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# Religious coping measurement in the context of long-term care.

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RELIGIOUS COPING MEASUREMENT  
IN THE CONTEXT OF LONG-TERM CARE

By

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B.S., Milligan College, 2014  
M.S., University of Louisville, 2016

A Dissertation  
Submitted to the Faculty of the  
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University of Louisville  
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A Dissertation Approved on

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ABSTRACT

RELIGIOUS COPING MEASUREMENT IN THE  
CONTEXT OF LONG-TERM CARE

Nathaniel David Andrew

July 12, 2018

This dissertation explores the reliability and validity of religious coping measures in long-term care settings. The paper begins with a discussion of general coping and religious coping theory, coping measurement, and a review of religious coping in elderly long-term care residents. Next, a modified model of coping and resilience in older adults is introduced. The latter part of the paper describes a study that examines the reliability and validity of two specific religious coping measures in nursing home, assisted living, and personal care residents. The study utilizes a cross-sectional design by interviewing a convenience sample of nursing home, assisted living, and personal care residents. The findings suggest at least one of the specific religious coping measures assesses a unique construct that is distinct from other religious measures, and both religious coping measures were used to effectively measure clinically relevant constructs in long-term care settings. In sum, this dissertation asserts that the construct of religious coping should be explored in more depth because of the implications for understanding more about resilience processes in the context of mental health and aging.

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## INTRODUCTION AND BACKGROUND

For many elderly individuals admitted to long-term care facilities, the long-term care experience may be defined by stressful events such as declining health, changes in social environment, loss of independence, and the loss of control over daily life. However, many long-term care residents continue to live fulfilling lives in the midst of suffering and hardship, and religious beliefs and practices may function as a means to this fulfillment. The study of religious coping has made great strides in recent years, but it is unclear whether the construct is unique and relevant in the context of coping with stressors in long-term care. An exploration of religious coping in the context of long-term care can help support older adults in a pursuit of greater well-being and an optimal quality of life in response to challenging situations. This paper describes a study which examines the construct of religious coping in a unique sample of individuals who may face many significant stressors.

### **Aims**

The aim of this paper is to examine the extent to which common religious coping measures are valid and applicable in long-term care settings. The specific questions addressed in this paper, in the context of long-term care, include: 1) Are religious coping patterns represented by a simple factor structure reflecting distinct methods of appraisals? 2) Are religious coping approaches to control, or efforts to problem-solve stressful situations, represented by a simple factor structure reflecting distinct styles of religious coping? 3) Are current measures of religious coping patterns and approaches to control

internally consistent? 4) Do religious coping measures demonstrate concurrent, convergent, and discriminant validity in relation to measures of stress, well-being, psychological health, and other measures of religious involvement and religious coping? 5) Do religious coping measures demonstrate incremental validity by accounting for significant variance in relevant clinical outcomes after controlling for broader religious variables and general, non-religious coping strategies? 6) Is the strength of the relationship between religious coping and life satisfaction moderated by individual coping resources and contextual coping resources? To answer these questions, this cross-sectional study will examine religious coping and non-religious coping in a sample of elderly long-term care residents.

### **Validity**

The concept of validity may be defined by whether an assessment tool effectively measures what it is designed to measure. The process of investigating validity has been described as “nothing less than an evaluative summary of both the evidence for and the actual – as well as potential – consequences of score interpretation and use” and an integration of “considerations of content, criteria, and consequences into a construct framework for empirically testing rational hypotheses about score meaning and utility” (p. 742, Messick, 1995). More simply, the idea of construct validity refers to whether an assessment tool reflects the theoretical construct of interest (Cronbach & Meehl, 1955).

Messick (1995) has proposed “six distinguishable aspects of construct validity” (p. 744) that may help us establish whether a given measure is meaningful or valid for use in a specific context. First, the *content* of a measure should reflect all facets of the underlying construct. As related to religious coping, a measure may demonstrate validity

if it addresses all aspects of the religious coping construct. Second, the *substantive* element of construct validity involves whether the tasks on a measure relate to the proposed process of the construct; in other words, religious coping measures should correspond to the actual tasks involved in religious coping. Third, the *structural* element of construct validity involves whether a measure's internal structure and scoring system accurately reflect the construct. Fourth, the *generalizability* element involves whether a measure is applicable across contexts. Fifth, the *external* element involves the manner in which a measure correlates with other measures and related constructs. Sixth, the *consequential* element involves considering positive and negative implications of using a measure. The construct of religious coping is multi-faceted, and to explore the construct validity of religious coping in long-term care, it is necessary to consider a number of related concepts as well. In this literature review, the following aspects of validity are examined to address Messick's considerations: 1) coping theory (*content*); 2) coping measurement (*substantive, structural, and external*); 3) context (*generalizability*); 4) clinical implications (*consequential*).

### **Coping Theory**

**Late-Life Stress.** To understand theories of coping, it is important to first consider the concept of stress. Many stressful situations may threaten one's quality of life in old age. Stressors have been described as stimuli involving challenging events or alterations in one's environment (Lazarus & Folkman, 1984), and stress may be considered "the experience of encountering or anticipating adversity in one's goal-related efforts" (Carver & Connor-Smith, 2010, p. 684). Stressors may take the form of major life events and/or everyday hassles (George, 1989; Lazarus & DeLongis, 1983).

Psychological stress involves an imbalance between one's available resources and the frequency and severity of stressors one experiences (Lazarus, 2006); individuals who experience more frequent and severe stressors relative to available resources may experience greater stress. For elderly individuals, stressors may include events and life transitions such as retirement, widowhood, and relocation (Markides & Cooper, 1989). Other late-life stressors may include interpersonal relationships, health, finances, and work (Moos, Brennan, Schutte, & Moos, 2006). Poor health and functional decline compel some older adults to move to a long-term care (LTC) facility (Brownie, Horstmanshof, & Garbutt, 2014; Komatsu, Hamahata, & Magilvy, 2007). As Brownie and colleagues (2014) suggest, "while transition is considered a natural process prompted by the changes in our lives, the transition to a residential care environment represents a uniquely significant relocation for older people" (p. 2). The move to a LTC facility may be considered a significant life transition (Oleson & Shadick, 1993), and individuals living in a LTC environment are often subject to the loss of personal autonomy, the loss of functional independence, and the loss of privacy (Brownie et al., 2014). In addition, they are often subject to a new social environment as well as a more restrictive living situation that limits access to desired recreational resources and activities (Ellis, 2010). Although every stage of life involves stress and challenges, older adults who transition to LTC facilities are compelled to respond to multiple stressors associated with life transitions and aging.

**Theory of Coping.** Older adults who encounter significant stressors may use a variety of coping strategies. Coping has been defined as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are

appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). Coping methods may be influenced by individual resources (i.e., health, energy, positive beliefs, problem-solving skills, social skills, and social support) and one’s environment (Lazarus & Folkman, 1984), as these factors may increase or decrease one’s opportunities to navigate challenging situations. Researchers have attempted to conceptualize coping strategies using a few broad domains, but coping literature is not in complete agreement on how to label these categories. Coping is widely considered a process allowing individuals to either manage their emotions in response to stress (emotion-focused coping), to directly confront a stressor through problem-solving, or to make meaning out of a situation (Folkman & Moskowitz, 2004; Lazarus, 1993). Other broad categories of coping strategies include engagement (approach), disengagement (avoidance), primary control, and secondary control (accommodative) (Carver & Connor-Smith, 2010). Zuckerman & Gagne (2003) suggest five broad domains of coping strategies including self-help, approach, accommodation, avoidance, and self-punishment. These broad strategies describe the general process of how people address adversity. Broad processes of coping may be divided into more categories or families of coping such as information seeking, helplessness, escape, self-reliance, support seeking, delegation, isolation, accommodation, negotiation, submission, and opposition (Skinner, Edge, Altman, & Sherwood et al., 2003). Categories of coping may be further broken down into specific ways of coping and coping instances (Skinner et al., 2003). Carver and colleagues (Carver, 2013; Carver, Scheier, & Weintraub, 1989) cite many methods of coping including the following: positive reinterpretation, acceptance, focusing on venting emotions, denial, behavioral disengagement, mental disengagement, substance use, active

coping, planning, suppression of competing activities, restraint, emotional social support, instrumental support, and turning to religion. Despite the lack of unanimity on labeling coping processes, there seems to be convergence in that coping may occur through either trying to change or adapt to one's stressful situation. Although older adults experience many late-life stressors, coping processes can help them respond skillfully to adversity.

**Theory of Religious Coping.** Religious coping (RC) is a multifaceted construct and a specific type of coping involving the use of religious institutions, beliefs, and practices to manage stress. To understand RC, it is necessary to consider the definition of the broader construct of religion. Pargament (1997) describes religion as “a process, a search for significance in ways related to the sacred” (p. 32). Religion may involve beliefs and practices that lead to a greater sense of meaning and/or a connection with a higher power or deity. Although religion can be practiced individually, religious thoughts and activities are often shared by groups of people. The terms “religion” and “spirituality” have been used in research to measure similar concepts (Hall, Meador, & Koenig, 2008), as both involve finding greater meaning and purpose in life. However, the constructs are often considered distinct in that religion more often involves a set of practices and institutions attempting to connect to a higher power or deity; spirituality does not necessarily involve these elements (Worthington Jr. & Sandage, 2001). Pargament's definition of religion is useful because it acknowledges the broad and diverse nature of religious beliefs and practices, as humankind has sought significance through religion in many ways.

In addition to defining religion, Pargament (1997) established a framework to examine the ways religion is used in times of stress, a process that may be conceptualized

as religious coping. Religion is practiced across a variety of situations in everyday life, but it may be considered RC when it is practiced in the context of adversity. Pargament explores RC methods through the following concepts: religious purposes, expressions, mechanisms, patterns of appraisals, and styles/approaches to control (refer to Table 1). Based on literature reviews, interviews, and factor analyses, Pargament (1997) suggests several purposes of RC. These purposes include a search for life significance, a search to better oneself, and problem-solving. Pargament also suggests religion serves the purpose of connecting people, encouraging prosocial behavior, and discouraging harmful behaviors. Pargament (1997) suggests RC can be expressed differently based on situations, cultures, and religious orientations. Cultural factors that may influence expressions of RC may include race, gender, religious affiliation, religious denomination, geographic location, and marital status (Chatters, Taylor, Jackson, & Lincoln, 2008; Fischer, Ai, Aydin, Frey, & Haslam, 2010; van Hook & Rivera, 2004). Individuals may use different religious strategies for coping with different life events, and RC may be differentially effective depending on the severity of the stressor (Pargament, 1997). Differences in religious orientation, or the pursuit of religion for either intrinsic or extrinsic goals, may also influence how religion is expressed in coping (Pargament, 1997); for example, the intrinsic orientation may be closely related to the spiritual purpose of coping (Pargament et al., 1992). Pargament (1997) also hypothesized two basic mechanisms of RC, conservation and transformation, which describe the process of how values can be either maintained or changed through religion. The concept of conservation involves keeping one's values through holding fast to religious beliefs and group affiliations, while transformation involves creating new meaning through avenues



such as religious conversion and pursuing forgiveness in relationships.

Table 1.  
*Pargament's Religious Coping Concepts*

	Concept	Definition
<i>Purposes</i>	Spiritual	Search for significance
	Self-development	Search to better oneself
	Resolve	Problem-solving
	Sharing	Connection with others
	Restraint	Desire to be good
<i>Appraisals</i>	Positive	Secure relationship with God; positive outcomes
	Negative	Insecure relationship with God; negative outcomes
<i>Mechanisms</i>	Conservation	Maintaining previously held values
	Transformation	Change of values
<i>Styles</i>	Self-directing	Access to resources to help oneself
	Deferring	Allowing deity/higher power to take control
	Collaborative	Taking control with God's help
<i>Activities</i>	Spiritual	Connecting with God
	Good deeds	Explicitly religious behaviors
	Discontent	Religious questions, anger
	Religious support	Seeking help from religious community
	Plead	Asking God for events to occur
	Religious avoidance	Use of religion to escape problems

Three other important concepts in Pargament's theory of religious coping include RC activities, patterns of appraisals, and styles/approaches to control. A wide variety of religious activities, or specific coping methods, may be employed by individuals in the face of stress. To generate questions for measuring RC activities, Pargament and

colleagues interviewed clergy and church members, reviewed literature, and reviewed written narratives of how people use religion during difficult circumstances (Pargament, 1997; Pargament et al., 1990). RC activities are represented in the following categories: spiritually-based, good deeds, discontent, religious support, pleading, and religious avoidance (Pargament, 1997). The spiritual category includes activities where individuals seek to relate to a deity (e.g., “accepted that the situation was not in my hands but in the hands of God”, p. 184). The good deeds category includes activities such as explicit religious behaviors (e.g., helping people or “tried to be less sinful”, p. 185). The discontent category includes cognitions/emotions such as religious doubt and anger towards religion (e.g., “questioned my religious beliefs and faith”, p. 185). The support category includes activities such as seeking help from a church community (e.g., “sought support from clergy”, p. 185). The plead category includes asking God for events to occur (e.g., “pleaded with God to make things turn out ok”, p. 185). The religious avoidance category involves using religion to escape problems (e.g., distracting oneself with religion or “let[ting] God solve my problems”, p. 185). More generally, religious activities may be classified as either personal (intrapersonal/individual) or collective (interpersonal/organizational) (Fischer et al., 2010). The intrapersonal category includes activities such as prayer or reading a religious text, which may be completed individually. Interpersonal activities may include attending a religious service or participating in a study of a religious text, which would be completed in a group setting. Religious activities are classified using a variety of descriptive categories, but they are all similar in that individuals often use these activities to cope with challenging situations.

Religious coping patterns of appraisals involve cognitions related to the framing

of stressful life events. The two major categories of religious coping patterns are positive and negative (Pargament, 1997; Pargament, Koenig, and Perez, 2000; Pargament, Feuille, & Burdzy, 2011). Positive coping involves appraisals about having a safe relationship with a deity or attributing an innately good cause to difficult circumstances. In contrast, negative coping involves an insecure relationship with a deity (Pargament, Smith, Koenig, & Perez, 1998) or attributing innately negative causes to difficult circumstances. For example, a positive appraisal may consider a stressful event to be part of God's good plan, and a negative appraisal may consider a stressful event to be a punishment from God. Positive coping is often related to positive quality of life outcomes, while negative coping is often associated with negative outcomes (Ano & Vasconcelles, 2005; Schanowitz & Nicassio, 2006). RC patterns are characterized by broader views of coping with stress that may involve more than one specific RC activity.

Pargament (1997) and others (Emery & Pargament, 2004; Harrison, Koenig, Hays, Eme-Awkara, & Pargament, 2001) suggest there are at least three broad styles of religious coping: self-directing, deferring, and collaborative. These styles are described as "approaches to control" (Pargament, 1997, p. 180). The self-directing approach involves believing God provides resources to help one cope without God's help. The deferring approach involves passively allowing God to control a situation to influence the outcome. The collaborative approach involves working with God to control the situation. Compared to the other styles of RC, individuals who use a deferring approach give God the most control, and individuals who use the self-directing approach give God the least amount of control. Although Pargament (1997) suggests there is not necessarily a "right or wrong" approach, collaborative coping has been associated with positive outcomes

(Pargament, 1997; Pargament et al., 1998; Pargament et al., 2000), including studies with older adult samples (Emery & Pargament, 2004). Each of these approaches to control reflect an individual's level of engagement in coping relative to God's role in the process.

Pargament's theory of religious coping (1997) attempts to conceptualize the psychological process of seeking significance through religion during times of stress. The components of the theory define different functions of religion, coping activities, mechanisms, approaches to problem-solving, and expressions of religion involved in the pursuit of meaning. Examining the construct validity of RC involves considering whether these domains are measureable, replicable, and related to other constructs in predictable ways based on the broader theory.

