictor of psychological well-being. As expected, a main effect was found for the relationship of age as a predictor of physical health. Greater age was related to poorer physical health for both individuals above poverty and individuals below poverty. This finding is consistent with previous research (Blake et al., 2000;

Denton & Walters, 1999; Fylkesnes & Forde, 1991; Jenkinson et al., 2001; Larson et al., 2008; Luo et al., 2003; Windsor et al., 2006; Ziersch et al., 2005) and extends the results to an American sample composed of White and African-American community-dwelling adults in an urban setting. For the relationship of age as a predictor of psychological well-being, a moderation effect was supported. As hypothesized, poverty status served as a buffering effect (Frazier et al., 2004), so that greater age was related to greater psychological well-being for individuals above poverty, and there was no significant relationship between age and psychological well-being for individuals below poverty. These results are the first to indicate that poverty status may explain previous research's inconsistent findings for the relationship of age as a predictor of psychological well-being (Larson et al., 2008; Luo et al., 2003; Scott et al., 1999; Schwartz et al., 2003; Windsor et al., 2006; Ziersch et al., 2005).

*Question 2.* Does coping predict self-reported physical health and psychological well-being for individuals above the poverty level and individuals below the poverty level?

Although coping predicted physical health and psychological well-being, nine of the ten hypothesized relationships were not in the expected direction. The only hypothesis supported was for the main effect relationship of religious coping as a predictor of physical health, which as anticipated, was non-significant. Two additional main effects hypotheses, for positive coping as a predictor of physical health and negative coping as a predictor of physical health, were expected to show non-significant relationships, based on previous research findings (Farley et al., 2005; Penley et al.,

2002). However, the results of the current study revealed that positive coping negatively predicted physical health, and negative coping positively predicted physical health for both individuals above and below poverty. The fourth main effects hypothesis, based on previous findings by Ano and Vasconcelles (2004), stated that religious coping would positively predict psychological well-being. However, in this study, religious coping negatively predicted psychological well-being for individuals above poverty and individuals below poverty.

With regards to the four moderation effects hypotheses for coping as a predictor of physical health and psychological well-being, none of the hypothesized relationships were supported. Although an omnibus test in the multi-group path analysis showed that allowing the hypothesized moderation paths to differ by poverty status was a better fit to the data, an examination of the individual path estimates indicated no differences between individuals above and below poverty in the direction of the relationships of negative coping and psychological well-being, social support and physical health, social support and psychological well-being, and avoidance coping and psychological well-being. In contrast with findings from previous studies (Farley et al., 2005; Penley et al., 2002), results revealed that negative coping and avoidance coping negatively predicted psychological well-being and that no relationship for social support as a predictor of physical health and psychological well-being was found for both individuals above and below poverty. The two relationships of positive coping as a predictor of psychological well-being and avoidance coping as a predictor of physical health were posed as exploratory questions, given the inconsistent findings of previous research (Farley et al.,

2005; Penley et al., 2002). Results revealed positive coping positively predicted psychological well-being for both individuals above and below poverty. In contrast to this finding, Penley et al. found that only one positive coping strategy was positively related to psychological well-being, two strategies were unrelated to psychological well-being, and one other strategy was negatively related to psychological well-being. The relationship of avoidance coping as a predictor of physical health was non-significant for both individuals above and below poverty.

In summary, the path analysis revealed three of the hypothesized relationships in the study were supported: the main effects relationships of age as a predictor of physical health and religious coping as a predictor of physical health and the moderation effect relationship of age as a predictor of psychological well-being. Poverty status as a moderator was found only for this latter relationship of age as a predictor of psychological well-being: age positively predicted psychological well-being for individuals above poverty, and there was no linear relationship for individuals below poverty. Although the vast majority of the hypothesized relationships were not supported, the results of the present study, including eight significant relationships, reveal important implications for theory, research, and practice. The next section discusses implications for the findings of research questions 1 and 2 in terms of theory, research, and practice.

#### *Implications for Theory, Research, and Practice*

##### *Poor self-reported physical health in adulthood despite relative stability.*

Rowe and Kahn (1998) define successful aging as maintaining high physical and psychological functioning. Because aging is associated with losses in many life domains

(Vaillant, 2004), it comes as no surprise that age was found to be significantly and negatively related to self-reported physical health for both adults above and below poverty. In fact, previous research for this relationship has consistently supported this finding (Blake et al., 2000; Denton & Walters, 1999; Fylkesnes & Forde, 1991; Jenkinson et al., 2001; Larson et al., 2008; Luo et al., 2003; Windsor et al., 2006; Ziersch et al., 2005). How practically meaningful, though, is the negative relationship found in the present study? A closer examination of the unstandardized regression weights in Table 7 for age as a predictor of physical health reveals that, when holding age constant, an increase of one year in age is associated with a .099 decrease for individuals above poverty and .087 decrease for individuals below poverty in the predicted value for physical health. In other words, an increase in age of 10 years is associated with an approximate 1-point decrease in the physical health score on the SF-12 for individuals above and below poverty. A 1-point decrease in the SF-12 physical health score (with a mean of 50 and standard deviation of 10; Ware et al., 1996) is relatively small. Therefore, despite the significant negative relationship, the difference in self-reported physical health across increasing ages in adulthood does not appear to be clinically meaningful. Rowe and Kahn's definition of successful aging with respect to physical health highlights the importance of *maintenance*, or relative stability in physical health, as age increases. Given that the relationship of self-reported physical health and age is relatively small for both poverty status groups, it appears that for the current sample, physical health is maintained in adulthood.

However, successful aging also requires a *high* level of physical functioning, according to Rowe and Kahn (1998). Interestingly, an examination of the mean physical health score on the SF-12 for the current sample was 40.90, which is almost one standard deviation below the SF-12 population norms estimated from responses to the 1990 National Survey of Functional Health Status ( $M = 50.12$ ,  $SD = 9.45$ ; Ware et al., 1996; Ware, 1998). Previous studies examining the SF-12 among community-dwelling adults revealed a mean score of 47.58 ( $SD = 10.09$ ) for U.S. low-income African Americans in Nashville, Tennessee (Larson et al., 2008); 49.92 ( $SD = 10.5$ ) and 50.03 ( $SD = 10.93$ ) for U.K. White and Black Africans, respectively (Jenkinson et al., 2001); and 50.86 ( $SD = 8.74$ ) for Australians. It is clear, given the mean SF-12 physical health score for the present sample, that adults living in Baltimore City, Maryland, regardless of poverty status (see Table 5), report poorer perception of physical health as compared to the Larson et al. urban sample and also the nationally normed sample for the SF-12 (Ware et al., 1996; Ware, 1998). Given this poor perception of physical health, adults living above and below the poverty level in this urban setting may not qualify as aging successfully in the realm of physical health, as defined by Rowe and Kahn.

*Poverty status: A moderating factor for psychological well-being during adulthood.*

The strongest empirical support for the hypothesis of poverty status as a moderating variable in the present investigation comes from the literature examining age as a predictor of psychological well-being. The majority of previous studies examining this relationship indicate that self-reported psychological well-being increases with age

(Scott et al., 1999; Schwartz et al., 2003; Windsor et al., 2006; Ziersch et al., 2005).

However, the two studies that found no relationship between age and psychological well-being (Larson et al., 2008; Luo et al., 2003) were composed of lower education American samples. As such, it would appear that education, and perhaps other indicators of socioeconomic status, impact the relationship of age as a predictor of psychological well-being. The findings from this study indicated that poverty status, an important indicator of socioeconomic status, plays a significant moderating role in the perception of one's psychological well-being during adulthood. Specifically, for individuals living above the poverty level, perception of psychological well-being increases as age increases in adulthood. However, for individuals below the poverty level, perception of psychological well-being is relatively the same across ages in adulthood. Overall, findings support the position that adults become more skilled at maintaining and improving psychological well-being as age increases (Lawton, Kleban, Rajagopal, & Dean, 1992), albeit with maintenance reserved for individuals below poverty and improvement for individuals above poverty.