**General Coping versus Religious Coping.** Pargament's theory suggests that knowing an individual's religious affiliation or frequency of religious practices is not enough to explain how religious beliefs may influence the process of coping.

Pargament's theory attempts to consider religious thoughts and behaviors, which involve seeking significance, in the context of coping processes. If religious coping may be understood as a theoretically unique construct, it is then important to explore how those specific processes add to our understanding of general coping and lead to either positive or negative quality of life outcomes.

**Religious Coping as a Unique Construct.** Although religious coping has often been assessed separately from general, non-religious coping, it is important to understand whether there are differences between these constructs. If RC and non-religious coping strategies are completely overlapping, the RC construct may not be clinically relevant when considering how to manage stress in LTC. If the RC construct does not effectively

predict health and quality of life outcomes in LTC, non-religious coping assessments may be more useful for measurement purposes. For the exploration of RC to be a meaningful research pursuit in LTC, it is necessary to either quantitatively or qualitatively demonstrate how measures of RC can help us better understand resilience processes, stress-related growth, and quality of life in this specific clinical setting.

Religious coping may be conceptually similar to other categories of coping and may involve similar mechanisms. The process of coping involves experiencing a stressor, a cognitive appraisal of the situation, and an action that attempts to use one or more strategies to manage stress. Pargament's theory of religious coping attempts to describe underlying mechanisms, appraisals, and specific coping strategies within this framework. Religious and non-religious coping strategies are associated with each other (Vandecreek et al., 2004). For example, reaching out to religious friends may function as a RC strategy (religious support) and as a non-religious coping strategy (emotional social support). Carver's (1989) non-religious coping strategies of positive interpretation and acceptance may work through similar mechanisms as RC strategies like meditation and prayer. Even non-religious people may utilize RC methods such as prayer (Bhui, King, Dein, & O'Connor, 2008), suggesting that RC methods are not necessarily practiced exclusively in religious samples. However, few studies directly compare the use of religious coping and non-religious coping strategies (e.g., Koenig, Siegler, and George, 1989). One review (Krägeloh, 2011) examined studies of the Brief COPE (a brief measure of general coping strategies) factor structure in a variety of settings, with an emphasis on the "turning to religion" subscale. The results were mixed; while several studies in the review found the RC scale loaded onto non-religious scales, some studies suggested the RC items

comprised their own factor. Krägeloh suggested it is unclear whether RC is distinct from secular coping methods assessed by this measure due to the wide range of results from factor analyses. Pargament and colleagues (1990) found religious and non-religious coping strategies are “modestly to moderately associated with each other” (p. 817) and suggest that “both religious and nonreligious processes appear to be commonly involved and interrelated in coping” (p. 818). Although studies of RC may assume RC and non-religious coping are theoretically different, it is important to examine whether this is true to justify further exploration of the RC construct in LTC settings.

Although there may be conceptual similarities between religious and non-religious coping, it is also possible that religious coping functions as a unique coping subtype. RC strategies such as “working with God to solve a problem” or “asking God for a miracle” may not be easily classified under any specific category of non-religious coping strategies. Few studies compare the frequency of religious and non-religious coping methods, but existing studies have found RC to be just as common as non-religious coping (Koenig, George, & Siegler, 1988; Koenig, Pargament, & Nielson, 1998; Pargament, 1997). If RC is distinct from non-religious coping, it may be a relevant and meaningful construct to explore as related to quality of life for elderly individuals facing adversity. Even if RC overlaps with other types of coping, RC methods may expand one’s coping repertoire by allowing individuals to manage stress in a greater variety of ways. RC strategies may be common because they serve multiple functions in helping people face adversity. For example, a religious prayer could function as both a problem-focused and emotion-focused strategy, and meeting with a member of the religious clergy could concurrently involve positive reinterpretation, active coping, and emotional social

support. Further, individuals develop complex worldviews that stem from schemas bound in religion, which may uniquely influence cognitions involved in the coping process (McIntosh, 1995). Pargament (1997) suggests RC and non-religious coping strategies are not mutually exclusive, but that “religion complements non-religious coping, with its emphasis on personal control, by offering responses to the limits of personal powers” (p. 310). As RC strategies may be just as common as any specific non-religious coping strategy, further exploration of their potentially unique contribution to research on late-life coping is warranted. It is necessary to compare RC and non-religious coping from a theoretical perspective to understand where and how religion fits in the theoretical hierarchy of potential coping responses.

It seems reasonable to consider Pargament’s conceptualization of religious coping to be reflective of broader theories of coping in terms of content. As Pargament (1997) states, “coping, like religion, is a process, a search for significance. Unlike religion, however, coping does not necessarily involve the sacred” (p. 90). If the RC construct is to be appropriately measured in LTC samples, it must be associated with broader theories of coping, yet be distinct enough to be classified as a unique subtype or method of coping. Pargament’s deductive approach to establishing a framework of RC appears to capture the full essence of the “construct domain” (Messick, 1995) of religious coping, which is evident by his thorough explanations of religious coping mechanisms, purposes, activities, approaches to control, appraisals, and expressions.

### **Coping Measurement**

Construct validity is dependent upon the efficacy of specific measurement tools. Based on Messick’s descriptions of substantive, structural, and external aspects of

construct validity (1995), valid measures of religious coping must reflect the general process of coping, hold to a solid internal structure, and correlate with other relevant measures and constructs.

**General Coping Measurement.** Coping is a complicated construct that is not easily measured. Skinner and colleagues (2003) suggest coping “is not a specific behavior that can be unequivocally observed or a particular belief that can be reliably reported. Rather, it is an *organizational construct* used to encompass the myriad actions individuals use to deal with stressful experiences” (p. 217); more simply, coping is a process involving multiple thoughts and actions. Because the structure of coping is complex (Folkman & Moskowitz, 2004), researchers have suggested many categories to conceptualize coping at different theoretical levels. For example, while broader categories of coping may be grouped together as “families”, more specific methods may be labeled “ways of coping” (Skinner et al., 2003). However, the methods-foci approach to measuring coping may be the most common (Oakland & Ostell, 1996). This approach assesses coping by asking about specific methods used in stressful situations. The methods-foci approach is useful because these types of coping assessments may be easily correlated with outcome measures; however, this approach may not be informative without knowledge of the context of coping, as specific coping methods are not necessarily beneficial across all settings (Oakland & Ostell, 1996). Examples of the methods-foci approach include The Ways of Coping Questionnaire (Folkman & Lazarus, 1988) and the Brief COPE (Carver, 1997).

The Ways of Coping Questionnaire and the Brief COPE are examples of widely-used, theory-based, general coping measures. The Ways of Coping Questionnaire



(Folkman & Lazarus, 1988) utilizes a “yes or no” checklist (e.g., “made a plan of action and followed it”) to ask about specific strategies used to cope. The questions are designed to reflect problem-solving and emotion-focused processes by which individuals manage stressful events. The questionnaire was validated on 100 middle-aged adults (age 45-64), and internal consistency on the two scales (problem-solving and emotion focused) was confirmed through interrater agreement (91%) and Cronbach’s alpha (.80-.81). The Brief COPE (Carver, 1997) is another example of a theory-based measure of coping methods. The Brief COPE is a shorter version of the full COPE (Carver, Scheier, & Weintraub., 1989), which includes 60 items about individuals’ uses of various coping strategies. The shorter measure includes 28 items featuring 14 scales with two items for each scale. The items ask participants to respond on a four-point scale from “I haven’t been doing this at all” to “I’ve been doing this a lot.” The scales include active coping, planning, and positive reframing among other strategies. The brief version was administered to a sample of 168 community-dwelling adults (14% age 55 or older) who had experienced a recent stressor (Ironson et al., 1997). Reliability analyses revealed 9 out of 14 subscales had internal consistency of at least .65, and the measure featured a factor structure that is similar to the original measure. Although coping strategies may be organized or grouped in many ways (Skinner et al., 2003), these measures suggest it may be possible to conceptualize coping strategies by relatively few distinct patterns of thoughts and behaviors.

**Religious Coping Measurement.** Just like general coping, measuring religious coping is a complicated task. A National Institute on Aging work group (Fetzer, 2003) identified several formats by which RC has been measured. “Overall” RC assessment

strategies ask respondents to rate the degree to which religion is involved in helping them cope with life events; for example, respondents may be asked to rate to what extent they feel religious thoughts and behaviors have helped them cope with their specific situation (Koenig et al., 1992). However, “overall” methods do not necessarily offer insights into the cognitive and emotional processes of the coping strategy. “General” RC measures pose questions about religious activities in the context of a larger framework as one of many other types of coping strategies; for example, the Ways of Coping questionnaire (Folkman & Lazarus, 1986) includes questions about having faith and praying, which are classified as “Positive reappraisal” strategies. “Specific” RC strategy measures are the most comprehensive and assess coping activities, patterns of appraisals, and approaches to control. Examples of such measures include the RCOPE (Pargament et al., 1998), Brief RCOPE (Pargament et al., 2000), and Religious Problem-Solving Scales (RPSS) (Pargament et al., 1988), which are among the most frequently used specific religious coping measures. Exploring the factor structure and reliability of these measures are important steps in the process of examining validity.

The Brief RCOPE and RPSS (Pargament et al., 1988; Pargament et al., 2000) are commonly used measures of religious coping strategies and styles. The Brief RCOPE was developed based on a longer measure, the RCOPE. The RCOPE is a “specific” self-report religious coping measure and was developed from items corresponding to five functions of religion (i.e., finding meaning, control, comfort, intimacy, and life transformation). The tool measures positive and negative religious coping activities and appraisals. Respondents rate the degree to which they use religion for coping on a four-point scale ranging from 0 (“not at all”) to 3 (“a great deal”). The original RCOPE

featured 105 items from 21 subscales, and an exploratory factor analysis on a college student sample indicated 17 factors explained 62.7% of the variance, and  $\alpha = .80$  or higher for all except two factors. Two factors explained 38% of the variance, suggesting distinct responses based on whether respondents believed in positive or negative divine involvement in their stressful situations. Items with the highest factor loadings, seven from each factor (labeled “positive” and “negative”), were selected and labeled the Brief RCOPE, and  $\alpha = .90$  and  $.81$  for the two broad subscales. The RCOPE/Brief RCOPE were then administered to a sample of 551 hospital patients over 55. All but three subscales indicated  $\alpha$  of at least  $.65$ . A two-factor solution with positive and negative scales was supported through a confirmatory factor analysis, and  $\alpha = .87$  for the positive scale and  $\alpha = .69$  for the negative scale in this sample. In a sample of 100 individuals living in residential care facilities,  $\alpha = .85$  and  $.73$  for the positive and negative subscales (Schanowitz & Nicassio, 2006). The Brief RCOPE has been demonstrated to be valid and reliable in a variety of samples (Pargament et al. 2011), including samples of individuals with health conditions. However, there is still a need for a thorough evaluation of its psychometric qualities in the context of long-term care.

The Religious Problem-Solving Scales (RPSS) (Pargament et al., 1988) are an example of a religious coping measure that evaluates the degree to which religion helps people cope through offering control over life situations. The items were developed to assess ways to take control of problems through religion. The items ask participants to rate how frequently each statement is applicable, based on a five-point scale from “never” to “always.” The three categories proposed for religious problem-solving were collaborative, self-directing, and deferring. Thirty-six items were created in total, 12 for

each category. To examine the validity of the measure, the scales were administered to 197 church members who were middle-aged on average. As expected, a factor analysis identified a three-factor solution, and  $\alpha = .91$  or higher for all three scales. Different styles were associated with different types of religious practices and orientations; for example, the self-directing style was negatively correlated to intrinsic religiosity and prayer frequency, while the collaborative style was positively correlated to those variables. The three scales were validated in a short-form version as well (Fox, Blanton, and Norris, 1998), which was created from 18 of the original 36 items. The shortened scales had good internal consistency ( $\alpha = .84 - .87$ ). Because the measure was “developed around the theoretical construct of control” (Pargament, 1997, p. 184), it may reflect a more specific dimension of coping than the Brief RCOPE. Few studies have examined this measure in the context of LTC.

**Concurrent Validity.** For measures of religious coping to demonstrate validity, we may expect them to correlate with psychological health and quality of life outcomes. As specific patterns of RC appraisals have been connected to positive and negative adjustment to stress and quality of life (e.g., Ano & Vasconcelles, 2005; Pargament et al., 1998), we may expect to replicate such findings in our sample of interest (long-term care). In addition, we may expect RC to be correlated with other religious variables (e.g., religious affiliation, religious practices) to only a moderate extent, as religious coping purports to explain cognitive-behavioral processes that cannot be explained by mere religious involvement.

If religious coping measures suggest religious coping activities and patterns of appraisals are differentially associated with types and severity of stressors, it would serve

as additional evidence supporting construct validity. Challenges related to LTC admission such as loss of independence, changes in social environments, and declining health suggest LTC residents may face a different set of stressors than typical community-dwelling older adults. One conceptualization of coping suggests specific styles of coping are dispositional (Aldwin, 2007; Maynard et al., 2001). Alternatively, Folkman and Lazarus (1980) suggest coping appraisals and behaviors are based on context and that the effectiveness of coping responses may be variable rather than stable. For example, coping may vary based on the setting or the type of stressor (e.g., health problems, work stress). While problem-solving coping may be more effective for controllable stressors, emotion-focused coping may be more effective for problems outside of one's control (Carver & Connor-Smith, 2010). In regard to RC, in a set of vignettes proposing hypothetical coping situations, Oswald and Vandenberg (2003) found participants would use more "Pleading" and "Religious Support" coping for facing their fathers' deaths than for potentially stressful work situations. Schaefer and Gorsuch (1993) found individuals reported different coping styles in response to various hypothetical situations; for example, participants reported God would have a more active role in coping with the death of their father. In addition, increased stress was more strongly related to working together with God. Pargament (1997) suggests religion may be more helpful in some situations than others; for example, religion may be used more when people experience greater stress. As individuals use religion more frequently during times of greater stress, it is possible people may rely more on a higher power to help them cope (e.g., deferring, collaborative) when they are facing greater stress. If RC activities, appraisals, and approaches to control are differentially associated with the type and

severity of stressors for LTC residents, understanding the direction of these relationships would increase the clinical relevance of religious coping measurement in this setting.

**Convergent/Discriminant Validity.** Convergent validity is also important to consider when examining evidence for construct validity (Campbell & Fiske, 1959), as it is necessary to determine whether a measure relates to constructs that are theoretically similar. For example, two measurements of religious coping should be related more strongly to each other (convergent validity) than measures of non-RC (discriminant validity). RC and non-religious coping are related to some degree (i.e., Pargament et al., 1990; Vandecreek et al., 2004), but an excessively high correlation between them would suggest they do not represent unique methods of coping.

**Incremental Validity.** Religious coping measures must also demonstrate incremental validity to be considered relevant as assessment tools in LTC settings. We would expect religious coping scales to account for significant variance in health and well-being outcomes even after controlling for the influence of non-religious coping, religious affiliation, religious commitment, and religious practices. Although traits such as religiousness have some influence on RC (Krägeloh et al., 2012; Pargament, 1997), the RC construct should explain variance in positive or negative outcomes beyond the contribution of other variables. Some research has suggested the effects of RC are not accounted for by non-religious coping or more general religious variables (Pargament et al., 1990; Pargament & Ano, 2004; Pargament, Ano, & Wachholtz, 2005; Pargament & Raiya, 2007). Burker and colleagues (2005) assessed RC in 81 adults with lung disease and found RC accounted for significant variance in outcomes of depression and trait-anxiety that was not accounted for by non-religious coping. These findings suggest

measuring both RC and non-religious coping “contribute[s] more information than studying each alone” (Burker et al., 2005, p. 525). As part of the development of a measure of specific coping strategies, Carver and colleagues (1989) created a subscale to assess coping through “turning to religion.” Their coping measure recognizes religion as a separate type of coping strategy and acknowledges the complexity of the RC construct, as the researchers express uncertainty about how RC relates to other coping methods (Carver et al., 1989). As cultures, communities, and individuals utilize their religious resources in different ways during times of stress, RC may help explain how religiousness and mental health outcomes are connected (Hathaway & Pargament, 1990). For example, Ross & colleagues (2009) found RC approaches may moderate relationships between religiosity and outcomes. In a sample of Christian adults, Schottenbauer and colleagues (2006) found RC accounted for a significant amount of variance in affect in addition to variance accounted for by non-religious coping. In longitudinal analyses with an older adult sample, Hayden & colleagues (2003) found positive RC, but not religious practices, related to less depression over time when controlling for social support. Although RC and non-religious coping strategies both help explain the general process of coping, RC measures may explain additional variance in outcomes above and beyond the contribution of related variables. Religious coping may also describe some individuals’ cognitions and behaviors in times of stress that cannot be accounted for by other coping strategies.

### **Coping across Contexts**

Religious coping has been explored in a variety of settings and samples (Pargament et al., 1997). For measures of this construct to be considered relevant and

generalizable in long-term care settings, they must be validated in those specific contexts.

**Religious Coping in Late-Life.** An overview of religious coping in late life provides a broad perspective on religious coping patterns in community-dwelling elderly. Several studies have used cross-sectional designs to explore RC concepts in older adults living in the community. Koenig, George, and Siegler (1988) analyzed the frequency and methods of RC strategies using semi-structured interviews in a cross-sectional sample of 100 community-dwelling older adults. They asked older adults what methods they used to cope with various life events. Health-related events were the most common stressors, consisting of 49% of stressors. The most common RC strategies were placing trust/faith in God, prayer, and finding help/strength from God. The least common RC strategies were reading the Bible, understanding God's will, and living a Christian life. Individual strategies were reported more often than group strategies. Religion was the most common coping strategy compared to non-religious strategies, as 17% of all coping responses referenced religion, and 45% of the sample reported using religion to cope with at least one stressor. For comparison, the second most common coping response was "keeping busy" at 15.1%. Although the free-response format of the questions may have led participants to neglect to mention certain coping strategies, the study does indicate a high frequency of RC in an elderly community sample. Van Hook & Rivera (2004) used Pargament's RCOPE (Pargament et al., 2000) to assess common religious coping strategies in 122 older adults at community centers. The most common stressors were deaths of family members, relocation, and medical illness. They found religious purification ("asked forgiveness for my sins"), spiritual connection ("looked for a stronger connection with God"), and seeking spiritual support ("sought God's love and



care”) were the most common RC strategies (p. 243). The least common RC strategies were “Wonder[ing] what I did for God to punish me” and “Question[ing] God’s love for me” (p. 242). Individuals reported more positive than negative patterns of appraisals, and women reported more positive patterns of appraisals than men. Similar to Koenig and colleagues’ study (1988), van Hook and Rivera’s study (2004) offers a quantitative perspective on the frequency of specific RC methods used by older adults. As related to the construct of RC, these studies suggest many older adults report coping strategies involving placing faith in a greater power.

Longitudinal studies have also explored religious coping in community-dwelling elderly. Krause (2007) measured God-mediated control, religious activities (prayer, Bible study, and church attendance), and spiritual support (perceiving one’s beliefs are supported by one’s church and other church members) in 661 African-American and White individuals. The concept of God-mediated control was operationalized as one’s perception of God’s involvement in helping one control various life events, which appears to be conceptually similar to the “approaches to control” religious coping concept (Pargament et al., 1988). God-mediated control was assessed with the following items: “rely on God to help control life”, “succeed with God’s help”, and “work together with God” (p. 21). Krause found African-Americans attended church more often than Whites, and frequent church attendees experienced greater spiritual support. In addition, African-Americans experienced more God-mediated control than Whites. Spiritual support from others was related to higher God-mediated control over time, but socioeconomic status was not. The longitudinal design suggests strong conclusions can be made about the findings, particularly the significance of spiritual support. In another longitudinal

analysis, Krause (2010) interviewed 1,500 older adults at two time points (six years apart) using a four-item religious coping measure to examine social factors involved in religion. Religious coping was measured with the following items: “I look to God for strength in a crisis”, “I look to God for guidance when difficult times arise”, “when I’m faced with a difficult experience, I try to think about the good things God has given me”, and “I try to realize that God never gives us more than we can handle” (p. 19). Raykov reliability estimates for the RC scales for both waves were .834 and .847, respectively. Older adults with more spiritual support were more likely to score higher on the RC items for each time point, and it was found that spiritual support mediated the relationship between congregational cohesiveness (shared values/beliefs of the congregation) and RC. This study suggests contextual factors (spiritual support and congregational cohesiveness) are related to RC. The RC questions were reliable but not necessarily comprehensive; nevertheless, the longitudinal design allows for strong conclusions to be made about the temporal nature of the relationships between constructs. These longitudinal studies suggest the idea of spiritual support may be an important resource for older people who utilize religion as a way of coping.

Qualitative methods have also been used to examine religious coping in older adults in the community. Lee & Chan (2009) interviewed 12 Chinese-Americans age 68 to 87 about stressful life events and coping strategies. Half of the participants had experienced major health events. Participants reported religious-spiritual beliefs, socioemotional strategies, and cognitive-psychological strategies in the context of coping. Most participants reported their religion/spirituality helped them better understand the world and persevere through health problems. Several participants suggested coping was

even more helpful if family members shared their religious beliefs. Despite limited generalizability, the findings from this study do suggest RC can be beneficial for some older people dealing with late-life stress. Lowis, Jewell, Jackson, and Merchant (2011) used mixed methods to examine associations and themes of coping methods in late life. They used Folkman & Lazarus' Ways of Coping Questionnaire (1988) to measure general coping strategies in 102 community-dwelling older adults. Religious cognitions were measured with a modified version of the World Health Organization Quality of Life, Spirituality, Religious and Personal Belief Field-Test Instrument (WHOQOL, 2002), which asked about religious affiliation and to what extent faith was involved in participants' lives. They found that stronger religious/spiritual beliefs were related to greater use of general coping strategies. While the study offered a perspective on general coping in the context of religious belief, the religious measure did not explicitly ask about ways in which religion helped people cope, rendering its conclusions broad rather than specific. As related to the religious coping construct, these studies provide support for Pargament's assertions that religion helps provide life significance and is related to broader coping processes.

Religious coping has also been explored in the context of specific late-life stressors. Multiple studies have examined RC in medical patients, and these samples are often comprised of older adults. For example, Pargament, Koenig, Tarakeshwar, & Hahn (2004) examined religious coping in 268 hospital patients over 55. Their longitudinal analysis utilized the RCOPE/Brief RCOPE and suggested different coping methods were related to different mental health and spiritual outcomes over time. The positive coping subscales and several negative coping subscales (demonic reappraisal, passive religious

deferral, marking religious boundaries, pleading for direct intercession) predicted better spiritual outcomes, while several negative coping subscales (reappraisal of God's powers, self-directing RC, interpersonal religious discontent) predicted worse spiritual outcomes. All except one of the positive RC subscales were associated with stress-related growth (conceptualized by positive psychological changes) at patients' follow-up interviews, and several negative coping subscales (reappraisal of God's power, self-directing coping) predicted less stress-related growth. Demonic reappraisal predicted worse quality of life, and interpersonal religious discontent, religious purification, and religious conversion predicted worsened depression. "Punishing God" reappraisals, demonic reappraisals, passive religious deferral, pleading for direct intercession, religious forgiveness, and religious conversion predicted declining physical functionality. This study effectively connects coping methods to outcomes over time, but it may be difficult to interpret the results since positive and negative appraisals predict similar outcomes for some variables. Other studies have explored health outcomes and religious coping in medical patients as well. For example, Pargament and colleagues (1998) used the Brief RCOPE with 551 hospital patients and found that higher scores on positive religious coping were associated with increased medical diagnosis and decreased functional and cognitive status. Negative coping was associated with these variables in the same direction, and it was also associated with poorer subjective physical health. In addition, positive coping was related to greater stress-related growth (positive psychological changes), and negative coping was related to higher depression, lower quality of life, and greater stress-related growth. Compared to negative coping, positive coping was more strongly related to stress-related growth. Overall, the practical significance of these correlations is

difficult to interpret because positive and negative coping are related to similar outcomes for certain variables. One cross-sectional study (Krause, 2006) involved a sample of 538 community-dwelling elderly individuals experiencing financial difficulties, another type of specific late-life stressor. Church support, but not other types of social support, helped protect against the effects of financial strain on health in African-Americans. This study suggests a unique role of church support in coping with health problems, at least for African-Americans. As related to the construct of religious coping, the two Pargament studies suggest specific patterns of religious coping are differentially related to positive and negative outcomes, and the Krause study suggests religious coping is related to a type of social support that may be uniquely related to religion.

Qualitative studies have also explored religious coping in older adults experiencing specific late-life stressors. Qualitative studies offer themes addressing why religion can be important in coping, although they do not necessarily address the prevalence or efficacy of specific RC strategies. For example, Lewinson, Hurt, and Hughes (2015) conducted a qualitative study of 16 individuals aged 54 to 64 suffering from financial burden and medical problems. The researchers used interviews to ask about health challenges and responses to those challenges. They found that religious beliefs and practices helped provide meaning and instrumental support. This study offers support of Pargament's claim that several of the functions of religion in coping processes are 1) to understand a greater significance of life events and 2) to connect people with one another.

Studies of religious coping in late life may inform the religious coping construct in several ways. Krause's studies (2007, 2010) offer longitudinal and cross-sectional

evidence of the role of spiritual support in the process of coping. Support from one's church and others' validation of one's religious beliefs may suggest the uniqueness of spiritual support as a coping resource, which non-religious coping may not be able to offer. Reporting religious coping as the most common general coping subtype (Koenig et al., 1988) may suggest its uniqueness as well. Connecting religious coping activities to positive and negative outcomes (Pargament et al., 2004) may be important for establishing concurrent validity for measures of this construct in older adults. Qualitative studies (Lee & Chan, 2009; Lewinson, Hurt, & Hughes, 2015) explore functions or purposes of religion (e.g., providing greater understanding and meaning) that may suggest how religious coping might be distinct from other types of coping. These studies collectively suggest the religious coping process is relevant for many older adults managing late-life stress.

**Religious Coping in Long-Term Care.** Fewer studies have explored religious coping in elderly residents of long-term care facilities (see Appendix A). Cross sectional studies have examined religious coping in LTC residents through patterns of positive and negative coping appraisals and approaches to control. Vitorino & Vianna (2012) measured positive and negative patterns of appraisals in 77 nursing home residents from two Brazilian care facilities. They used a Brazilian measure based on Pargament's RCOPE (Pargament, et al., 2000) to assess RC. They found positive coping appraisals were more common than negative coping appraisals, and the most common positive factor was "positive positioning in front of God" (p. 138), or believing that God gives a person power to deal with a situation. The highest negative factor was "negative positioning in front of God" (p. 138), or waiting for God to act on the situation. In

addition, greater positive coping was associated with older age. More time spent in the facility was associated with less negative coping and greater total coping, and better self-reported health was associated with more positive coping. The correlations suggest specific RC patterns may be connected with individual coping resources such as individual health. Scandrett & Mitchell (2009) interviewed 140 residents from two nursing homes using Pargament's Brief RCOPE (Pargament et al., 2011) to measure positive and negative religious coping tendencies. The concept of affect balance was used to operationalize psychological well-being. They found religion was "very" important to 54.3% of residents and "somewhat" important to 27.1% of residents. 82.1% of residents used a positive RC strategy and 47.9% used a negative RC strategy. The lack of negative coping strategies was associated with greater psychological well-being after controlling for demographic variables. The study is limited in that affect balance was the only outcome measure, and RC was not separated into different individual strategies in the reported analysis; however, the results provide preliminary support for the connection between religious coping and quality of life outcomes in LTC. Grosse-Holtforth and colleagues (1996) used the Religious Coping Index (RCI) (Koenig et al., 1992) and the Religious Problem-Solving Scales (Pargament et al., 1988) to explore religious coping styles in 97 veteran care facility residents. They found the collaborative style of coping was the most common and the self-directing style was the least common. Greater sense of control regarding health was related to greater RC (as measured by the RCI) and the self-directed coping style. Intrinsic religiosity was related to greater RC, specifically the deferring style, but negatively related to the self-directing RC style. Finally, extrinsic religiosity was positively correlated to the collaborative coping style. The three cross-

sectional studies described here are all limited in that the findings are either descriptive or correlational, meaning causal claims cannot be asserted. However, they relate to construct validity in how they connect religious coping activities with clinically relevant constructs such as health and well-being.

One cross-sectional study examined cognitive, affective, behavioral, and social components of religious coping in nursing home residents. Pieper & van Uden (2012) measured RC in 106 nursing home residents using questions created by the researchers. Likert scales were used to assess RC in each category. In the cognitive category, participants indicated whether their religion or worldview gives meaning and helps make sense of their problems. In the affective category, participants indicated how much they agreed with the following statements: “because of my relationship with God, I am not on my own” and “my religion/worldview makes me feel safe” (p. 407). In the behavioral category, residents indicated whether religious rituals (e.g., prayer, attending worship services) were supportive and whether prayer and meditation were personally useful. In the social category, residents indicated whether they could “always turn to a pastoral counsellor/pastor” (p. 407) and whether their “fellow believers support each other” (p. 407). Seventy-four percent of residents believed their religion was a positive influence in their lives, while 4% believed it functioned as a negative influence. In addition, well-being and a positive relationship with God were positively correlated, and all domains (cognitive, behavioral, affective, and social) of religious coping were found to be important to the residents. In this study, clear relationships between religious coping appraisals and well-being fit in the context of Pargament’s religious coping framework; however, reliability and validity of the RC measure in this sample is uncertain due to the



lack of reported psychometric data for the internally-generated items. Although exploring multiple facets of RC (i.e., cognitive, behavioral, affective, social) is useful, the items may or may not accurately reflect the desired constructs beyond their face validity. As a result, this study reveals little about the validity of religious coping measures in LTC settings.

One cross-sectional study examined religious coping and positive reappraisal as “meaning-based coping strategies.” Danhauer, Carlson, and Andrykowski (2005) used the COPE Turning to Religion and Positive Reinterpretation and Growth subscales (Carver, Scheier, & Weintraub, 1989) to measure meaning-based coping in 94 nursing home residents from Kentucky. The 4-item Turning to Religion subscale assessed the process of RC (i.e., “I put my trust in God”, “I seek God’s help”, “I try to find comfort in my religion”, and “I pray more than usual”) (Carver, 2013, p. 2-4), and the 4-item Positive Reinterpretation and Growth subscale assessed positive reappraisal. Positive reappraisal and religious coping, collectively labeled “meaning-making strategies”, were highly correlated. However, it was found that RC was not related to any measures of psychosocial well-being including autonomy, environmental mastery, personal growth, positive relationships, and self-acceptance. The positive reappraisal subscale was related to all of these measures of well-being except autonomy. Although the Turning to Religion COPE subscale is reliable and was highly correlated to the other scale (positive reappraisal), it was not connected to psychosocial well-being. Despite the significant correlation with the other scale, the religious measure may not have assessed positive reappraisal as an important component of RC, which could be one reason it was not connected with well-being in the same way as positive reappraisal. The magnitude of the

correlation between positive reappraisal and religious coping suggests the concepts are closely related, but the items on the religion scale may not be comprehensive enough to accurately reflect the religious coping construct according to Pargament's framework.