Adler and Ostrove (1999) proposed that research should focus on understanding how socioeconomic status, including poverty status, plays a role in health across the life cycle. This proposal is in line with health disparities research to determine factors that promote successful aging and with the American Psychological Association's (2000) "Resolution on Poverty and SES." In response to these agendas, one hypothesis to explain the role of poverty status as a moderating factor for psychological well-being in adulthood is the availability and access to social and economic resources for individuals

living above the poverty line and the lack of access to these resources for individuals living below poverty (Conger & Donnellan, 2007; Freund et al., 1999). As an illustration, findings from a qualitative study examining the impact of poverty on the well-being of survivors of Hurricane Katrina revealed the following account from a psychology trainee serving this population:

We went down there with the notion that we were going to be psychologists, we were going to be mental health professionals... And you realize when you get down there that the people who had the resources to begin with... their recovery time is faster and their ability to then address their own mental health issues is faster. Whereas the people that we were interacting with were not so concerned with their own mental health... because they couldn't be. They didn't have running water. So... their lower SES affected their ability to address everything other than, where am I going to get my next meal? Where am I going to live next month? (Howard, 2009, p. 7881).

This experience is not unique to the survivors of Hurricane Katrina. Millions of U.S. adults living in poverty face these struggles of obtaining basic needs (e.g., food, water, housing) for survival every day. As a result, their psychological well-being fails to thrive (Maslow, 1943) to the same extent as their counterparts not living in poverty. This account also speaks to the privileges afforded to individuals not living in poverty with respect to their psychological well-being (Rudkin & Markides, 2002). Individuals with availability and access to social resources in the form of finances are able to address their mental health needs faster than those struggling to meet their basic needs.

To what degree are there differences between individuals living above and below poverty in self-reported psychological well-being? In the present study, an examination of the unstandardized regression weight in Table 7 for individuals above poverty indicates that, when holding age constant, an increase of one year in age is associated



with a .097 increase in the predicted value for psychological well-being. In other words, an increase in age of 10 years is associated with an approximate 1-point increase in the psychological well-being score on the SF-12 for individuals living above poverty. As stated previously, a 1-point change on the SF-12 is relatively small. Although this change in psychological well-being may not be clinically meaningful, it is noteworthy given that the relationship of age as a predictor of psychological well-being for individuals below poverty was non-significant.

It is also noteworthy that the mean score on the SF-12 psychological well-being scale was significantly higher (see Table 5) for individuals living above poverty ( $M = 47.531$ ,  $SD = 6.792$ ) as compared to individuals below poverty ( $M = 45.778$ ,  $SD = 8.009$ ). This finding is a clear illustration of disparities in psychological well-being for individuals at different levels of the socio-demographic variable of poverty. Individuals living in poverty are at risk for more negative psychological well-being outcomes (Moore et al., 2006). As a result, mental health prevention and intervention efforts targeting this population are essential to improve health outcomes. With the recent passing of H.R. 3590 – 111th Congress: Patient Protection and Affordable Care Act (2009) and H.R. 4872 – 111th Congress: Health Care and Education Affordability Reconciliation Act of 2010 (2010), investments are planned in prevention, screening, and public health interventions that will address mental health issues among low-income individuals living in America. Further, because families at the 133 percent federal poverty level will qualify for Medicaid as part of the Affordable Care Act, more low-income Americans will qualify for mental health services (e.g., outpatient, inpatient, emergency). These changes

in the health field may prove beneficial to narrowing the gap in health disparities for psychological well-being between individuals above and below poverty.

Despite the significant findings for age as a predictor of SRPP in the current study, individuals may experience more pronounced changes in self-perceived physical health and psychological well-being at later stages in adulthood (Kunzmann, Little, & Smith, 2000; McLaughlin, Connell, Heeringa, Li, & Roberts, 2010). Although previous research has examined the relationship of age as a predictor of self-reported physical health and psychological well-being in older adulthood (e.g., Andersen, Christensen, & Frederiksen, 2007; Shooshtari, Menec, & Tate, 2007), empirical findings are lacking for a U.S. sample of older adults living both above and below the poverty level. The HANDLS study utilized in the current investigation is a 20-year longitudinal study, and, by the year 2024, five follow-up assessments will have been obtained for participants. Approximately half of the participants by 2024 will be in the older adulthood stage of development (age 65 or older). Future research should examine cross-sectional and longitudinal data within this HANDLS sample to determine not only age differences, which may be a reflection of cohort differences, but also more importantly age changes in self-reported physical health and psychological well-being (Schaie, 1967).

Future research should also examine race as a moderator of the relationship of age to physical health and psychological well-being and of the relationship of coping to physical health and psychological well-being. For example, because the HANDLS sample is composed of both African Americans and Whites, a possible future question that could be addressed using this database is whether religious coping style is a stronger

positive predictor of physical health and psychological well-being for African Americans than it is for Whites (Steffen, Hinderliter, Blumenthal, & Sherwood, 2001). Future research should also seek to replicate these findings in other samples, including suburban and rural populations, and also more chronically ill populations. Additional socioeconomic indicators such as income, wealth, education, occupation, and composite indices of SES (e.g., Nam & Powers, 1983) should be examined as moderators of the relationship of age as a predictor of self-reported psychological well-being (Ostrove, Feldman, & Adler, 1999). Coping processes and objective health may also be valuable measures to examine in future research.

Several recommendations can be made for practitioners working in the medical and mental health fields in an urban setting and with White and African American clients aged 30 to 64. Foremost, practitioners should be aware that it is typical for older adults in adulthood to report somewhat poorer physical health on the SF-12 as compared to younger adults in adulthood (Blake et al., 2000; Denton & Walters, 1999; Fylkesnes & Forde, 1991; Jenkinson et al., 2001; Larson et al., 2008; Luo et al., 2003; Windsor et al., 2006; Ziersch et al., 2005), regardless of poverty status. This pattern has also been observed for single-item measures of health, including the gold standard question of self-perceived health: “In general, would you say your health is excellent, very good, good, fair, or poor?” (e.g., Blake et al., 2000). This question about self-perceived health is represented within the SF-12 as the general health domain (Ware et al., 1996). With regards to psychological well-being, it is typical for older adults in adulthood living above the poverty level to report somewhat greater psychological well-being as compared

to younger adults in adulthood living above the poverty level (Scott et al., 1999; Schwartz et al., 2003; Windsor et al., 2006; Ziersch et al., 2005). In contrast, older adults in adulthood living below the poverty level report similar levels of psychological well-being as compared to younger adults in adulthood living below the poverty level. Specific to physical health, for professionals working with community-dwelling patients concerned about a decline in their self-perceptions of physical health, it is recommended that the SF-12 (Ware et al., 1996) be utilized as a reliable and valid measure of physical health. To the extent that self-ratings of physical health are typical for the individuals' age group, it is also recommended that practitioners normalize this experience of differences in self-perception of physical health as age increases in adulthood. For instance, the difference in the SF-12 physical health score between an adult at age 30 as compared to an adult at age 60 would be approximately 3 points, signifying a negligible difference in actual physical health (Larson, 2002; Larson et al., 2008). Specific to the Baltimore City, Maryland, sample utilized in the present study, it is essential that practitioners be aware that adults living above and below the poverty level tend to report poorer physical health overall in this urban setting, as compared to other urban settings (e.g., Larson et al., 2008) and the U.S. population as a whole.

Specific to psychological well-being, practitioners working with community-dwelling patients living in poverty in urban settings may also benefit from the following culturally-sensitive interventions. The fact that individuals in the current study living below poverty report poorer psychological well-being as compared to individuals living above poverty, and also that psychological well-being is maintained across age in

adulthood for individuals living below poverty, rather than increases, as is the case for individuals living above poverty, warrants special focus when providing counseling services. Specifically, counselors should be aware that living in poverty and the lack of resources that come with this social designation contributes to one's perception of psychological well-being. As such, poverty status is a factor to explore with patients early in treatment as a possible stressor impacting one's perception of psychological health. Further, as part of the treatment planning, efforts should be made to advocate for and provide supports to these patients living in poverty, including help to seek social services and providing means to obtain basic needs such as food, shelter, clean water, and health care (Diener, 1999). With the knowledge of health disparities for individuals living in poverty in urban settings comes the responsibility to treat these individuals effectively and address the unique needs of this population (American Psychological Association, 2000).