Other cross-sectional studies also examined correlations of religious coping in LTC residents. For example, Lowis and colleagues (2005) assessed religious coping in 50 English care home residents within a year of admission. Four items from a RC scale adapted from Mindel and Vaughan (1978) and Krause (1998) assessed how much residents' religious faith gave them strength to cope (e.g., "When dealing with my move to residential care, I have received much personal strength from God" (Lowis et al., 2005, p. 354)). They found RC was associated with greater life satisfaction, spirituality, organizational (group) religiosity, and non-organizational (individual) religiosity. A path analysis suggested a mediating effect of "faith in humanity" on the relationship between RC and life satisfaction. As related to construct validity, RC was connected to other religious variables; however, the study did not specify which RC items were used in the RC scale, and the blending of items from separate scales from other researchers may limit the validity of the specific RC measure. In another correlational study, Branco & Crane (2014) measured the relation between general coping style and religion in a large sample ( $N = 1,347$ ) of nursing home residents. Forty-seven percent of residents stated they gained strength from their faith, and 54.1% stated they would enjoy having religious activities available in the nursing home. Only one item about drawing strength from faith was used, and it was limited in measuring RC because it did not capture the multi-dimensionality of the RC construct. Although many residents reported they gained strength from their faith, the study focused more on non-religious coping, and the religion

item did not necessarily reflect religion practiced in the context of life stress, which may limit conclusions related to construct validity. Koenig, Weiner, Peterson, Meador, & Keefe (1997) examined correlates of RC in 115 residents from two nursing home facilities in North Carolina. They used the Religious Coping Index (Koenig et al., 1992) to explore the frequency of RC in nursing home residents. They found that 59% of residents use religion “to a large extent” (p. 369) to cope. Greater social support, severe medical illness, and greater cognitive functioning were all positively correlated to RC. The researchers also examined the correlations of pain and depression with RC, and they found no significant associations. The significance of the findings are limited for this study in that the authors did not cite specific examples of RC; as a result, only the extent of RC was reported in this study instead of cognitive/affective processes. However, the connections between RC and individual (cognitive functioning) and contextual (social support) coping resources suggest that the extent of religious coping relates to other important concepts (coping resources) involved in coping processes.

One qualitative study (Choi, Ransom, & Wyllie, 2008) involved interviewing 65 nursing home residents from Texas about feelings of depression and coping strategies. Ninety percent of residents reported they used RC by engaging in activities such as reading the Bible, prayer, and attending religious services. The researchers implied these activities occurred in the context of coping with stressful events. “Stoicism, deeply rooted in [...] trust in and gratitude toward God” (p. 543) was the most common coping strategy utilized by the residents. The qualitative nature of the study offers a unique perspective on the importance of religion to these residents. However, several characteristics limited the generalizability of the findings. The interview format may have limited the generation

of certain RC strategies. In addition, it is unclear whether the religious activities and appraisals were used in the context of specific stressors. In another qualitative study, Park and colleagues (2010) interviewed 29 residents of assisted living facilities and asked them about the role of religion in their lives. Residents suggested religious beliefs and practices served as a means for them to connect with others and to acquire emotional and instrumental support. Religious attendance and turning to God were reported as specific coping strategies. The findings did not identify the function of religious attendance and religious beliefs in coping, which limits conclusions. These qualitative studies suggest some possible functions of religious coping for long-term care residents that align with Pargament's framework, but they do not provide much evidence to inform a discussion of construct validity in this population.

**Summary of Religious Coping in Late Life.** Studies on religious coping in late-life suggest several points: 1) religious coping strategies are highly prevalent, even compared to non-religious coping strategies, 2) positive appraisals are more common than negative appraisals and are potentially linked to better quality of life outcomes, and 3) cultural/contextual variables may moderate expressions of religious coping. Studies of religious coping in long-term care residents suggest several points about religious coping: 1) religious coping, particularly positive religious coping, is common, 2) some religious coping styles may be more common than others, 3) religious coping is related to other religious variables, 4) qualitative studies may suggest some of the functions of religion in coping, and 5) religious coping may be associated with life satisfaction and well-being. Although all the studies can inform a model of religious coping, the best quality studies assess the multidimensional nature of religious coping. A review of the literature suggests

few quantitative studies have sought to assess the prevalence of specific religious coping methods in LTC settings. Although many older adults claim religious beliefs, it is often unclear when religion is practiced for coping purposes in response to stress rather than practiced in a more general context. The paucity of studies of religious coping in LTC, and issues related to measurement and sampling, have resulted in a lack of evidence demonstrating the validity of specific religious coping measures in LTC settings. Because religious coping measures have not been adequately validated with long-term care residents, there is an opportunity for future research to explore their relevance in this setting.

**Validity of Religious Coping Measurement in Long-Term Care.** Concerns related to construct validity of religious coping measures in long-term care settings include issues of measurement, sampling, and potential situational variance. Upon reviewing religious coping literature regarding older adults in long-term care settings, many questions still remain.

**Measurement.** Measurement issues limit conclusions about the process of religious coping in the target population. Many studies use short, generalized measures of RC that lack a specific cognitive-behavioral focus on the coping process. Brief “religious importance” measures and one-item “general” or “overall” RC measures may not reflect religion practiced in the context of life stress. Such measures, as well as measures of general coping with short subscales related to religion, may not capture all the relevant dimensions of the RC construct. Studies assessing the extent of RC rather than specific cognitive processes (e.g., Koenig et al., 1997) only provide descriptions of the importance of religion and do not offer a way of determining the mechanisms underlying

coping processes. While qualitative studies often suggest themes related to potential mechanisms or functions of RC, specific coping strategies may not be cited in these studies in a manner that allows researchers to relate coping and resilience outcomes. The multidimensional nature of RC requires a measurement approach that acknowledges the complexity of the construct. Research that merely reports the prevalence of prayer, church attendance, or religious affiliation does not sufficiently illustrate the deep and potentially transformative power of genuine religious experiences. While measuring observable RC behaviors can help identify informative patterns, uncovering psychological processes can better capture the subjective side of religious beliefs, activities, and specific coping strategies. In addition, researcher-generated questions and combined scales without mention of psychometric data also limit conclusions because of the lack of established validity. Before stronger conclusions can be made about religious coping processes in long-term care, comprehensive religious coping measures with adequate psychometrics in other settings should be validated in long-term care samples.

The self-report nature of religious coping measures also limits their use with cognitively impaired long-term care residents. Cognitive impairment in LTC settings is common, as 39.6 % of residential care community residents and over 50% of nursing home residents suffer from some form of dementia (Harris-Kojetin et al., 2016). Self-report measures that have not been validated with cognitively impaired individuals force researchers to limit their samples to only residents with the highest cognitive capacity, and these individuals do not represent typical LTC residents. If RC research is to better represent individuals in LTC, it is necessary to use measures that take cognitive limitations into account. Self-report data can be reliably acquired from cognitively

impaired individuals in some circumstances; for example, self-report measures have been developed to assess quality of life, activity engagement, and values in this population (Mast, 2012). Thus, it may be that self-report measures of RC can be adapted for cognitively impaired individuals if cognitive limitations are considered when designing the measure and if good reliability and validity can be demonstrated. Challenges in dementia research may include difficulties with consent and measurement (Beuscher & Grando, 2009; McKeown, Clarke, Ingleton, & Repper, 2010). However, if the capacity to consent is established and if measurement items can be simplified or reworded to reflect less abstract and more concrete ideas (Beuscher & Grando, 2009), it is possible religious coping measures can be administered long-term care residents with dementia.

*Samples.* Many studies of religious coping in long-term care do not consider differences in religious coping among individuals with varying religious beliefs (e.g., Christianity, Judaism, Islam), religious affiliations (i.e., different sects or denominations), and religious orientations (i.e., intrinsic or extrinsic). RC literature has primarily focused on Christian individuals with little variance in denomination, indicating a lack of religious diversity in sampling procedures. Although some studies do consider differences in religious orientation, many do not. Failing to consider variation in religion, religious affiliation, and religious orientation is problematic because individuals' religious cognitions, emotions, and behaviors may be affected by these factors, which may result in different processes of coping. Rather than basing conclusions from studies of RC on solely Christian samples, expanding samples to other denominations and religions may allow for more meaningful and specific conclusions about coping processes.

*Situational Variance.* In religious coping literature, it is sometimes unclear whether religious activities are practiced in the context of late-life stress as opposed to part of everyday life. It may be important to explore whether religious actions are fundamentally similar across situations; for example, is a “benevolent religious appraisal” different during times of crisis compared to other times of life? As Pargament (1997) suggests, religion is practiced not only in times of crisis; it is often pursued as a lifestyle. In RC research, it is important to determine the difference between religious activities used for coping purposes and religious activities practiced more generally in daily life. However, in current research it is unclear how specific RC methods are used for different late-life stressors in LTC settings. For example, perhaps LTC residents use religion differently based on whether the stressful event is a friend’s death or a decline in physical health. Perhaps particular coping strategies or appraisals are used more frequently based on time spent in LTC. RC literature in LTC is not conclusive about whether certain coping methods are more beneficial or harmful in the context of specific stressors and whether patterns of coping change over time throughout the transition to LTC until the end of life. If the type and severity of late-life stressors is important in the process of religious coping in long-term care, it is necessary to measure those variables when assessing the construct validity of religious coping measures in that setting.

### **Significance and Implications**

As Messick (1995) suggests, considering the consequential element of construct validity may involve examining both the positive and negative implications of measuring the construct. If measuring a particular construct leads to positive consequences, then assessing this construct with our specific measure and sample of interest may be a



worthwhile pursuit. The importance of religion in times of stress, its role within a broader model of resilience in late life, its potential relationship with quality of life outcomes, and clinical implications are all relevant in the examination of construct validity of measures of religious coping

**Religious Coping – Significance.** The relevance of religion in the lives of older adults and religion’s involvement in coping/resilience processes are significant reasons to explore the religious coping construct more closely. Religious affiliation is particularly common among the current cohort of older adults in the United States (Koenig, George, & Titus, 2004), and religious involvement may be more common in older adults than younger adults (Krause, 2004). One recent survey of a nationally-representative sample of community-dwelling adults indicated 26% of respondents age 65 or older were “highly religious” compared to 14% of respondents age 18 to 29 (Pew, 2016). People may practice their religion more intensely during more stressful times of life (Pargament, 1997), and older adults commonly use religion to cope with stress (Emery & Pargament, 2004; Koenig, George, & Siegler, 1988; Koenig, Siegler, Meador, & George, 1990). The high prevalence of older adults who hold religious beliefs suggests it is worthwhile to consider the role of religion in the process of coping.

Pargament & colleagues (2011) argue that religion can provide greater meaning, control, comfort, intimacy, and life transformation. Religion may add spiritual significance to a variety of life events such as marriage or funerals (Pargament, 1997), providing individuals with a greater sense of meaning in life (Emery & Pargament, 2004; Pargament & Lomax, 2013). In addition, religion may offer a greater sense of control over life circumstances (Emery & Pargament, 2004) by offering a path to control through

the assistance of a deity. Religion may also function as a path to existential comfort; for example, people may affirm trust in a higher power through prayer (Emery & Pargament, 2004), and people may be inclined to turn to religion for comfort when the world seems unfair or when suffering does not make sense (Pargament & Hahn, 1986). Religion may also offer opportunities for intimacy, as practicing a religion often involves associating with a community of people. Religious communities may provide a sense of belonging, connectedness, social support, and spiritual support (Emery & Pargament, 2004; Park, Jennings, Shin, Martin, & Roff, 2010). Finally, religion may lead to life transformation; for example, adhering to a religious tradition may compel people not to participate in risky or “sinful” behaviors that could have a negative effect on their quality of life. Religion can also change the way people think about themselves and the world by expanding their cognitive flexibility, helping them positively re-evaluate situations, and helping them making sense of seemingly unjust circumstances (Emery & Pargament, 2004; Pargament, 1997).

The study of religious coping explores *why* and *how* religion is used in the context of stressful life events. The study of RC is important because of implications for positive or negative quality of life outcomes. Positive associations exist between religious beliefs/practices and quality of life indicators (e.g., well-being, self-esteem, internal sense of control, mental health) (Koenig, 2012). Religious beliefs and practices have been connected to positive outcomes in spiritual, psychological, social, and physical health domains (Pargament & Ano, 2004), and they have been associated with decreased negative emotions and higher life satisfaction (Harrison et al., 2001). However, religious beliefs/practices have also been associated with harmful outcomes including anxiety

(Emery & Pargament, 2004), negative health outcomes (Krause, 2004), and post-traumatic stress (Gerber, Boals, & Schuettler, 2011). Religion practiced in everyday life can function as either a positive or negative resource, but there is a need to better understand the implications of religion practiced in the context of coping. Studying religious coping in late life can help identify the manner by which older adults who are managing significant stressors effectively use religious resources.

**Clinical Implications.** The knowledge gained from the study of religious coping in LTC may be applied in clinical settings. The current lack of RC studies related to clinical outcomes means that few specific findings can be directly applied to clinical assessment and intervention in LTC settings. However, general principles from the literature can be considered and used to hypothesize how RC might be incorporated into clinical work with LTC residents. For example, it may be important for care providers to recognize a client's RC tendencies in the context of their broader cultural milieu.

Religion is sometimes neglected as an important factor in mental health conceptualization (Heffernan, Neil, & Weatherhead, 2014); however, connections between RC and quality of life suggest clinicians should consider these processes to help LTC residents achieve better mental health outcomes. Religious coping literature may also inform religious and spiritual interventions (Bay, Beckman, Trippi, Gunderman, & Terry, 2008), which also may be useful in addressing clinical issues (Goncalves, Lucchetti, Menezes, & Vallada, 2015; Nichols, 2013).

**Religious Coping and Resilience.** Religious coping may be integrated in a broader model of coping and resilience. Resilience is the process and outcome of effectively managing stress and adapting to stressful situations (Windle, Bennett, &

Noye, 2011). Aldwin & Igarashi's ecological model of resilience (2012, 2015) describes how individuals may move towards their goals and values despite significant stress. Their model suggests one's capacity for resilience is based on a combination of sociocultural, contextual, and individual resources that support coping. Sociocultural resources involve the impact of organizations, institutions and policies. Contextual resources involve social and living environments. Individual resources involve personal characteristics (e.g., health, education). The model suggests that possessing individual resources in isolation does not necessarily lead to resilience; instead, coping processes and resilience develop based on interactions involving society, culture, communities, and individuals. Their model also suggests that coping processes influence stress-related growth, or positive changes that occur as the result of stress (Park, Cohen, & Murch, 1996), and that stress-related growth is related to greater resilience. The resilience model emphasizes bidirectional relationships among: 1) different types of coping resources, 2) coping resources and resilience, and 3) coping actions and coping resources. Aldwin & Igarashi's model of resilience is helpful for understanding coping processes in older adults because it suggests people may live meaningful and fulfilling lives even when direct control of their environment is limited. They describe a process of responding to adversity that depends on individual responses to stress as well as the interplay of policies, organizations, communities, and coping context. Their model of resilience suggests the possibility of positive life development and growth even in the midst of late-life challenges. Because older adults in care settings are likely to face multiple challenges, the study of religious coping processes and resilience is especially relevant in the context of long-term care.

An adapted model of coping and resilience will eventually allow for further research on the relationship between religious coping and well-being (see Appendix B). “Religious coping does not operate in a vacuum” (p. 743) (Pargament & Raiya, 2007); rather, the concepts of individual resources, contextual resources, sociocultural resources, coping, and stress-related growth are involved in a dynamic process of resilience. Perhaps the most clinically relevant questions related to RC involve exploring variables that influence the relationship between RC and outcomes of well-being. In particular, psychological health and social support may be influential in the broader relationship between religious coping and quality of life, and principles from Aldwin & Igarashi’s resilience model (2012) may suggest better individual resources (psychological health) and contextual resources (social support) are connected to a greater frequency of positive religious coping.

Evidence affirming the validity of religious coping measures in long-term care should identify relationships between religious coping and relevant concepts within that specific setting. One purpose of studying RC in LTC settings is to better understand the process of building resilience and becoming stronger through late-life adversity. There is a lack of literature connecting RC methods, styles, and appraisals with individual, contextual, and sociocultural resources as described in Aldwin & Igarashi’s model (2012). Individual resources may include many clinically-relevant outcomes such as physical health and psychological health as well as characteristics such as control beliefs. Contextual factors may include social support or characteristics of the LTC facility (e.g., connection with a chaplain, religious services) that allow residents easier access to religious resources. Sociocultural characteristics may involve the facility’s financial

situation or policies that affect LTC administration. Research on RC in LTC should identify the role of RC in relation to these resilience resources and focus on health and social support as particularly relevant to older adults in LTC. This line of research may examine resilience resources, connected to RC, as potential predictors of stress-related growth and may also explore whether resilience resources and/or sociocultural and individual characteristics mediate or moderate the effect of RC on clinical outcomes. In view of this framework, there is an opportunity for RC to be explored in the context of stress-related growth. Variables such as well-being, wisdom, and meaning may be examined as outcomes with RC activities and appraisals as predictors. As stress-related growth is thought to be associated with greater adaptation to stress, it is important to learn how various concepts associated with religious coping are involved in this process.

## HYPOTHESES

If religious coping is to be properly assessed in long-term care settings, religious coping measures must address all the relevant aspects of the underlying construct, hold to a consistent and effective system of scoring, correspond to other related constructs, consider appropriate measurement issues within that specific context, and demonstrate the potential for positive implications as a result of measurement. Because the current body of literature on RC has not thoroughly addressed all of these relevant questions concerning validity, the present study examines these questions through a cross-sectional design involving a one-time interview with LTC residents. The following hypotheses are designed to frame research objectives to explore whether common measures of RC reflect construct validity and clinical relevance for individuals receiving long-term care.

H1: In a sample of elderly long-term care residents, religious coping patterns (measured by Pargament's Brief RCOPE) will form two underlying factors (positive and negative) that reflect distinct strategies of coping appraisals.

H2: Religious coping approaches to control (measured by Pargament's Religious Problem-Solving Scales (RPSS)) will form three underlying factors (collaborative, self-directing, deferring).

H3: Each subscale of patterns of religious coping (Brief RCOPE) and religious approaches to control (RPSS) will be internally consistent ( $\alpha \geq .7$ ) in a sample of long-term care residents with mixed cognitive abilities

H4: Religious coping items (Brief RCOPE, RPSS) will demonstrate concurrent validity in regard to relevant clinical outcomes.

H4a: Positive religious coping appraisals are associated with less psychological distress and greater life satisfaction.

H4b: Negative religious coping appraisals are associated with more psychological distress and decreased life satisfaction.

H4c: Greater collaborative coping will be associated with less psychological distress and higher severity of stressors.

H4d: Greater deferring coping will be associated with greater psychological distress and higher severity of stressors.

H4e: Greater self-directing coping will be associated with lower severity of stressors.

H5: Religious coping items (Brief RCOPE) will be strongly correlated with a brief one-item measure of religious coping (Religious Coping Index, Koenig et al., 1992), demonstrating convergent validity.

H6: Religious coping items (Brief RCOPE) will be weakly to moderately correlated with non-religious coping items (Brief COPE), religious affiliation, religious commitment, individual religious activities, and group religious activities, demonstrating discriminant validity.

H7: Religious coping items (Brief RCOPE) will demonstrate incremental validity in relation to non-religious coping (Brief COPE) and other religious items by accounting for significant variance in psychological distress and life satisfaction after controlling for



general coping, religious commitment, individual religious practices, and organizational religious practices.

H8: The strength of the relationship between religious coping and life satisfaction is moderated by psychological health and social support (individual and contextual resources).

H8a: Greater use of positive religious coping is related to higher life satisfaction for individuals who report high psychological health as compared to those with low psychological health.

H8b: Greater use of positive religious coping is related to higher life satisfaction for individuals who report more social support as compared to those with lower social support.

## METHOD

### **Participants**

Participants were 102 long-term care (assisted living, nursing home) residents aged 55 or older receiving care in Kentucky/Southern Indiana. Participants with severe cognitive impairment (scoring less than 8 on the Brief Inventory of Mental Status (BIMS) (MDS, 2016)) were excluded from the study.

### **Measures**

**Demographic Variables.** Demographic variables included: long-term care facility type, gender, age, education, race, income, marital status, and length of stay in the long-term care facility.

**Religious Coping.** The primary religious coping measures used in this study included the Brief RCOPE (Pargament et al., 2000) and the Religious Problem Solving Scales (short form) (Fox et al., 1998; Pargament et al., 1988).

**Brief RCOPE.** See page 18 for psychometric data from previous studies. In this study, participants rated how often they used each religious coping appraisal since they moved to their current long-term care facility. Participants responded to 14 items on a scale ranging from 1 (“not at all”) to 4 (“a great deal”).

**Religious Problem Solving Scales.** See page 19 for psychometric data from previous studies. In this study, participants rated how often they used religious strategies for problem-solving stressful events since they moved to their current care facility. Participants responded to 18 items on a scale ranging from 1 (“never”) to 5 (“always”).

***Religious Coping Index.*** The Religious Coping Index (RCI) (Koenig et al., 1992) is an “overall” approach to measuring RC in the context of illness. The first item is a free-response question where respondents state how they cope, including religious or non-religious methods. The second item asks whether religious beliefs/practices help the person cope, on a scale from 1 to 10, from “not much or not at all” to “the most important thing that keeps me going” (p. 1694). The third item is an interviewer-rated item of how much they believe the participant uses religion to cope, based on the first two items and further responses. The items are summed for a total score. In a sample of 850 male patients over 65 admitted to a Veterans’ Affairs medical center,  $\alpha = .82$  and interrater reliability for the interviewer-rated item was .87. Only the second item was used in this study to obtain a broad measure of religious coping.

**General (Non-Religious) Coping.** Participants were administered all 28 items of the Brief COPE to measure how frequently they utilized general, non-religious coping to manage stress since transitioning to a long-term care facility. See page 16 for psychometric data from previous studies. Participants responded on a scale ranging from 1 (“I haven’t been doing this at all”) to 4 (“I’ve been doing this a lot”). Rather than analyzing all 14 subscales separately, items 2, 5, 7, 10, 12, 14, 15, 17, 20, 23, 24, 25 were summed to create a “problem-focused” subscale, and items 3, 6, 8, 9, 13, 16, 19, 21, 26 were summed to create an “emotion-focused” subscale. The measure was reduced to fewer than the 14 original subscales to simplify analyses and to render the data more interpretable, which is a factor structure that has been previously explored in the literature (Snell, Siegert, Hay-Smith, & Surgenor, 2011). Internal consistency was acceptable for the problem-focused subscale ( $\alpha = .794$ ) and the emotion-focused subscale ( $\alpha = .789$ ) in

this study.

**Other Religious Variables.** Other religious variables included religious affiliation, religious denomination, religious commitment, individual religious practices, and organizational religious activities.

***Religious Affiliation and Denomination.*** Religious affiliation was assessed with one item based on U.S. Census Bureau (2015) categories (i.e., Christian, Jewish, Muslim, Buddhist, Unitarian, Hindu, Native American, Sikh, Wiccan, Pagan, Spiritualist, Atheist, Agnostic). The Native American category was changed to “indigenous” in the questionnaire to better represent the religious affiliation of indigenous peoples. If participants reported they belonged to a particular religion, they were subsequently asked if they belonged to any particular religious denomination, which was assessed with an open-ended inquiry (e.g., “what is your religious denomination?”).

***Religious Commitment.*** The extent to which participants were committed to their religion was measured by a question from the Multidimensional Measurement of Religiousness/Spirituality (Fetzer, 2003): “I try hard to carry my religious beliefs over into all my other dealings in life.” Participants responded on a scale from 1 (“strongly disagree”) to 4 (“strongly agree”).

***Individual/Organizational Religious Activities.*** The frequency of individuals practicing their religion in group settings (organizational religious activities) was assessed with the following two items from the Multidimensional Measurement of Religiousness/Spirituality (Fetzer, 2003): “how often do you go to religious services?”; “besides religious services, how often do take part in other activities at a place of worship?” Participants responded on a scale from 1 (“never”) to 6 (“more than once a

week”). The frequency that participants practiced their religion individually was assessed with the following 3 items from the Multidimensional Measurement of Religiousness/Spirituality (Fetzer, 2003): “How often do you pray privately in places other than at church or synagogue?”; “How often do you watch or listen to religious programs on TV or radio?”; “How often do you read the Bible or other religious literature?” Participants responded on a scale from 1 (“never”) to 8 (“several times a day”).

**Stress.** Stress was measured with a modified version of the Louisville Older Person Events Scale (LOPES) (Murrell, Norris, & Hutchins, 1984). The original version asked non-institutionalized older adult participants (age  $\geq 55$ ) about the frequency and desirability or undesirability of life events. Undesirable events included negative circumstances involving one’s health (e.g., being admitted to a hospital, experiencing a new illness or injury), personal activities (e.g., stopped going to church activities, stopped going to recreation activity, lost job), social environment (e.g., friend or neighbor moved away, child moved further away, new conflict with family member), and living situation (e.g., lost home). The occurrence of the event was measured with a “yes” or “no” question, and the undesirability of the event was measured using a ten-point scale. For this study, 4 categories were chosen based on those judged to be most clinically relevant to long-term care residents. LTC residents were asked whether any stressful events in the areas of health, personal activities, social environment, and living situation have occurred in their lives since they moved to long-term care. If participants answered “yes” to any of the events, they were asked “how stressful have these events been for you?”, and they rated the stress of the events on a scale from 1 (“very bad”) to 10 (“very good”). The

scores were recoded before analysis so higher values corresponded to higher stress. The values from each category were then averaged to create a total stress score.

**Social Support.** Social support was measured with the Social Support Questionnaire-6 (SSQ-6) (Rasclé, Bruchon-Schweitzer, & Sarason, 2005). The SSQ-6 is a six-item questionnaire that assesses the availability of a person's social resources, which is measured by the number of socially supportive people available to the individual (e.g., "whom can you really count on to be dependable when you need help?"). In addition, the same questions assess the individual's overall satisfaction with those resources (e.g., "how satisfied are you with that support?"), which is measured on a scale from 1 to 6, with 6 being the most satisfied. In the original psychometric analysis with 304 male adults,  $\alpha = .89$  for the social network availability section and  $.87$  for the satisfaction section (Rasclé et al., 2005). Higher scores on the availability questions equate to higher social support, and higher scores on the satisfaction questions correspond to higher emotional support. In this study,  $\alpha = .642$  for the social network items and  $.797$  for the social satisfaction items.

**Psychological Health.** General psychological health was measured with the Kessler Psychological Distress Scale (KPDS) (Kessler et al., 2002). The 10 items ask participants how they have been feeling over the past month (e.g. "about how often did you feel so restless you could not sit still; about how often did you feel depressed"). Participants responded on a scale from 1 ("none of the time") to 5 ("all of the time"). In a pilot study of 1,574 adults, internal consistency was excellent ( $\alpha = .93$ ) (Kessler et al., 2002). In this study, internal consistency was good ( $\alpha = .847$ ). Higher scores on the measure equate to higher psychological distress.

**Life Satisfaction.** Life Satisfaction was assessed with Diener's five-item Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985). Participants responded on a scale from 1 ("strongly disagree") to 7 ("strongly agree"). In one elderly LTC sample (mean age = 80.5),  $\alpha = .81$  (O'Connor & Vallerand, 1994). Internal consistency was acceptable in this study ( $\alpha = .795$ ).

**Physical Health.** Self-reported physical health burden was assessed with the Charlson Comorbidity Index (CCI) (Charlson, Pompei, Ales, & MacKenzie, 1987). Participants reported whether they had been diagnosed with 14 medical events and conditions (e.g., "have you had a myocardial infarction?") that were aggregated into a weighted index. Higher scores on the measure equate to more severe medical problems.

## **Design**

The study utilized a cross-sectional design. Data were collected via one-time, brief self-report interviews with LTC residents. Measures were administered by trained university research staff.

## **Analysis**

The data were analyzed with IBM SPSS Statistics and IBM SPSS AMOS (version 25) software. No imputation method was used to address missing data.

H1-2: To examine religious coping patterns of appraisals and approaches to control, confirmatory factor analyses tested measure items with hypothesized latent factors for the Brief RCOPE and RPSS items. Model fit indices included a goodness-of-fit chi square, GFI, CFI, and RMSEA. Unstandardized and standardized factor loadings were also examined, and exploratory factor analyses produced scree plots and factor matrices to

further investigate the measures' factor structures. One case with the last item missing on the Brief RCOPE was not included in the CFA.

H3: To assess reliability, Cronbach's alpha was calculated for each subscale for the Brief RCOPE and Religious Problem-Solving Scales. Item-scale correlations for items on all subscales were calculated as well.

H4-6: To calculate concurrent, convergent, and discriminant validity, correlation matrices were used to examine bivariate correlations between religious coping subscales and summed scores from the following measures: Religious Coping Index, Brief COPE, Louisville Older Person Events Scale, Kessler Psychological Distress Scale, Satisfaction with Life Scale, religious commitment, individual religious practices, and organizational religious practices.

H7: Hierarchical linear regression was used to examine additional variance in life satisfaction/psychological health explained by the Brief RCOPE subscales and RPSS subscales that was not accounted for by general coping subscales, religious commitment, and religious practices.

H8: Multiple linear regression was used to examine potential moderators of the relationship between religious coping and well-being. Psychological health and social support were examined as potential moderators.

**Power Analysis.** Based on an examination of characteristics of the Brief RCOPE and RPSS and an *a priori* power analysis for one of the hierarchical linear regression analyses, it was estimated that a sample size of 100 would provide sufficient power for all the analyses.



*Confirmatory Factor Analysis.* MacCallum, Widaman, Zhang, & Hong (1999) suggest appropriate sample sizes for factor analyses vary depending on analysis characteristics such as overdetermination and communalities. They cite several examples of studies where samples of less than 100 have been effectively utilized in factor analysis. They assert “good recovery of population factors can be achieved with samples that would traditionally be considered too small for factor analytic studies, even when N is well below 100” (p. 96); however, this assumes “well-determined factors” (p.96) and high commonality. MacCallum and colleagues suggest analyzing several times more variables than factors (overdetermination) and average communality over .7. It was hypothesized the Brief RCOPE would hold to a structure featuring two factors and 14 variables, which easily meets their ideal overdetermination criteria. Mean communality for the Brief RCOPE measured in a hospital sample was well over .7 (1.017) (Pargament et al., 1998), which also meets criteria for MacCallum and colleagues’ recommendation for high communality. It was hypothesized the RPSS would hold to a structure with three factors and 18 variables, which easily meets the overdetermination criteria. In a sample of clergy and their spouses (Fox et al., 1998) (mean age = 43 for clergy and 41 for spouses), mean communality of the variables (18 items) was .496. The majority of factor loadings for items across factors was .7 or above, and only 1 item had a factor loading below .57. Matsunaga (2010) suggests a factor loading cutoff of .4 for considering items is “perhaps the lowest acceptable threshold” (p. 101). Thus, even though the RPSS items in this sample fell short of the .7 average commonality value proposed by MacCallum and colleagues, strong factor loadings and well-determined factors may suggest analysis characteristics allowing for a smaller sample size.