*Coping style as a predictor of self-reported physical health and psychological well-being.*

Coping style (Freund et al., 1999; Ouwehand et al., 2007; Ptacek & Gross, 1997; Somerfield & McCrae, 2000; Wood et al., 2007) predicted physical health and psychological well-being in the present study. No significant differences were found between individuals above and below poverty for the relationships between the coping styles and SRPP. As such, the discussion of these findings is in regards to both individuals above and below poverty. Before providing a discussion of the findings, it is important to note that the present study presumes that coping styles are psychological

resources, as consistent with the contextual approach to coping and positive psychology (Folkman & Moskowitz, 2003; Nelson & Cooper, 2005). As such, the coping styles examined in the present study are not classified as problem-focused and emotion-focused (e.g., Folkman & Lazarus, 1980), adaptive and maladaptive (e.g., Voss et al., 2006), or functional and dysfunctional (e.g., McIlvane, Popa, Robinson, Houseweart, & Haley, 2008). Despite their labels, including “positive” and “negative” coping, coping strategies are not inherently good or bad (Lazarus & Folkman, 1984). Rather, it is the individual’s performance on the outcome under study --- which, in the case of the present investigation, was physical health and psychological well-being --- that determines the effectiveness of the coping strategy.

Two coping styles were positively related to physical health and psychological well-being, specifically negative coping for physical health and positive coping for psychological well-being. Previous research supports the finding for positive coping strategies, specifically positive reappraisal, to positively predict psychological well-being (Penley et al., 2002). The current study extends previous findings regarding the strategies of active coping, planning, positive reframing, and acceptance as psychological resources that enhance psychological well-being. In contrast, the finding that negative coping was positively related to physical health was unexpected; previous research indicates these strategies are unrelated to physical health (Farley et al., 2005; Penley et al., 2002). Also unexpected was the finding that positive coping served as a negative predictor of physical health. One possible explanation for these two unexpected findings pertaining to self-reported physical health is the confounding variable of objective physical health. Future

research should control for objective health, including number of functional limitations, and/or chronic and acute conditions, particularly when the sample's SF-12 physical health scale score is relatively low.

Because coping style measures identify the appraisals and responses to stressors that have developed over time (Carver & Sheier, 1994; Folkman & Moskowitz, 2004), negative (i.e., venting, self-blame) coping strategies may be employed to a greater extent among this sample to compensate for a poorer perception of one's physical health. Despite stereotypes within our society regarding the destructive use of negative coping strategies, these styles of responding to stressors may indeed be adaptive for individuals with a relatively lower appraisal of physical health. Future research may investigate ethnographic and qualitative data to better understand why negative coping styles are promoting more positive physical health among urban populations, including Baltimore, Maryland.

Another possibility for these findings may be the operationalization of coping utilized in this study's path analysis model. Although Carver (2007) recommends using data from each unique sample to determine the composition of higher-order factors for use in future research, different findings may have emerged if the 28 individual items or 14 original subscales from the Brief COPE were utilized as separate independent variables. For instance, one of the two venting items, "I usually say things to let my unpleasant feeling escape," appears more cathartic and indicative of greater health as compared to the self-blame item, "I usually criticize myself."

Three coping styles were negatively related to psychological well-being, specifically religious coping, avoidance coping, and negative coping. The finding of religious coping as a negative predictor of psychological well-being was unexpected given previous findings (Ano & Vasconcelles, 2005). Three possible explanations for this finding are considered. First, Gartner, Larson, and Allen (1991) suggest that religion is associated with mental health benefits when religiosity is measured by behavior (e.g., church attendance, prayer experiences; Ellison, Gay, & Glass, 1989; Poloma & Pendleton, 1991), rather than by an attitude scale. Future research should seek to explore religious behavior as a predictor of psychological well-being and also the religious and spiritual identity of participants as a moderator variable. Although religious involvement is not synonymous with religious coping (Folkman & Moskowitz, 2004), individuals involved in religion often utilize active forms of coping pertaining to their religious and spiritual beliefs and practices (Baider et al., 1999; Holland et al., 1999). Therefore, individuals high in religious involvement who are dealing with significant amounts of stress in their life may seek out religion and spirituality as a means to cope with the stresses they are facing (Diener et al., 1999). Future research should examine longitudinal data to determine the reciprocity and causal nature of this relationship. Second, as compared to the present study, the Ano and Vasconcelles meta-analysis was composed of studies utilizing religious coping processes measures in addition to religious coping style measures and uni-dimensional psychological well-being outcomes. These differences in measurement may have yielded different results. A final explanation for this unexpected finding is that the religious coping subscale in the Brief COPE (Carver, 1997) was



composed of only two items, and although common in research, it has been suggested that this practice does not adequately measure the multi-dimensional construct of religious coping (Skinner, Teresi, Holmes, Stahl, & Steward, 2002). Future research should examine this important construct of religious coping utilizing a more psychometrically sound set of items and/or measures.

Two additional coping styles – avoidance and negative coping – were negative predictors of psychological well-being, and two coping styles – avoidance and religious coping – were unrelated to physical health. Previous research supports the findings for avoidance and negative coping as negative predictors of psychological well-being for individuals above poverty (Penley et al., 2002). However, the Farley et al. (2005) study composed primarily of individuals below poverty found no significant relationships. As such, the findings in the current study extend our knowledge regarding the coping strategies of denial, behavioral disengagement, self-distraction, venting, and self-blame as being related to more negative self-reports of psychological well-being for individuals living both above and below poverty. Two additional findings revealed non-significant relationships: avoidance coping as a predictor of physical health and religious coping as a predictor of physical health. The former relationship was exploratory in nature, although previous research supports this non-significant finding (Farley et al., 2005; Penley et al., 2002). The finding for the non-significant relationship of religious coping as a predictor of physical health was also expected given previous research findings (Farley et al., 2005; Schwartz et al., 2003).

Although the Penley et al. (2002) study found that social support as a coping strategy negatively predicted both physical health and psychological well-being, results of the present study supported findings from the Farley et al. (2005) study. Results revealed no significant relationship for social support as a predictor of physical health or psychological well-being for individuals above and below poverty. The current study was similar to the Farley et al. study in that both utilized a sample of community-dwelling adults, both measured dispositional coping styles via the Brief COPE (Carver, 1997), and both measured physical health and psychological well-being from a multi-dimensional perspective (i.e., utilizing the SF-12 [Ware et al., 1996] and SF-36 [Ware et al., 1993], respectively). Previous research has indicated that it is not the amount or quantity of social support received, but rather the quality or satisfaction of support received that impacts psychological well-being (Cruza-Guet, Spokane, Caskie, & Szapocznik, 2008). As such, it comes as no surprise that social support coping was not predictive of physical health and psychological well-being. Future research should explicitly examine the quality of support received as a predictor of SRPP, rather than merely the presence of social support as a coping response.

Because poverty status was not found to moderate the relationships of the coping styles and SRPP, future research should examine additional SES indicators, including wealth, household income (Diener et al., 1999; Ostrove et al., 1999; Watson et al., 1999), and education (Gallo et al., 2006; Loge & Kaasa, 1998; Marmot & Furher, 2004) as possible moderators. Security of family wealth, in particular, including intergenerational transfers, produces advantages in obtaining resources and opportunities that far surpass

the experiences of those individuals with no or very little inherited wealth (Johnson, 2006). Consistent with coping style and global self-rated health evaluations that have developed over time (Carver & Sheier, 1994; Folkman & Moskowitz, 2004; Idler & Benyamini, 1997), measures of wealth “represent a longer-term indicator of access to and accumulation of material resources” (Rudkin & Markides, 2002, p. 59). Given that wealth is a critical and often stable advantage flowing from one generation to the next (Johnson, 2006), this socioeconomic indicator may play a greater role than poverty status in influencing physical health and psychological well-being (Ostrove et al., 1999). Further, in America, individuals and families with a secure base of wealth are disproportionately White (Johnson, 2006). Although the current study did not examine racial differences in the examination of SES, future research should examine the intersection of race (Liang et al., 2010) and SES indicators, such as poverty and wealth, as additional moderators of age and coping as predictors of SRPP.