***Hierarchical Linear Regression.*** An *a priori* power analysis was conducted with G\*Power software (Faul et al., 2007) to approximate the sample size needed to conduct a regression analysis with 1 predictor (religious coping) added to an equation with 8 other predictors (religious commitment, prayer, religious TV/radio, reading religious literature, attending religious services, attending other group religious activities, problem-focused coping, and emotion-focused coping). Ano and Vasconelles (2005) conducted a meta-analysis of 49 studies of RC and found effects indicating a “moderate positive relationship exists between positive religious coping and positive psychological adjustment” (p. 467), implying a medium effect size. Assuming a medium effect size, type I error rate of .05, 1 tested predictor (RC), and 9 total predictors (religious coping, religious commitment, prayer, religious TV/radio, reading religious literature, attending religious services, attending other group religious activities, problem-focused coping, and emotion-focused coping), a sample size of 55 was necessary to achieve power of .8. Because the last set of regression analyses involved fewer variables (Hypothesis 8), it was determined that the moderation analyses would not require more than 55 participants to achieve adequate power.

## **Procedure**

Administrative staff members (e.g., director of nursing, social services, executive director) from 11 long-term care (LTC) facilities gave permission to walk through their facilities to recruit residents as participants. Our research staff systematically walked through the facilities and approached residents in hallways, lobbies, and rooms. Residents who were sleeping or receiving care were often approached later when they were available. Residents who were awake and unoccupied were asked whether they would

like to hear about the details involved in participating in a research study. If residents expressed interest, research staff explained the study consent form and asked about their willingness to participate. Residents whose capacity to understand the purpose of the study was uncertain were asked one or more questions regarding their comprehension of the purpose and implications of the study and consent process. Following the review and signing of the consent form, potential participants answered several demographic questions and were administered the Brief Inventory of Mental Status (BIMS) (MDS, 2016). Participants who scored below an eight (more than “moderately impaired”) on the screener were excluded from the sample. Participants who scored an eight or above were included in the study and were verbally administered the questionnaire/interview. Interviews were terminated if participants asked to stop the interview, if they had another obligation that kept them from completing the entire interview, or if they became too tired to finish. If participants were unable to finish the entire interview in one sitting, research staff were occasionally able to return later to complete the interview. In several facilities, facility staff guided research staff to specific residents they believed may be open to participating in research, and the consent process began at this point. In one facility, the administration preferred that residents were approached for recruiting if they were pre-screened by facility staff based on 1) their openness to being approached by research staff and 2) their cognitive capabilities (achieving a BIMS score of at least eight as measured by facility staff). At this facility, administration provided a list of names and room numbers of residents who were identified as potentially willing and able participants based on those criteria. These residents were then approached by research

staff and asked about their interest in participation, and the consent process began at this point

## RESULTS

### Sample

Data were from residents of 11 long-term care (LTC) facilities ( $N = 102$ ), including seven nursing home (NH)/rehabilitation facilities ( $N = 67$ ) and four assisted living/personal care facilities ( $N = 35$ ) in the Louisville metropolitan area and southern Indiana. Approximately 180 LTC residents were approached for participation in the study. Of these 180, 102 completed portions of the interview. Forty-two potential participants who were approached refused to participate in the study due to lack of interest. Six potential participants did not meet the age criterion (55 or older), and 18 did not meet the mental status criterion (eight or above on the BIMS) or were judged incapable of consent by the interviewer.

Table 2.  
*Sample Demographics (N = 102)*

	<i>N</i>	Percent
Gender		
Male	36	35.3
Female	66	64.7
Race		
White	84	82.4
Black-African-American	17	16.7
American Indian/ Alaskan Native	1	1.0
Marital Status		
Single	17	16.7
Married	11	10.8
Divorced	22	21.6
Widowed	52	51.0

On average, the seven nursing home facilities held 116 beds and had staffing levels of 1.35 hours per resident per day. Four of the nursing home facilities were non-profit businesses. On average, the nursing home facilities had a 3-star rating from the Centers for Medicare & Medicaid Services (CMS). The majority of the assisted living facilities were non-profit businesses. All descriptive statistics are reported excluding outliers (cases with a greater absolute value of three times the interquartile range). Participants ranged in age from 55 to over 90 (Mdn = 71.5). Individuals over the age of 90 were recorded as “90+” in the database (the age of individuals over 90 is protected health information, so the specific age of participants 90 or above was not recorded to protect their identity). Twenty-one participants were recorded in the “90+” category. On average, participants had some college education ( $N = 101$ ,  $M = 13.31$  years,  $SD = 2.72$ ) and were cognitively intact as evidenced by high scores on the BIMS ( $N = 102$ ,  $M = 13.5$ ,

Table 3.

*Type and Severity of Stressor*

Area of stress	<i>N</i>	Mean ( <i>SD</i> )
Health	67	7.10 (2.54)
Living Situation	60	6.37 (2.68)
Social Environment	48	6.87 (2.21)
Other	13	8.08 (1.85)

$SD = 1.98$ ). Average length of stay was 19 months ( $N = 96$ ,  $SD = 18.85$ ), and average monthly income was \$1548 ( $N = 57$ ,  $SD = 1203$ ). Participants reported a variety of

health comorbidities on the Charlson Comorbidity Index ( $N = 85$ , weighted index score  $M = 3.62$ ,  $SD = 2.39$ ). In a previous study of a sample of medical patients, 67% of patients had a weighted index score of 0 to 2, and 33% of patients had a weighted index score of 3 or above (Charlson et al., 1987), suggesting the sample from the present study reported experiencing significant medical burden. The typical participant was White, female, and widowed. Refer to Table 2 for other resident demographic data.

Table 4.

*General Coping Strategies*

Coping Strategies	N	Mean (SD)
Acceptance	90	6.34 (1.57)
Religion	90	6.32 (2.02)
Emotional Support	90	5.39 (1.95)
Active	91	5.19 (1.97)
Positive Reframing	90	5.05 (1.92)
Self-Distraction	90	5.09 (1.99)
Planning	90	4.98 (2.11)
Instrumental Support	90	4.37 (1.82)
Venting	89	3.89 (1.73)
Self-Blame	89	3.62 (1.94)
Denial	90	3.55 (1.98)
Humor	90	3.51 (1.79)
Behavioral Disengagement	89	3.15 (1.53)
Substance Use	90	2.12 (.73)

The majority of participants reported they had experienced stress involving their health and living situations since moving to a long-term care facility (refer to Table 3). Acceptance and religion were the most commonly reported general coping strategies (refer to Table 4). The sample was mostly Christian (e.g., Baptist, Catholic, Methodist) and had current access to a variety of religious resources such as a religious support

community, worship service, religious literature, and religious television/radio. The majority of the sample reported engaging in individual religious practices such as prayer (89.4%), listening to religious media (64.5%), and reading religious literature (64.9%) at least once per week. The majority of the sample also reported engaging in the organizational religious practice of attending a worship service (62.3%) at least once per week, although most participants (62.4%) did not engage in any religious activities at a place of worship other than religious services. The majority of participants had access to religious resources before and after moving to the long-term care facility. Refer to Tables 5 and 6 for descriptive statistics of religious resources, religious affiliation, and religious denominations.

Table 5.  
*Percentage of Residents with Access to Religious Resources Before and After Moving to Long-Term Care (N = 92)*

	Before	After
Religious support community		
Yes	87.0	81.5
No	13.0	18.5
Religious worship service		
Yes	91.3	83.7
No	8.7	16.3
Religious literature or scripture		
Yes	90.2	87.0
No	9.8	13.0
Religious TV/radio		
Yes	93.5	91.3
No	6.5	8.7

### **Brief RCOPE Factor Structure**

Confirmatory factor analysis (CFA)

was utilized to examine a one-factor solution and several two-factor solutions (Figure 1) for the Brief RCOPE. Hypothesis 1 predicted religious coping as measured by the Brief RCOPE would form two underlying factors labeled Positive (items 1-7) and Negative (items 8-14). No cases were excluded as outliers (greater absolute value of three times the interquartile range). Refer to Table 7 for goodness-of-fit indicators for each solution and Table 8 for unstandardized and standardized loadings for the two-factor solution with several co-varied error terms. Modification indices were used to examine which error variance terms could be co-varied to improve model fit for the two-factor models, and one pair of error variances on each factor was co-varied to improve model fit (error two

Table 6.  
*Religious Affiliation (N = 101)*

	N	Percent
Christian	96	95
Assemblies of God	1	1
Baptist	34	33.3
Catholic	20	19.6
Church of Christ	1	1
Ecumenical	1	1
Episcopalian	2	2
Methodist	11	10.8
Non-denominational	3	2.9
Pentecostal	2	2
Presbyterian	4	3.9
Protestant	5	4.9
Roman Catholic	3	2.9
Seventh-Day Adventist	1	1
United Church of Christ	2	2
Jewish	1	1
Spiritualist	1	1
Atheist	1	1
Agnostic	1	1
Other	1	1



and error term six were co-varied; error term 11 and error 14 were co-varied). In the first two-factor model, all the original 14 items were included in the CFA. In the second two-factor model, item 13 (“decided the devil made this happen”) was excluded because of the low factor loading ( $\beta = .373$ ); thus, 13 of the original 14 items were retained. Of the three solutions, the two-factor solution with 13 items had the best model fit.

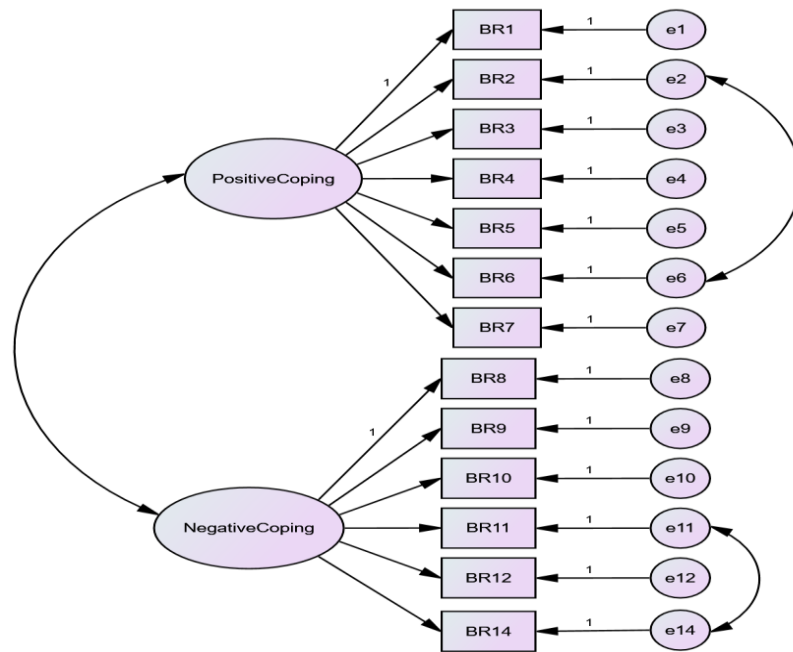


Figure 1. Two-factor model of religious coping.

Table 7.  
Brief RCOPE Model Goodness-of-Fit Indicators (N = 101)

Model	CMIN	CMIN <i>p</i> value	df	CMIN/df	GFI	CFI	RMSEA
One Factor (14-item)	296.27	< .001	77	3.848	.640	.605	.169
Two Factor (14-item)	98.199	.031	74	1.327	.879	.956	.057
Two Factor (13-item)	77.753	.086	62	1.254	.896	.971	.050

Table 8.  
*Brief RCOPE Unstandardized and Standardized Loadings: CFA (N = 101)*

Item	Unstandardized	Standardized
1 - looked for stronger connection with God	1.000	.754
2 - sought God's love and care	.699	.656
3 - sought help from God in letting go of anger	.867	.607
4 - put plans into action together with God	1.022	.789
5 - tried to see how God might be trying to strengthen me	1.082	.852
6 - asked forgiveness for sins	.788	.644
7 - focused on religion to stop worrying about my problems	1.073	.812
8 - wondered whether God abandoned me	1.000	.742
9 - felt punished by God for my lack of devotion	.850	.742
10 - wondered what I did for God to punish me	.860	.719
11 - questioned God's love for me	.800	.596
12 - wondered whether my church had abandoned me	.549	.480
13 - decided the devil made this happen	.471	.373
14 - questioned the power of God	.773	.553

As the modification indices suggested co-variances between other error terms could further improve model fit, an exploratory factor analysis (EFA) with all 14 items was utilized to further explore whether a two-factor solution best explains the data. The Kaiser-Meyer-Olkin measure of sampling adequacy was .807 and Bartlett's test of sphericity was significant ( $\chi^2(91) = 610.528, p < .001$ ), suggesting the sample data were suitable for analysis. Principal axis factoring was used as a way to detect the latent constructs, and three eigenvalues over 1 indicated factors that explained 31.26%, 23.48%,

and 7.198% of the variance. A fourth factor with an eigenvalue of .958 explained 6.845% of the variance. Thus, the eigenvalues and scree plot (Figure 2) indicated two factors that explain substantially more variance than the other factors. A varimax rotation (due to orthogonal factors) assuming two factors produced a rotated factor matrix (Table 9).

The rotated factor matrix (loadings < 0.1 are suppressed) indicated items 1-7 load highly onto Factor 1, with factor loadings ranging from .605 to .841. With the exception of item 13 (.216 loading on Factor 1; .368 loading on Factor 2), items 8-14 load highly onto Factor 2, with factor loadings ranging from .501 to .719. Cumulative evidence from the CFA and EFA suggests a two-factor solution best fits the Brief RCOPE data. Because

Table 9.  
*Brief RCOPE rotated factor matrix: EFA (N = 101)*

Item Number	Factor 1	Factor 2
5	<b>.841</b>	
4	<b>.798</b>	
7	<b>.790</b>	
1	<b>.752</b>	
2	<b>.698</b>	
6	<b>.663</b>	
3	<b>.605</b>	<b>.111</b>
8		<b>.719</b>
10		<b>.695</b>
9		<b>.692</b>
11	-.123	<b>.681</b>
14		<b>.642</b>
12		<b>.501</b>
13	.216	<b>.368</b>

item 13 does not load highly on either factor and excluding item 13 results in the best model fit, it was not included in subsequent analyses using summed Brief RCOPE scores. In subsequent analyses, items 1-7 of the Brief RCOPE are summed and labeled “Positive” religious coping (Factor 1), and items 8-12 and 14 are summed and labeled “Negative” religious coping (Factor 2).

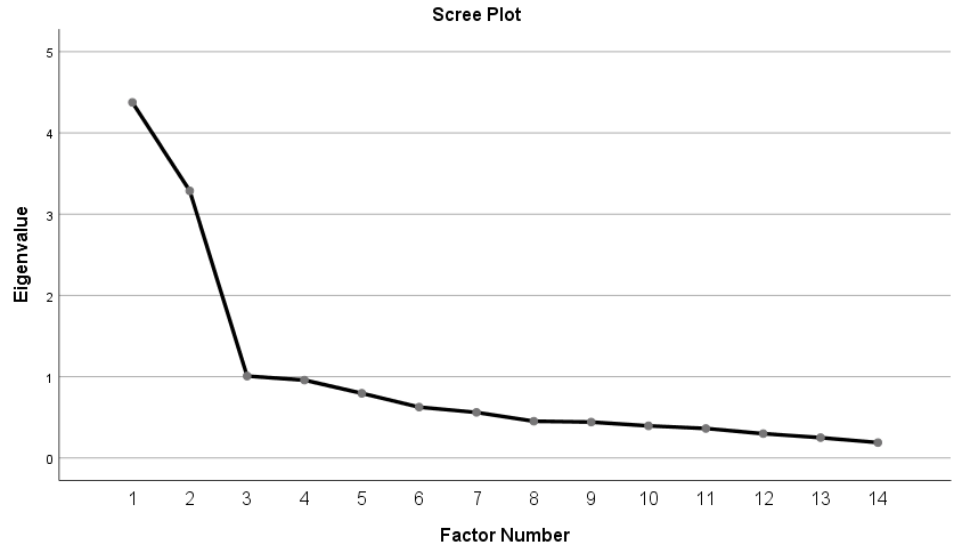


Figure 2. Scree plot of eigenvalues of Brief RCOPE items

### Religious Problem-Solving Scales (RPSS) Factor Structure

Confirmatory factor analysis (CFA) was utilized to examine one, two, and three-factor solutions for the Religious Problem-Solving Scales. Hypothesis 2 predicted these coping scales would form three underlying factors: Collaborative (items 1, 5, 6, 10, 13, and 18), Deferring (items 2, 4, 9, 11, 15, and 16), and Self-Directing (items 3, 7, 8, 12, 14, and 17). Refer to Table 10 for goodness-of-fit indicators and Table 11 for unstandardized and standardized loadings for the two-factor solution with several co-varied error terms.