The results of this study contribute to more recent research efforts focusing on successful aging and the positive contributions to SRPP (Aldwin, Yancura, & Boeninger, 2007; Rowe & Kahn, 1998). Research in this area may provide health practitioners, including psychologists, better-informed interventions and a superior understanding of how the coping styles of adults at different ages impact their health. Practical implications for these findings suggest that counselors should explore the use of certain coping styles in an effort to promote better physical health and psychological well-being. Foremost, if the clients’ perception of physical health and/or psychological well-being is poorer than expected given SF-12 norms, and absent any acute or chronic condition,

examining the clients' general coping styles may be important in terms of understanding the impact on perception of their physical health and/or psychological well-being (e.g., negative and avoidance coping strategies). Findings in this study support the use of the coping styles (Diener et al., 1999) of active coping, planning, positive reframing, and acceptance as compensatory strategies (Bowling, 2006; Diener et al., 1999) related to more positive reports of psychological well-being. Therefore, counselors may utilize cognitive-behavioral strategies to promote greater use of these coping responses to stressors for their clients living above and below poverty (see Dattilio [2000] and Dattilio & Freeman [1992] for a detailed review of treatment strategies).

### *Summary*

The findings from this study provide a valuable contribution to the limited research on health disparities (Adler, 2009; APA, 2000) in successful aging (Aldwin et al., 2007; Rowe & Kahn, 1998) among community-dwelling adults in the United States. Utilizing baseline data from the National Institute on Aging's Healthy Aging in Neighborhoods of Diversity Across the Life Span study (HANDLS; Evans et al., in press), this study was the first investigation to examine poverty status as a moderator of the relationships of age and coping to psychological well-being and physical health.

Results revealed that, for both community-dwelling adults living above and below poverty in an urban setting, poor physical health was reported across all ages, thereby suggesting that these individuals age successfully with respect to maintenance but not high level of physical health, as defined by Rowe and Kahn (1998). Regarding psychological well-being, poverty status serves as a significant moderating factor for

adults living above the poverty line in an urban setting, explaining previous research's inconsistent findings (Larson et al., 2008; Luo et al., 2003; Scott et al., 1999; Schwartz et al., 2003; Windsor et al., 2006; Ziersch et al., 2005). Perception of psychological well-being increases as age increases in adulthood for individuals above poverty, whereas perception of psychological well-being is relatively the same across ages for individuals below poverty. Two coping styles positively predict physical health and psychological well-being for both individuals above and below poverty: positive coping positively predicts psychological well-being and negative coping positively predicts physical health.

Health practitioners, including psychologists, should consider implementing better-informed, culturally sensitive interventions to promote the positive findings from this study. Practitioners working in an urban setting might conduct advocacy work (e.g., help clients to seek social services to obtain basic needs such as food, shelter, clean water, and health care; American Psychological Association, 2000; Diener, 1999) and explore the impact of poverty on the client's perception of psychological well-being. Further, coping styles may be explored in counseling as psychological resources (Folkman & Moskowitz, 2003; Nelson & Cooper, 2005) impacting the client's physical health and psychological well-being. Based on the findings in the current study, recommendations are also provided for future research. Additional studies should examine cross-sectional and longitudinal data for U.S. samples of adults and older adults (e.g., suburban, rural, and more chronically ill) to determine age differences and changes (Schaie, 1967) in self-reported physical health and psychological well-being. Further, socioeconomic indicators in addition to poverty status, such as income, wealth,

education, occupation, and composite indices of SES (e.g., Nam & Powers, 1983) should be examined as moderators of the relationship of age as a predictor of self-reported psychological well-being (Ostrove et al., 1999).

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Table 1

*A Comparison of Farley et al.'s (2005) Coping Styles and Penley et al.'s (2002) Coping Processes as Predictors of Self-reported Physical Health and Psychological well-being*

Coping Category	Farley et al.		Penley et al.		Comparison	
	PH	PW	PH	PW	PH	PW
Positive coping	X	X	•	•	≠	≠
Negative coping	X	X	X	-	☑	≠
Social support	X	X	-	-	≠	≠
Avoidance coping	X	•	X	-	≠	≠

*Note.* PH = physical health. PW = psychological well-being. X = no relationship. - = negative relationship. • = inconsistency within the study. ≠ = inconsistency between the studies. ☑ = match between the studies.

Table 2

*Hypothesized Main and Moderation Effects for Age as a Predictor of SRPP and Coping as a Predictor of SRPP*

<i>Paths</i>	<i>Main Effects</i>	<i>Moderation Effects</i>	
		<i>Above Poverty</i>	<i>Below Poverty</i>
<i>Age → SRPP</i>			
<i>Age → PH</i>	-		
<i>Age → PW</i>		+	ns
<i>Coping → SRPP</i>			
<i>PC → PH</i>	ns		
<i>PC → PW</i>		?	?
<i>NC → PH</i>	ns		
<i>NC → PW</i>		-	ns
<i>SS → PH</i>		-	ns
<i>SS → PW</i>		-	ns
<i>AC → PH</i>		?	?
<i>AC → PW</i>		-	ns
<i>RC → PH</i>	ns		
<i>RC → PW</i>	+		

*Note.* SRPP = self-reported physical health and psychological well-being; PH = physical health; PW = psychological well-being; PC = positive coping; NC = negative coping; SS = social support; AC = avoidance coping; RC = religious coping; ns = non-significant relationship; + = positive relationship; - = negative relationship; ? = exploratory analysis.



Table 3

*Confirmatory Factor Analysis Solution for the Seven-factor Model of the Brief COPE Using the Complete Data Sample (N = 1762)*

Abbreviated Items	Factor Loading						
	PC	NC	SS	AC	RC	SC	HC
1. Turn to work or other activities to take my mind off things				.135			
2. Concentrate efforts on doing something about the situation	.595						
3. Say to myself, "This isn't real"				.489			
4. Use alcohol or other drugs to make myself feel better						.861	
5. Get emotional support from others			.685				
6. Give up trying to deal with it				.662			
7. Take action to try to make the situation better	.711						
8. Refuse to believe that it has happened				.575			
9. Say things to let my unpleasant feelings escape		.525					
10. Get help and advice from other people			.747				
11. Use alcohol or other drugs to help me get through it						.906	

(table continues)

Table 3, continued

Abbreviated Items	Factor Loading						
	PC	NC	SS	AC	RC	SC	HC
12. Try to see it in a different light to make it seem more positive	.616						
13. Criticize myself		.619					
14. Try to come up with a strategy about what to do	.754						
15. Get comfort and understanding from someone			.731				
16. Give up the attempt to cope				.649			
17. Look for something good in what is happening	.618						
18. Make jokes about it							.876
19. Do something to think about it less				.318			
20. Accept the reality of the fact that it has happened	.625						
21. Express my negative feelings		.533					
22. Try to find comfort in my religion or spiritual beliefs					.867		
23. Try to get advice or help from other people about what to do			.685				
24. Learn to live with it	.365						
25. Think hard about what steps to take	.712						

(table continues)

Table 3, continued

Abbreviated Items	Factor Loading						
	PC	NC	SS	AC	RC	SC	HC
26. Blame self for the things that happened		.569					
27. Pray or meditate					.800		
28. Make fun of the situation							.679
<i>M</i>	15.480	4.820	5.590	5.750	3.630	.830	1.890
<i>SD</i>	5.593	2.907	3.129	3.394	2.190	1.484	1.768
$\alpha$	.834	.646	.804	.624	.819	.876	.743
Items	8	4	4	6	2	2	2

*Note.* PC = Positive Coping; NC = Negative Coping; SS = Social Support; AC = Avoidance Coping; RC = Religious Coping; SC = Substance Use Coping; HC = Humor Coping. Factor loadings are standardized regression coefficients. All values are significant at  $p < .001$ .

Table 4

*Comparison of Fit of the Baseline Model, Modified Model, and Final Model for the Brief COPE Confirmatory Factor Analysis*

Model	$\chi^2$	<i>df</i>	<i>GFI</i>	<i>CFI</i>	<i>TLI</i>	<i>RMSEA</i>	$\Delta\chi^2$	$\Delta df$
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A	2058.962***	329	.917	.886	.869	.055		
A <sub>m</sub>	1911.740***	328	.923	.896	.880	.052	147.222***	1
A <sub>f</sub>	1694.699***	327	.932	.910	.896	.049	217.040***	1

---

*Note.* A = baseline model; A<sub>m</sub> = modified model 1; A<sub>f</sub> = final modified model.

\*\*\*  $p < .001$

Table 5

*Intercorrelations Among Age, Gender, Race, the Brief COPE subscales, and SF-12 subscales for Below Poverty, Above Poverty, and Total Sample*

<i>Variable</i>	<i>Poverty Level Group</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>M</i>	<i>SD</i>
<i>1. Age</i>	Below	---											47.31	9.17
	Above	---											48.02	9.45
	Total	---											47.73	9.34
<i>2. Gender</i>	Below	.00	---										---	---
	Above	-.01	---										---	---
	Total	-.01	---										---	---
<i>3. Race</i>	Below	.02	.03	---									---	---
	Above	.02	-.01	---									---	---
	Total	.00	.00	---									---	---
<i>4. PC</i>	Below	-.05	.01	.08*	---								14.38	5.73
	Above	-.02	.00	.03	---								16.23	5.32
	Total	-.02	.02	.02	---								15.44	5.57

(table continues)

Table 5, continued

<i>Variable</i>	Poverty Level Group	1	2	3	4	5	6	7	8	9	10	11	<i>M</i>	<i>SD</i>
5. <i>NC</i>	Below	-.10**	-.04	-.13***	.18***	---							4.75	2.95
	Above	-.12***	-.05	-.19***	.11***	---							4.97	2.90
	Total	-.11***	-.04	-.16***	.15***	---							4.88	2.92
6. <i>SS</i>	Below	-.14***	-.02	.10**	.44**	.21***	---						5.20	3.01
	Above	-.05	-.14***	-.04	.42***	.22***	---						5.83	3.16
	Total	-.08***	-.09***	-.01	.43***	.22***	---						5.56	3.11
7. <i>AC</i>	Below	-.06	-.05	.02	.05	.58***	.19***	---					5.88	3.48
	Above	.03	-.07*	.06*	-.09**	.51***	.08**	---					5.24	3.12
	Total	-.01	-.06**	.06**	-.04	.53***	.12***	---					5.51	3.29
8. <i>RC</i>	Below	.04	-.08*	.33***	.45***	.08*	.36***	.05	---				3.54	2.18
	Above	.13***	-.19***	.30***	.32***	-.05	.29***	-.01	---				3.55	2.22
	Total	.09***	-.15***	.30***	.37***	.01	.32***	.02	---				3.55	2.20
9. <i>SC</i>	Below	-.09**	.13***	.10**	-.08**	.21***	-.02	.23***	-.06	---			---	---
	Above	-.12***	.06*	.00	-.13***	.22***	-.06*	.25***	-.13***	---			---	---
	Total	-.12***	.09***	.06**	-.12***	.21***	-.05*	.25***	-.10***	---			---	---

(table continues)

Table 5, continued

	Poverty Level Group	1	2	3	4	5	6	7	8	9	10	11	<i>M</i>	<i>SD</i>
<i>10. HC</i>	Below	-.07*	.08*	-.02	.21***	.26***	.16***	.25***	.09**	.07*	---	---	---	---
	Above	-.10***	.10***	-.12***	.26***	.23***	.20***	.11***	.01	.10***	---	---	---	---
	Total	-.09***	.09***	-.08***	.24***	.25***	.19***	.16***	.04*	.08***	---	---	---	---
<i>11. PCS</i>	Below	-.07*	.05	-.04	-.03	.17***	.02	.11**	-.03	.09*	.06	---	40.92	5.79
	Above	-.18***	.04	.02	-.04	.08*	-.03	.05	.01	.08*	.04	---	40.83	5.25
	Total	-.10***	.04*	-.01	-.03	.13***	.00	.08**	-.01	.08***	.05*	---	40.87	5.51
<i>12. MCS</i>	Below	-.02	-.06*	.04	.09*	-.17***	.01	-.19***	-.01	-.14***	.03	-.52***	45.78	8.01
	Above	.10***	-.04	.04	.06	-.16***	-.02	-.17***	-.01	-.15***	-.04	-.50***	47.53 †	6.79
	Total	.04*	-.04*	.02	.10***	-.16***	.01	-.19***	-.01	-.15***	.00	-.51***	46.70	7.44

*Note.* PC = Positive Coping; NC = Negative Coping; SS = Social Support; AC = Avoidance Coping; RC = Religious Coping; SC = Substance Use Coping; HC = Humor Coping; PCS = Physical Component Summary; MCS = Mental Component Summary. † Post-hoc ANOVA revealed significant differences between poverty levels.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 6

*Comparison of Fit of the Baseline Model, Main Effects Model, and Moderation Effects Model for the Path Analysis*

Model	$\chi^2$	<i>df</i>	<i>CFI</i>	<i>TLI</i>	<i>RMSEA</i>	$\Delta\chi^2$	$\Delta df$
B	20.523**	8	.997	.938	.021		
B <sub>1</sub>	26.351*	13	.997	.959	.017	5.829	5
B <sub>2</sub>	41.440**	20	.995	.957	.017	15.089*	7

*Note.* B = baseline model; B<sub>1</sub> = test of main effects; B<sub>2</sub> = test of moderation effects. B<sub>1</sub> was selected as the final model.  
\*  $p < .05$ . \*\*  $p < .01$ .



Table 7

*Standardized Regression Weights for Above Poverty and Below Poverty Groups in the Final B<sub>1</sub> Model*

<i>Path</i>	<i>Final B<sub>1</sub> Model</i>	
	<i>Above Poverty (n = 2187)</i>	<i>Below Poverty (n = 1537)</i>
<i>Main Effects</i>		
<i>Age → PH</i>	-.099***	-.087***
<i>PC → PH</i>	-.059*	-.057*
<i>NC → PH</i>	.133***	.122***
<i>RC → PH</i>	.035	.031
<i>RC → PW</i>	-.110***	-.091***
<i>Moderation Effects</i>		
<i>Age → PW</i>	.097***	-.011
<i>PC → PW</i>	.103**	.146***
<i>NC → PW</i>	-.114**	-.096*
<i>SS → PH</i>	-.039	-.011
<i>SS → PW</i>	.004	.017
<i>AC → PH</i>	-.021	.035
<i>AC → PW</i>	-.134***	-.148***

*Note.* PC = Positive Coping; NC = Negative Coping; SS = Social Support; AC = Avoidance Coping; RC = Religious Coping; SC = Substance Use Coping; HC = Humor Coping; PH = Physical Health; PW = Psychological Well-Being.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Figure 1

*Wolf's (2007) Conceptual Framework of Understanding Sociological Concepts of Urban Poverty*