Table 10.  
*Religious Problem-Solving Scales model*  
*Goodness-of-Fit Indicators (N = 101)*

Model	CMIN	CMIN <i>p</i> value	df	CMIN/df	GFI	CFI	RMSEA
One Factor	411.325	< .001	135	3.047	.616	.769	.143
Two Factor	209.227	< .001	132	1.585	.823	.935	.076
Three Factor	176.711	.004	130	1.359	.853	.961	.060

Modification indices were used to examine which error variance terms could be co-varied to improve model fit for the three-factor model, and one pair of error variances on several factors were co-varied to improve model fit (error terms 5 and 6 were co-varied as well as error terms 9 and 10). The correlation between Factors 1 and 2 (Collaborative and Deferring) was high ( $r = .894$ ), so a two-factor solution was subsequently estimated with the Collaborative and Deferring items comprising one factor and the Self-Directing items comprising another factor (Figure 3). Modification indices were used to examine which error variance terms could be co-varied to improve model fit for the three-factor model, and one pair of error variances on several factors were co-varied to improve model fit (error terms 3 and 11 were co-varied as well as error terms 7 and 10). Of the various models, the three-factor solution had the best model fit.

Table 11.

*Religious Problem-Solving Scales Item Unstandardized and Standardized Loadings: CFA (N = 101)*

Item	Unstandardized	Standardized
1 – when I have a problem I talk to God about it and together we decide what it means	1.000	.766
2 – rather than trying to come up with the right solution to a problem myself, I let God decide how to deal with it	.899	.713
3 – when faced with trouble, I deal with my feelings without God’s help	1.000	.803
4 – when a situation makes me anxious, I wait for God to take those feelings away	.762	.586
5 – together, God and I put my plans into action	.990	.785
6 – when it comes to deciding how to solve a problem, God and I work together as partners	1.199	.890
7 – I act to solve my problems without God’s help	.858	.735
8 – when I have difficulty, I decide what it means by myself without help from God	.982	.812
9 – I don’t spend much time thinking about troubles I’ve had; God makes sense of them for me	.798	.616
10 – when considering a difficult situation, God and I work together to think of possible solutions	1.002	.812
11 – when a trouble issue arises, I leave it up to God to decide what it means for me	.987	.754
12 – when thinking about a difficulty, I try to come up with possible solutions without God’s help	.897	.785
13 – after solving a problem, I work with God to make sense of it	1.030	.809
14 – when deciding on a solution, I make a choice independent of God’s input	.652	.494
15 – in carrying out the solutions to my problems, I wait for God to take control and know somehow He’ll work it out	1.034	.790
16 – I do not think about different solutions to my problems because God provides them for me	.992	.746
17 – after I’ve gone through a rough time, I try to make sense of it without relying on God	.909	.732
18 – when I feel nervous or anxious about a problem, I work together with God to find a way to relieve my worries	1.111	.885

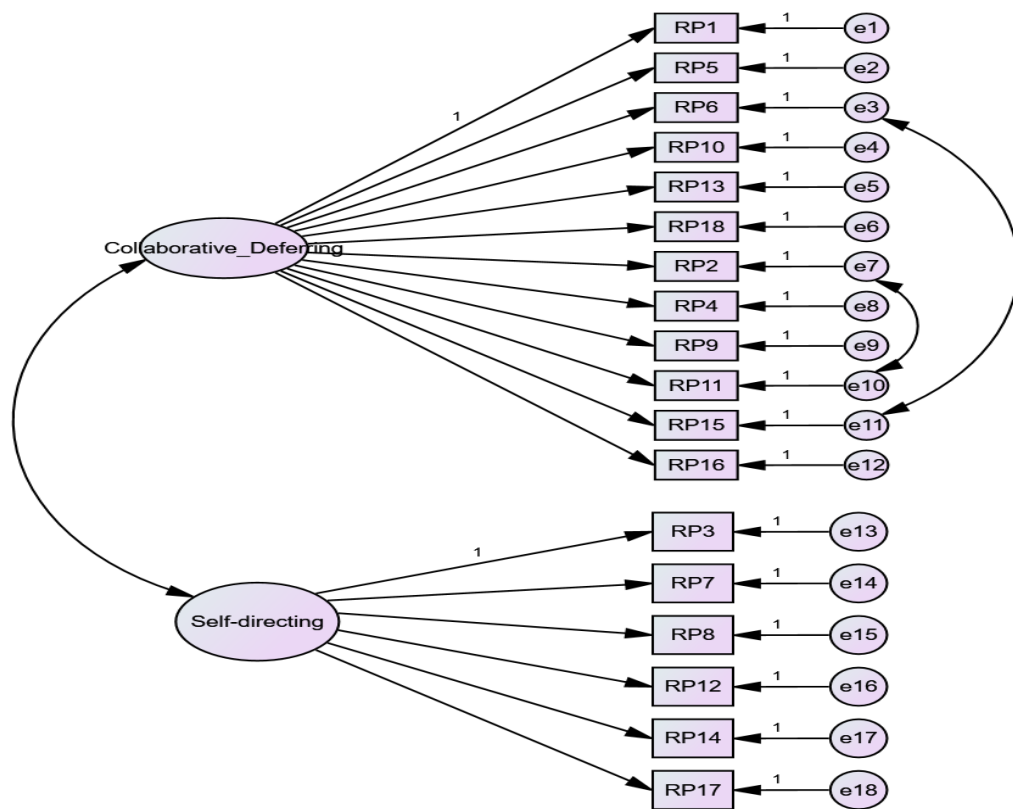


Figure 3. Two-factor model of religious problem-solving

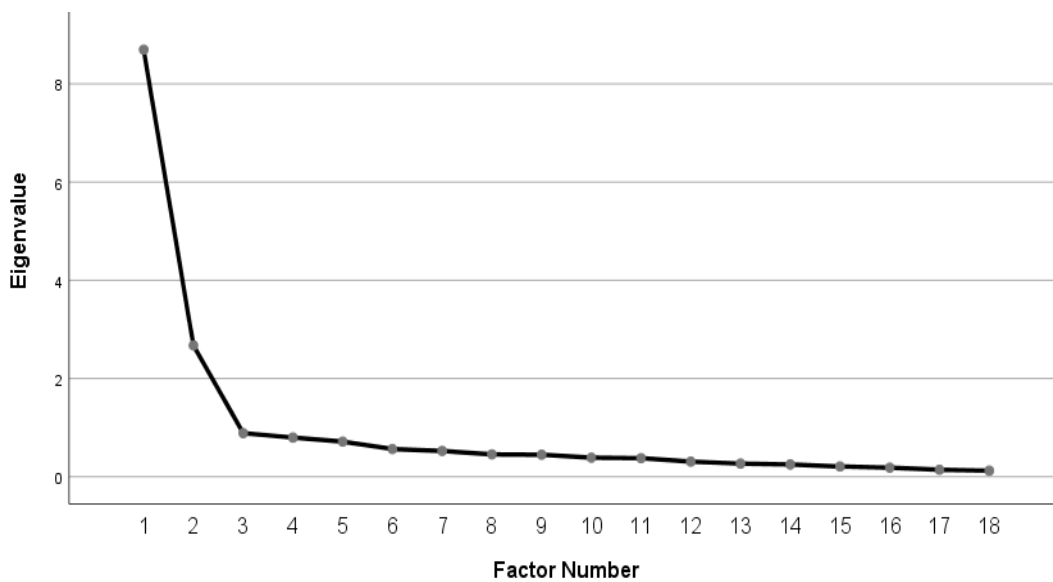


Figure 4. Scree plot of eigenvalues of Religious Problem-Solving Scales items

As the modification indices suggested co-variances between other error terms could improve model fit, an exploratory factor analysis (EFA) with all 18 items was utilized. The Kaiser-Meyer-Olkin measure of sampling adequacy was .909 and Bartlett's test of sphericity was significant ( $\chi^2(153) = 1256.337, p < .001$ ), suggesting the sample data were suitable for analysis. Principal axis factoring was used as a way to detect the latent constructs, and two eigenvalues greater than one indicated factors that explained 48.308% and 14.856% of the variance. The factor with an eigenvalue of .887 explained the third-highest percentage of variance (4.926%). Thus, the eigenvalues and scree plot (Figure 4) indicated two factors that explain substantially more variance than other factors. A promax rotation (due to non-orthogonal factors) assuming two factors produced a pattern matrix (Table 12). The pattern matrix (loadings  $< .1$  are suppressed)

Table 12.  
*EFA Pattern Matrix for Religious Problem-Solving Scales (N = 101)*

Item Number	Factor 1	Factor 2
15	<b>.890</b>	.182
16	<b>.882</b>	.215
18	<b>.799</b>	-.157
5	<b>.788</b>	
2	<b>.771</b>	
11	<b>.766</b>	
6	<b>.752</b>	-.202
13	<b>.734</b>	-.115
1	<b>.726</b>	
9	<b>.694</b>	.123
10	<b>.691</b>	-.189
4	<b>.633</b>	
3		<b>.847</b>
12		<b>.842</b>
17	.135	<b>.785</b>
8	-.168	<b>.735</b>
7		<b>.690</b>
14		<b>.522</b>

indicated 12 items load highly onto Factor 1, with factor loadings ranging from .633 to .890. The pattern matrix indicated 6 items load highly onto Factor 2, with factor loadings ranging from .522 to .847. Overall, the CFA indicated a slightly better model fit assuming three factors rather than two factors; however, the EFA, high correlations between Collaborative and Deferring factors, and factor loadings suggest the RPSS may be best described by two factors (Collaborative-Deferring and Self-Directing). In subsequent



analyses, the RPSS scores are described using all 18 items summed into two subscales labeled “Collaborative-Deferring” (12 items, Factor 1) and “Self-Directing” (6 items, Factor 2).

### **Demographic Differences in Religious Coping**

Correlations and independent sample t-tests were used to identify several relationships between religious coping scales and demographic variables. There were no gender differences in positive, negative, or collaborative-deferring religious coping. Men reported significantly more self-directing religious coping than women (Male  $M = 15.22$ ,  $SD = 7.25$ , Female  $M = 11.37$ ,  $SD = 5.25$ ;  $t(55.742) = 2.806$ ,  $p = .007$ ). Higher monthly income was associated with less negative religious coping ( $r = -.375$ ,  $p = .004$ ) and less self-directing religious coping ( $r = -.290$ ,  $p = .029$ ). No religious coping scales were correlated with education, length of stay, or total BIMS scores. When divided into “low” (BIMS score = 8 to 12) and “high” (BIMS score = 13 to 15) groups, individuals with higher BIMS scores reported significantly more positive religious coping (Low BIMS mean for positive religious coping = 19.00,  $SD = 6.35$ , High BIMS mean for positive religious coping = 21.77,  $SD = 5.25$ ;  $t(100) = -2.148$ ,  $p = .034$ ), although there were few participants in the “low” score group ( $N = 24$ ) compared to the “high” score ( $N = 78$ ) group. Older age was correlated with less self-directing religious coping ( $r = -.258$ ,  $p = .009$ ). There were no significant differences between Whites and African-Americans for positive religious coping, negative religious coping, collaborative-deferring religious coping, or self-directing religious coping, although the analysis was limited due to few African-American participants in the sample ( $N = 17$ ). There were no differences in positive religious coping and collaborative-deferring religious coping based on facility

type; however, nursing home residents reported significantly more negative religious coping than assisted living/personal care residents (nursing home  $M = 10.36$ ,  $SD = 4.56$ , assisted living  $M = 7.38$ ,  $SD = 1.81$ ;  $t(94.982) = 4.663$ ,  $p < .001$ ). Nursing home residents also reported significantly more self-directing religious coping than assisted living/personal care residents (nursing home  $M = 13.88$ ,  $SD = 6.96$ , assisted living  $M = 10.60$ ,  $SD = 4.03$ ;  $t(98.170) = 2.994$ ,  $p = .003$ ). Health was not related to positive religious coping, collaborative-deferring religious coping, or self-directing religious coping; however, more severe medical burden was related to more negative religious coping ( $r = .360$ ,  $p = .001$ ).

### Reliability

Table 13.  
*Reliability Analyses for Religious Coping Measures*

Subscale	# of Items	$M$ (SD)	Skewness Statistic (Std. Error)	Kurtosis Statistic (Std. Error)	$\alpha$
Positive religious coping	7	21.12 (5.62)	-.895(.239)	.138(.474)	.890
Negative religious coping	6	9.36 (4.10)	1.551(.240)	2.104(.476)	.817
Collaborative religious coping	6	20.94 (7.12)	-.817(.240)	-.176(.476)	.929
Deferring religious coping	6	20.22 (6.66)	-.521(.240)	-.468(.476)	.881
Collaborative-Deferring religious coping	12	41.16 (13.14)	-.799(.240)	-.118(.476)	.944
Self-Directing religious coping	6	12.74 (6.29)	1.172(.240)	.965(.476)	.868

Reliability analyses were conducted on the Brief RCOPE and RPSS subscales. Refer to Table 13 for descriptive statistics for each factor. Hypothesis 3 predicted each subscale from the RC measures would be internally consistent ( $\alpha \geq .7$ ), and the analyses indicated internal consistency for the Brief RCOPE was good for both subscales (Positive

RC  $\alpha = .890$ , Negative RC  $\alpha = .817$ ), and good to excellent for the RPSS subscales (Self-Directing RC  $\alpha = .868$ , Collaborative-Deferring  $\alpha = .944$ ). Item-scale correlations ranged from moderate to large ( $r$  ranged from .452 - .860) (refer to Table 14).

Table 14.

*Item-Scale Correlations for Religious Coping Measures*

Measure	Item	1	2	3	4	5	6	7
Positive religious coping		.697	.661	.567	.755	.790	.619	.739
	Item	8	9	10	11	12	14	
Negative religious coping		.618	.595	.630	.633	.452	.563	
Collaborative religious coping	Item	1	5	6	10	13	18	
		.741	.743	.860	.792	.789	.840	
Deferring religious coping	Item	2	4	9	11	15	16	
		.706	.628	.603	.703	.759	.737	
Self-directing religious coping	Item	3	7	8	12	14	17	
		.737	.682	.732	.722	.469	.676	
Collaborative-Deferring religious coping	Item	1	2	4	5	6	9	10
		.732	.768	.824	.759	.770	.850	.729
	Item	11	13	15	16	18		
		.588	.613	.748	.773	.747		

### Validity

Bivariate correlations assessed concurrent, convergent, and discriminant validity for the religious coping measures. Data for all variables with skewed distributions (i.e., Positive RC, Negative RC, Kessler Psychological Distress Scale; Collaborative-Deferring RC, Self-Directing RC, Religious Coping Index, Brief COPE Religion Scale,

Collaborative-Deferring RC, Emotion-Focused Coping) were transformed using square root or log transformations, and the correlations were examined; however, since the transformations did not greatly influence the magnitude of the correlations and did not change the results of the inferential tests, correlations using the non-transformed data are reported. No outliers were removed from the data; no cases were identified with a greater absolute value of three times the interquartile range.