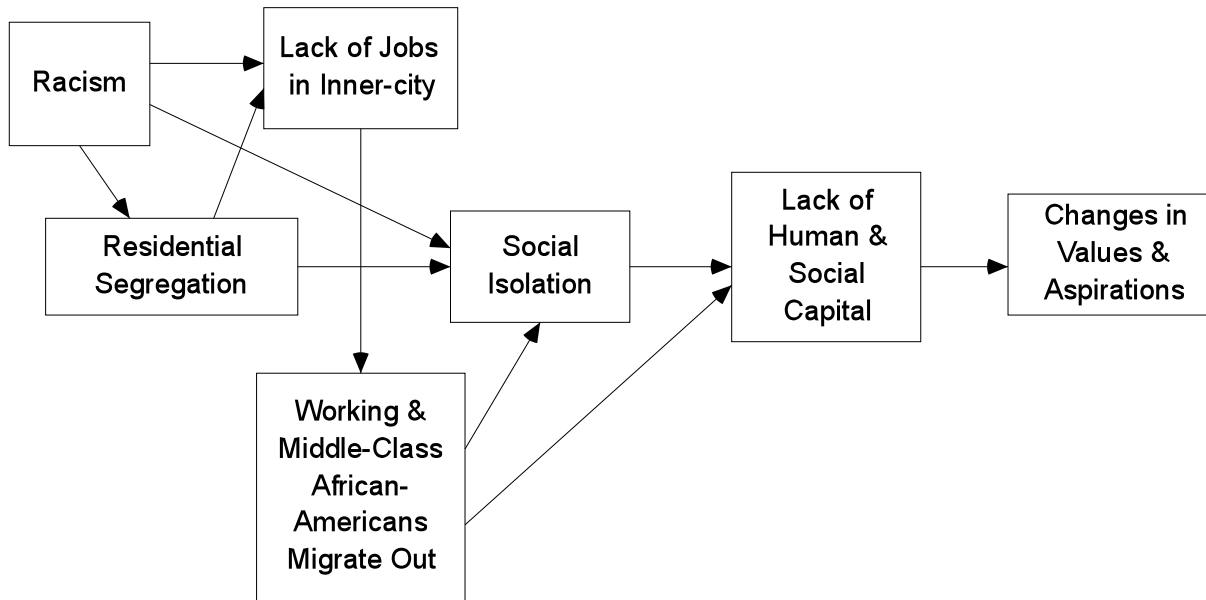
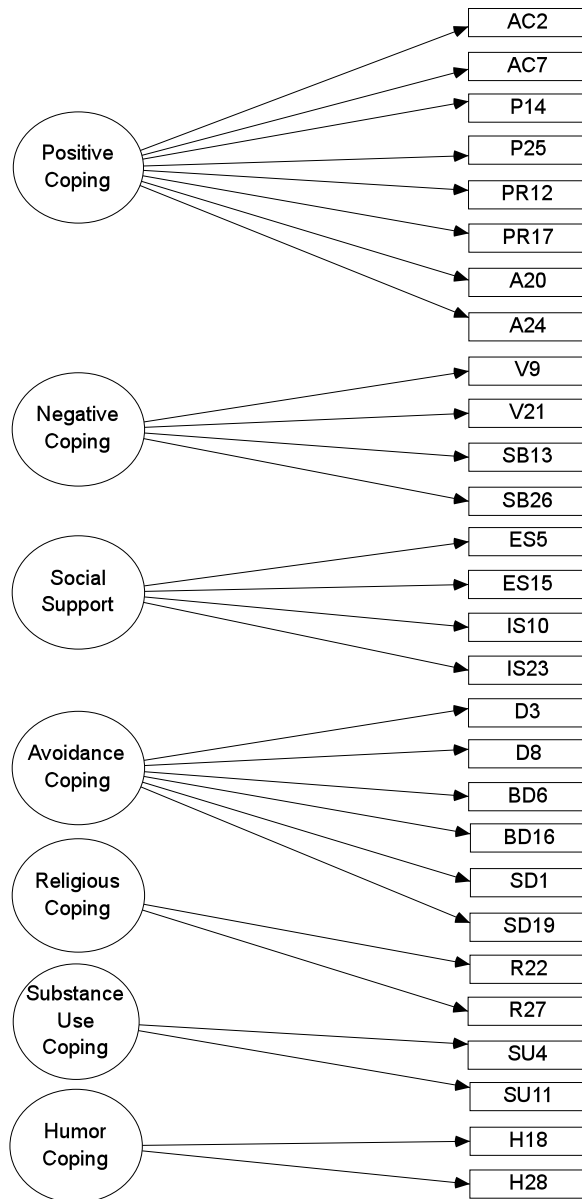


Figure 2

*Baseline Conceptual Model for the Confirmatory Factor Analysis*



*Note.* Observed variables are assigned by one of the 14 Brief COPE subscale names followed by the item number for the measure. Although not shown in the diagram, all latent variables were correlated. AC = Active Coping; P = Planning; PR = Positive Reframing; A = Acceptance; V = Venting; SB = Self-blame; ES = Use of Emotional Support; IS = Use of Instrumental Support; D = Denial; BD = Behavioral Disengagement; SD = Self-distraction; R = Religion; SU = Substance Use; H = Humor.

Figure 3

*Conceptual Model for Age and Coping Styles as Predictors of Self-reported Physical Health and Psychological Well-being for Individuals Above and Below Poverty Level*

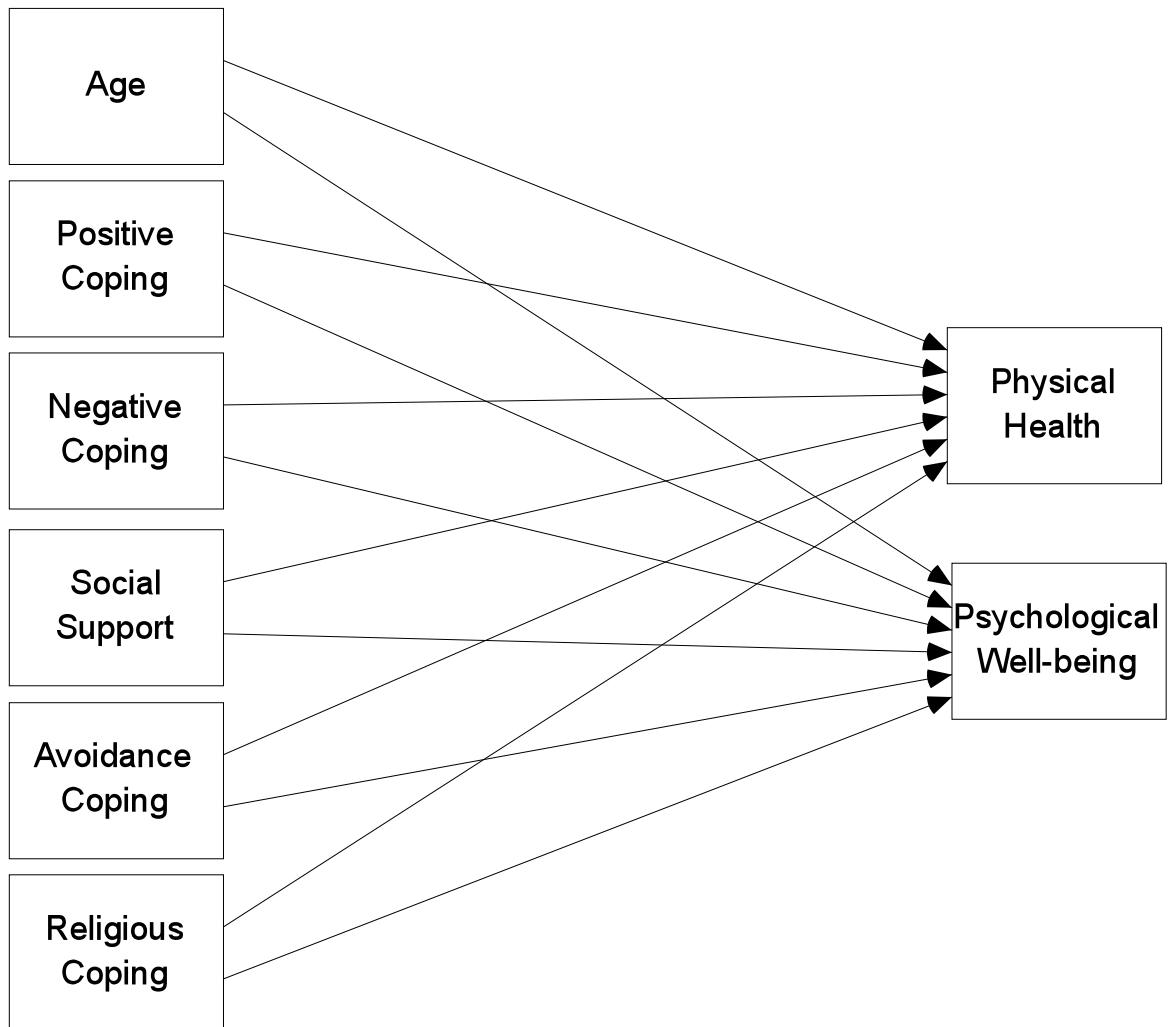


Figure 4

*Final Modified Model Specification for the Confirmatory Factor Analysis*

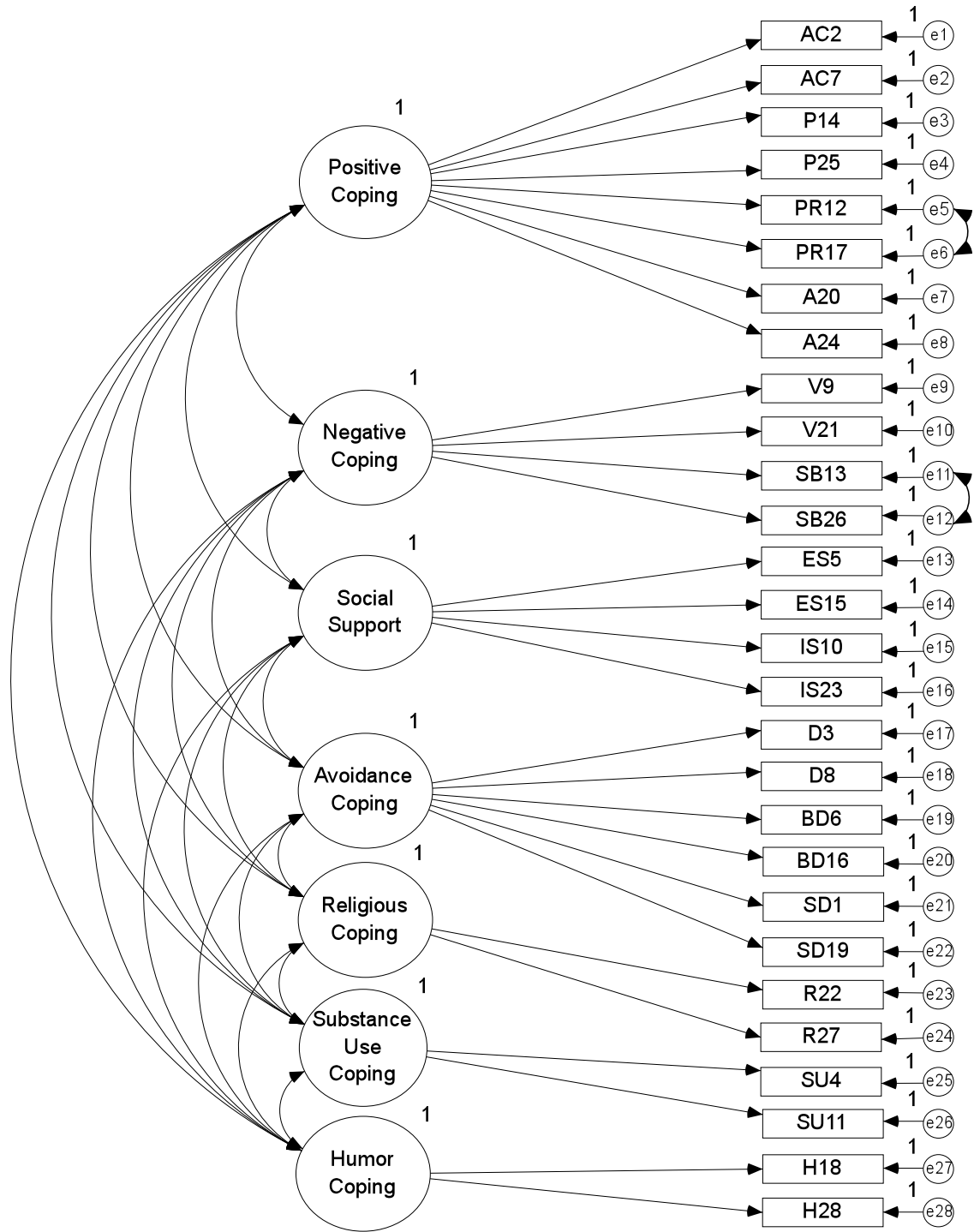
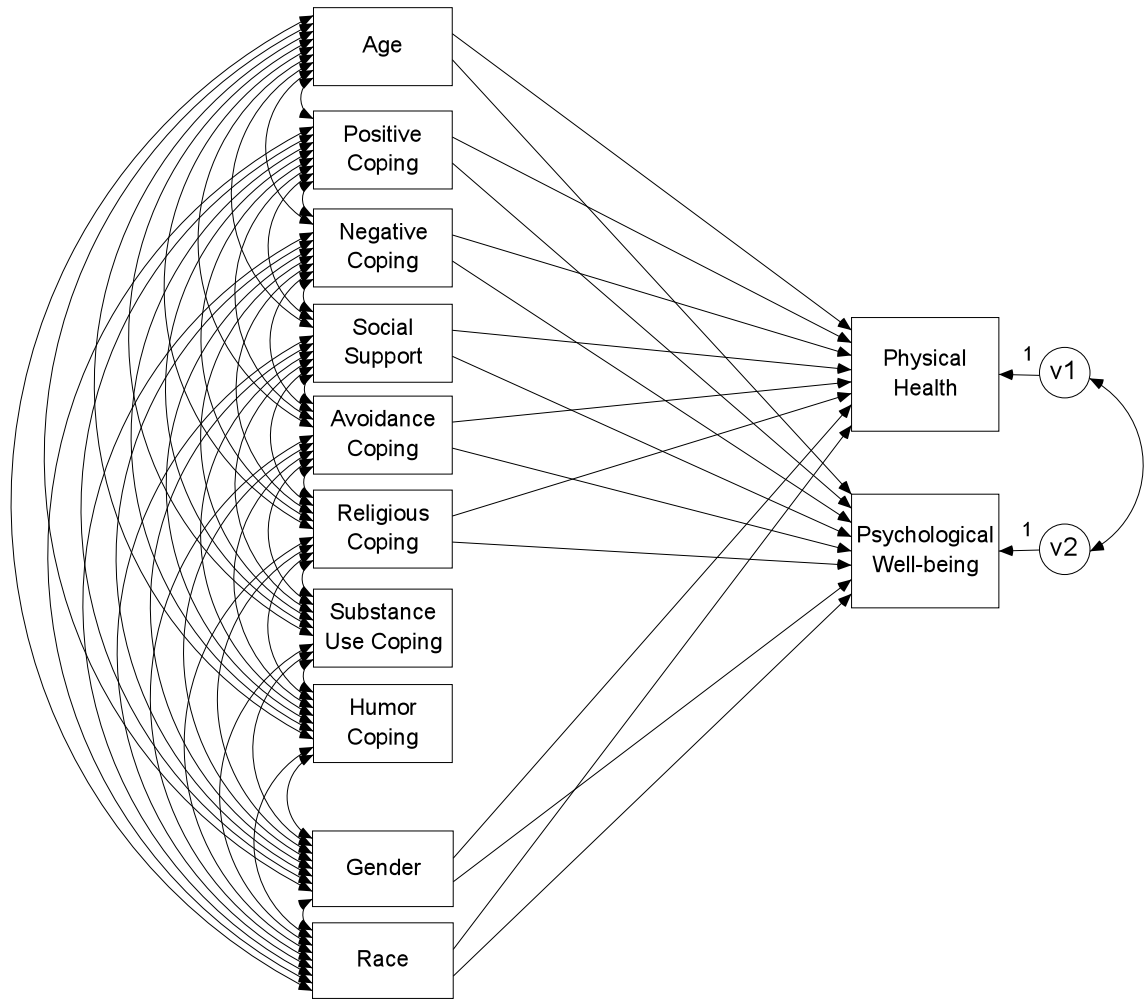


Figure 5

*Specified Model for Age and Coping Styles as Predictors of Self-reported Physical Health and Psychological Well-being for Individuals Above and Below Poverty Level*



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### EDUCATION

- 08/05 – present    Lehigh University, Bethlehem, PA  
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- 08/00 – 05/03    Kutztown University, Kutztown, PA  
B.S. Psychology, *Magna cum laude*
- 08/99 – 05/00    West Chester University, West Chester, PA

### HONORS

- APAGS David Pilon Scholarship for Training in Professional Psychology (2009)  
Early Career Excellence Alumni Award, Kutztown University (2009)  
National Institute on Aging Intramural Research Program Summer Internship (2008)  
APA Student International Travel Award (2006)  
Board of Governors' Scholarship (2001, 2002, 2003)  
Stimmel Outstanding Scholarship (2001, 2002, 2003)

### CLINICAL EXPERIENCE

- 09/10 – present    **Pre-doctoral Intern**  
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- 05/07 – 08/10    **Neuropsychology Psychometrician**  
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08/06 – 05/07    **Practicum Student**  
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*Graduate Courses:* Advanced Counseling Techniques (Fall 2009, Fall 2008), Elementary & Secondary School Counseling III: Consultation in the Schools (Summer 2007; Summer 2009)

01/06 – 05/07

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*Graduate Courses:* Helping Skills (Spring 2007), Elementary & Secondary School Counseling III: Consultation in the Schools (Summer 2006), Family Counseling (Spring 2006)

**PUBLICATIONS (\* thesis)**

Davis, W., & Carr, A. G. (2009). Three reasons why cultural competency should be of ultimate concern to clinical and counseling psychology graduate students. *The Pennsylvania Psychologist Quarterly*, 69(6), 14-15.

\* Carr, A. G., & Caskie, G. I. L. (in press). Path analysis of the relationship between social problem solving and White racial identity. *Journal of College Student Development*.



Dattilio, F. M., Kazantzis, N., Shinkfield, G., & Carr, A. G. (in press). A survey of homework use, experience of barriers to homework, and attitudes about the barriers to homework among couple and family therapists. *Journal of Marital and Family Therapy*.

Malouf, M. A., Inman, A. G., Carr, A. G., & Franco, J. I. (in press). Health-related Quality of Life, Mental Health and Psychotherapeutic Considerations for Women Diagnosed with a Disorder of Sexual Development: Congenital Adrenal Hyperplasia. *International Journal of Pediatric Endocrinology*.

## CONFERENCE PRESENTATIONS

Carr, A. G., Davis, W., & Egwaikhide, A. (2010, June). *Geropsychology training initiative: Pennsylvania's service provisions for diverse older adults*. Workshop to be presented at the Pennsylvania Psychological Association's 2010 Annual Convention, Harrisburg, Pennsylvania.

Weil, M. C., Carr, A. G., & Shook, C. B. (2010, June). *Student advocacy, leadership, and participation in the Pennsylvania Psychological Association of Graduate Students (PPAGS)*. Workshop to be presented at the Pennsylvania Psychological Association's 2010 Annual Convention, Harrisburg, Pennsylvania.

Carr, A. G., Caskie, G. I. L., Evans, M. K., & Zonderman, A. B. (2009, November). *Age and coping as predictors of physical health and psychological well-being: The role of poverty status as a moderator*. Poster presented at the Annual Meeting of the Gerontological Society of America, Atlanta, Georgia.

Carr, A. G., Caskie, G. I. L., Evans, M. K., & Zonderman, A. B. (2009, November). *Factorial invariance of the Brief COPE across poverty level*. Poster presented at the Annual Meeting of the Gerontological Society of America, Atlanta, Georgia.

Caskie, G. I. L., Willis, S. L., & Carr, A. G. (2009, November). *Health status as a predictor of midlife and later life executive functioning*. Symposium presented at the Annual Meeting of the Gerontological Society of America, Atlanta, Georgia.

Carr, A. G., & D'lusio, N. T. (2009, August). *Positive and negative experiences of international trainees in supervision: How we can make it work*. Roundtable presented at the 117<sup>th</sup> Annual Convention of the American Psychological Association, Toronto, Ontario.

Malouf, M. A., Inman, A. G., Carr, A. G., Franco, J. I., & Brooks, L. M. (2009, August). *Congenital adrenal hyperplasia: Quality of life and mental health outcomes*. Poster presented at the 117<sup>th</sup> Annual Convention of the American Psychological Association, Toronto, Ontario.

- Carr, A. G.** (2008, November). *Issues and answers*. Three sessions presented at the Epilepsy Education & Information Exchange, Trevoise, Pennsylvania.
- D'luso, N. T., & **Carr, A. G.** (2008, August). *Peer supervision: What every graduate student needs to know*. Roundtable presented at the 116<sup>th</sup> Annual Convention of the American Psychological Association, Boston, Massachusetts.
- Caskie, G. I. L., **Carr, A. G.**, & Sutton, M. C. (2008, August). *Social problem-solving and self-efficacy as predictors of adjustment to college*. Poster presented at the 116<sup>th</sup> Annual Convention of the American Psychological Association, Boston, Massachusetts.
- Carr, A. G.**, Zonderman, A. B., Evans, M. K., & Kitner-Triolo, M. H. (2008, August). *Disparities in coping across the lifespan: An examination of race, socioeconomic status, and sex as moderators of coping*. Poster presented at The National Institute on Aging Intramural Research Program Summer Student Poster Day, Baltimore, Maryland.
- Caskie, G. I. L., **Carr, A. G.**, & Sutton, M. C. (2008, March). *The accuracy of self-reported college GPA: Differences by achievement level and academic self-efficacy*. Paper presented at the Annual Meeting of the Eastern Psychological Association, Boston, Massachusetts.
- Carr, A. G.**, Hofsess, C., & Tirpak, D. (2007, August). *How to obtain effective supervision during your practicum/internship experience*. Roundtable presented at the 115<sup>th</sup> Annual Convention of the American Psychological Association, San Francisco, California.
- Carr, A. G.**, & Caskie, G. I. L. (2007, August). *The relationship between white racial identity and social problem-solving*. Poster presented at the 115<sup>th</sup> Annual Convention of the American Psychological Association, San Francisco, California.
- Spokane, A., & **Carr, A. G.** (2007, June). *Issues & answers: What's on your mind?* Three sessions presented at the You Are Not Alone Conference of the Epilepsy Foundation of Eastern Pennsylvania, Allentown, Pennsylvania.
- Caskie, G. I. L., Krycak, R., **Carr, A. G.**, & Fung, F. (2007, March). *Factor structure of the collegiate self-efficacy scale*. Poster presented at the Annual Meeting of the Eastern Psychological Association, Philadelphia, Pennsylvania.

Caskie, G. I. L., Willis, S. L., & Carr, A. G. (2006, November). *Are older adults who agree to participate in a cognitive intervention study different than those who refuse?* Poster presented at the Annual Meeting of the Gerontological Society of America, Dallas, Texas.

Hofsess, C., Carr, A. G., & Bludworth, J. (2006, August). *Interviewing for internships: Getting the supervision you deserve (for graduate students)*. Roundtable presented at the 114<sup>th</sup> Annual Convention of the American Psychological Association, New Orleans, Louisiana.

Carr, A. G., Caskie, G. I. L., & Inman, A. G. (2006, June). *The relationship between white racial identity and social problem-solving and their prediction of college academic achievement*. Poster presented at the 37<sup>th</sup> Annual International Conference for the Society for Psychotherapy Research Conference, Edinburgh, Scotland.

Carr, A. G., Walker, J., Inman, A. G., & Orlinsky, D. (2006, June). *South Asian Indian Americans: Qualitative look at parental cultural transmission and interracial marriage*. Panel presented at the 37<sup>th</sup> Annual International Conference for the Society for Psychotherapy Research, Edinburgh, Scotland.

Carr, A. G., Inman, A. G., Altman, A., & Kaduvettoor, A. (2005, October). *Reflections and experiences of Asian-Indian—White interracial couples*. Poster presented at the Mid-Atlantic Regional Group Meeting for the Society for Psychotherapy Research, St. Mary's City, MD.

## PROFESSIONAL SERVICE

Pennsylvania Psychological Association of Graduate Students, Member at Large, Diversity Focus (2008 – present)

Pennsylvania Psychological Association, Geropsychology Subcommittee, Member (2009 – present)

Pennsylvania Psychological Association, Committee on Multiculturalism; Chair, Geropsychology Training Initiative Subcommittee (2008 – 2009)

Division 17, Supervision and Training Section, Webmaster (2007 – present)

Lehigh-Carbon School Counselors Association, Member at Large, Student Representative (2007 – 2009)

Pennsylvania School Counselors Association Leadership Development Academy, Liaison (2009)

Division 17, 116<sup>th</sup> Annual Convention of the APA: Catering Committee; Hospitality Suite Volunteer (2008)