**Concurrent Validity.** To explore concurrent validity, associations between religious coping, psychological distress (KPDS), life satisfaction (SWLS), and severity of stress (LOPES) were examined. Hypothesis 4a predicted positive RC would be associated with less psychological distress and greater life satisfaction; however, greater positive RC was not associated with psychological distress and was significantly associated with higher life satisfaction, indicating mixed support for this hypothesis. Hypothesis 4b predicted greater negative RC would be associated with more psychological distress and lower life satisfaction, which was supported by the data; greater negative RC was moderately associated with greater psychological distress and weakly associated with lower life satisfaction. Hypothesis 4c predicted greater collaborative RC would be associated with less psychological distress and greater severity of stress, and Hypothesis 4d predicted greater deferring RC would be associated with greater psychological distress and higher severity of stressors. Because the collaborative and deferring RC scales were combined following the CFA/EFA, associations between collaborative-deferring RC and psychological distress and severity of stressors were examined. Using collaborative-deferring RC was not associated with either psychological distress or severity of stress. Hypothesis 4e predicted greater self-directing RC is associated with lower severity of

stressors; however, the data indicated using more self-directing RC was not associated with severity of stress. Other correlations indicated that using more collaborative-deferring RC was associated with less self-directing RC, which was expected due to those coping styles being theoretically dissimilar. Using more collaborative-deferring RC was associated with greater life satisfaction, whereas using more self-directing RC was associated with lower life satisfaction. Outcome variables were related to one another in

Table 15.

*Descriptive Statistics for Criterion Variables*

Variable	N	Mean (SD)	Min	Max	Skewness Statistic (SE)	Kurtosis Statistic (SE)
Kessler Psychological Distress Scale	81	21.32 (7.84)	10	46	.815(.267)	.180(.529)
Satisfaction with Life Scale	84	21.21 (7.14)	6	33	-.366(.263)	-.986(.520)
Louisville Older Person Events Scale	83	6.66 (2.00)	2	10	-.127(.264)	-.680(.523)

Table 16.

*Correlations between Religious Coping and Criterion Variables*

Variable	N-RC	CD-RC	SD-RC	SWLS	KPDS	Louisville Older Person Events Scale
Positive religious coping	.028	<b>.739**</b>	<b>-.467**</b>	<b>.281**</b>	-.148	-.003
Negative religious coping (N-RC)		.038	<b>.201*</b>	<b>-.285**</b>	<b>.397**</b>	.034
Collaborative- Deferring religious coping (CD-RC)			<b>-.448**</b>	<b>.436**</b>	-.127	-.124
Self-Directing religious coping (SD-RC)				<b>-.237*</b>	.053	.022
Satisfaction with Life Scale (SWLS)					<b>-.426**</b>	<b>-.379**</b>
Kessler Psychological Distress Scale (KPDS)						<b>.247**</b>

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

the expected directions: psychological distress and severity of stress were positively correlated with each other and negatively correlated with life satisfaction. Refer to Table 15 and 16 for descriptive statistics and Pearson product-moment correlations.

**Convergent Validity.** Hypothesis 5 predicted convergent validity between the positive RC scale from the Brief RCOPE and the one-item Religious Coping Index (RCI). The significant and large correlation between the positive RC subscale and the RCI supported convergent validity. The significant and large correlation between the positive RC subscale and the Religion Subscale of the Brief COPE also supports convergent validity. See Tables 17 and 18 for descriptive statistics and Pearson product-moment correlations.

Table 17.

*Descriptive Statistics for Religious Coping Index and Brief COPE Religion Scale*

Variable	<i>N</i>	Mean ( <i>SD</i> )	Min	Max	Skewness Statistic ( <i>SE</i> )	Kurtosis Statistic ( <i>SE</i> )
Religious Coping Index	93	7.60 (2.82)	1	10	-1.165(.250)	.330(.495)
Brief COPE Religion Scale	90	6.32 (2.02)	2	8	-1.010(.254)	-.227(.503)

Table 18.

*Correlations (*r*) between Positive Religious Coping and Other Religious Coping Measures*

Variable	RCI	Brief COPE Religion Scale
Positive religious coping	<b>.731**</b>	<b>.718**</b>
Religious Coping Index (RCI)		<b>.671**</b>

\**p* < .05, \*\**p* < .01

**Discriminant Validity.** Hypothesis 6 predicted weak to moderate associations between the positive RC scale from the Brief RCOPE and the non-religious coping scales (problem-focused coping and emotion-focused coping). Greater positive RC and

Table 19.

*Descriptive Statistics for General Coping Scales*

Variable	<i>N</i>	Mean ( <i>SD</i> )	Min	Max	Skewness Statistic ( <i>SE</i> )	Kurtosis Statistic ( <i>SE</i> )
Problem-Focused coping	90	31.32 (7.43)	17	46	.183(.254)	-.832(.503)
Emotion-Focused coping	87	16.67 (5.81)	9	35	.811(.258)	.459(.511)

Table 20.

*Correlations (r) between Religious Coping and General Coping*

Variable	Negative RC	Collaborative-Deferring RC	Problem-Focused Coping	Emotion-Focused Coping
Positive religious coping	.028	<b>.739**</b>	<b>.424**</b>	-.075
Negative religious coping (RC)		.038	.014	<b>.435**</b>
Collaborative-Deferring religious coping (RC)			<b>.363**</b>	-.010
Self-Directing religious coping (RC)			<b>-.213*</b>	<b>.286**</b>
Problem-Focused Coping				<b>.272**</b>

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

increased collaborative-deferring RC were moderately associated with increased problem-focused coping, which supports discriminant validity. Greater positive RC and collaborative-deferring RC were not associated with emotion-focused coping, which supports discriminant validity. Negative RC was moderately associated with greater emotion-focused coping. Greater self-directing RC was related to less problem-focused coping and greater emotion-focused coping. Greater problem-focused coping was weakly

associated with greater emotion-focused coping. Refer to Tables 19 and 20 for descriptive statistics and Pearson product-moment correlations.

Hypothesis 6 also predicted weak to moderate associations between the positive RC scale from the Brief RCOPE and religious commitment (RCI), individual religious practices (prayer, religious TV/radio, and reading religious literature), and organizational religious practices (attending religious services and attending other activities at a place of worship). Greater positive RC and collaborative-deferring RC were strongly associated with religious commitment, which does not support discriminant validity. Greater positive RC and collaborative-deferring RC were weakly to moderately associated with

Table 21.  
*Descriptive Statistics for Religious Commitment*

Variable	Total	Strongly Disagree	Disagree	Agree	Strongly Agree	
Religious commitment	<i>N</i> 94	5	9	27	53	
	Percentage	100	5.3	9.6	28.7	56.4

Table 22.  
*Spearman Correlations ( $\rho$  values) between Positive Religious Coping, Collaborative Religious Coping, and Religious Practices*

Variable	Positive religious coping	Collaborative-Deferring religious coping
Religious commitment	<b>.551**</b>	<b>.517**</b>
Prayer	<b>.619**</b>	<b>.469**</b>
Religious TV/Radio	<b>.341**</b>	<b>.337**</b>
Religious reading	<b>.504**</b>	<b>.457**</b>
Religious services	<b>.281**</b>	<b>.317**</b>
Other religious activities	<b>.365**</b>	<b>.367**</b>

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

attending religious services, watching religious TV/radio, and participating in other religious activities, which supports discriminant validity. Greater collaborative-deferring RC was moderately associated with reading religious literature and prayer, which also supports discriminant validity; however, greater positive RC was strongly associated with



reading literature and prayer, which does not support discriminant validity. Refer to Tables 21 for descriptive statistics and Table 22 for Spearman's rank-order correlations.

**Incremental Validity.** Hypothesis 7 predicted various religious coping variables would explain a significant amount of variance in life satisfaction (SWLS) after accounting for other religious variables and non-religious coping variables. The P-P plot, scatterplot of the residuals, and correlation table suggested the assumptions of normally distributed residuals, homoscedasticity, and lack of multicollinearity were met for the data. The first step of the regression analysis indicated the independent variables (religious commitment, individual religious activities, organizational religious activities, problem-focused coping, and emotion-focused coping) accounted for approximately 33% of the variance in life satisfaction, which was statistically significant,  $F(8, 71) = 4.372, p < .001$ . The second step indicated adding positive RC to the model accounted for an additional 0.4% of the variance in life satisfaction, and the change in  $R^2$  was not statistically significant,  $F(1, 70) = .404, p = .527$ , which does not support incremental validity. The next hierarchical linear regression analysis examined life satisfaction as an outcome variable and whether negative RC explains a significant amount of the variance in life satisfaction after accounting for the variance explained by the same religious variables. The second step indicated adding negative RC to the model accounted for an additional 0.3% of the variance in life satisfaction, and the change in  $R^2$  was not statistically significant,  $F(1, 69) = .289, p = .592$ , which does not support incremental validity. The next hierarchical linear regression analysis examined life satisfaction as an outcome variable and whether collaborative-deferring RC explains a significant portion of the variance in life satisfaction when accounting for the variance explained by the

same religious variables. The second step indicated adding collaborative-deferring RC to the model accounted for an additional 12.6% of the variance in life satisfaction, and the

Table 23.

Beta and R<sup>2</sup> Values from Four Hierarchical Regression Analyses Examining the Incremental Contribution of Four Religious Coping Measures over Religious Participation and Non-Religious Coping Variables to the Variance in Life Satisfaction

Variables	Step 1 – All Models	Step 2 – Positive RC	Step 2 – Negative RC	Step 2 – Collaborative-Deferring RC	Step 2 – Self-Directing RC
	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$
Religious commitment	.103	.077	.096	-.018	.099
Prayer	-.132	-.167	-.132	<b>-.314*</b>	-.102
Religious TV/radio	-.016	-.022	.010	-.060	-.022
Religious literature	<b>.268*</b>	.240	<b>.266*</b>	.176	<b>.282*</b>
Religious services	.047	.051	.053	.018	.050
Other religious activities	.009	-.005	-.012	-.038	.014
Problem-Focused coping	.195	.177	.183	.127	.199
Emotion-Focused coping	<b>-.480**</b>	<b>-.479**</b>	<b>-.451**</b>	<b>-.500**</b>	<b>-.494**</b>
Positive religious coping (RC)		.108			
Negative religious coping			-.062		
Collaborative-Deferring religious coping				<b>.549**</b>	
Self-directing religious coping					.065
R <sup>2</sup>	.330	.334	.331	.456	.333
$\Delta R^2$		.004	.003	<b>.126**</b>	.002

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

change in R<sup>2</sup> was statistically significant,  $F(1, 70) = 16.223, p < .001$ , which supports

incremental validity. The next hierarchical linear regression analysis examined life

satisfaction as an outcome variable and whether self-directing RC explains a significant

portion of the variance in life satisfaction when accounting for the variance explained by the same variables. The second step indicated adding self-directing RC to the model accounted for an additional 0.2% of the variance in life satisfaction, and the change in  $R^2$  was not statistically significant,  $F(1, 70) = .256, p < .615$ , which does not support incremental validity. Refer to Table 23 for beta values,  $R^2$ , and  $\Delta R^2$ . As a whole, the analyses indicated collaborative-deferring RC was the only RC variable that explained a significant portion of the variance in life satisfaction above and beyond the variance accounted for by other religious variables and non-RC. The analyses also indicated that emotion-focused coping accounted for a significant portion of the variance in life satisfaction in every model even when accounting for the variance explained by the other religious variables, RC variables, and non-religious coping variables.

Hypothesis 7 also predicted various RC variables would explain a significant amount of variance in psychological distress (KPDS) after accounting for other religious variables and non-RC variables. Identical hierarchical linear regression analyses also examined psychological distress as an outcome variable and whether various RC variables explain a significant proportion of variance in psychological distress. Since bivariate correlations suggested that the only RC variable related to psychological distress was negative RC, this was the only RC variable used to test incremental validity with psychological distress. The P-P plot, scatterplot of the residuals, and correlation table suggested the assumptions of normally distributed residuals, homoscedasticity, and lack of multicollinearity were met for the data. The first step indicated the independent variables (religious commitment, individual religious activities, organizational religious activities, problem-focused coping, and emotion-focused coping) accounted for

approximately 39% of the variance in psychological distress, which was statistically significant,  $F(8, 65) = 5.215, p < .001$ . The second step indicated adding negative RC to the model accounted for an additional 3.1% of the variance in psychological distress, and the change in  $R^2$  was not statistically significant,  $F(1, 64) = .404, p = .067$ , which does not support incremental validity. Refer to Table 24 for beta values,  $R^2$ , and  $\Delta R^2$ . As a whole, the analysis indicated negative religious coping did not

account for a significant portion of the variance in psychological distress above and beyond the variance accounted for by other religious variables and non-religious coping. The analysis also indicated that emotion-focused coping accounted for a significant portion of the variance in

Table 24.  
Beta and  $R^2$  Values from a Hierarchical Linear Regression Analysis Examining the Incremental Contribution of One Religious Coping Measure over Religious Participation and Non-Religious Coping Variables to the Variance in Psychological Distress

Variables	Step 1	Step 2 – Negative RC
	$\beta$	$\beta$
Religious Commitment	.022	.031
Prayer	-.054	-.061
Religious TV/Radio	-.106	-.152
Religious Literature	-.117	-.108
Religious Services	-.068	-.081
Other Religious Activities	.129	.148
Problem-Focused Coping	.066	.097
Emotion-Focused Coping	<b>.577**</b>	<b>.473**</b>
Negative religious coping (RC)		.210
$R^2$	.391	.422
$\Delta R^2$		.031

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

psychological distress even when accounting for the variance explained by the other religious variables, RC variables, and non-religious coping variables.

## **Moderation Analysis**

Hypothesis 8 predicted the relationship between RC and life satisfaction is moderated by psychological health and social support (individual and contextual resources). To examine this hypothesis, the first two hierarchical linear regression analyses examined whether the strength of the relationship between religious coping and life satisfaction (SWLS) is moderated by psychological distress (KPDS). The second two hierarchical linear regression analyses examined whether the strength of the relationship between RC and life satisfaction is moderated by total social network (SSQ Network). The P-P plot, scatterplot of the residuals, and correlation table suggested the assumptions of normally distributed residuals, homoscedasticity, and lack of multicollinearity were met for each analysis. For each moderation analysis, the independent variables were centered by subtracting the variable mean from each score. In the first step of the analyses, the centered independent and moderator variables were entered with life satisfaction as the dependent variable. In the second step, an interaction term was created by multiplying the centered independent variable and potential moderator variables, and the interaction term was entered as another predictor. Collaborative-Deferring RC and Positive RC were entered as independent variables in separate analyses, and psychological distress (KPDS) and total social network (SSQ Network) were entered as potential moderating variables, resulting in four hierarchical models.

In the first analysis, in the first step with psychological distress entered as the potential moderator, positive RC and psychological distress explained approximately 23% of the variance in life satisfaction,  $F(2, 75) = 11.207, p < .001$ . The beta values of both positive RC and psychological distress were statistically significant. In the second

step with positive RC, psychological distress, and the interaction term entered as independent variables, the change in  $R^2$  was not significant,  $F(1, 74) = .173, p = .679$ . The beta values for positive RC and psychological distress remained significant, but the beta for the interaction term was not significant. In the second analysis, in the first step with psychological distress entered as the potential moderator, collaborative-deferring RC and psychological distress explained approximately 33% of the variance in life satisfaction,  $F(2, 75) = 18.420, p < .001$ . The beta values of both collaborative-deferring RC and psychological distress were statistically significant. In the second step with collaborative-deferring RC, psychological distress, and the interaction term entered as predictors, the change in  $R^2$  was not significant,  $F(1, 74) = .211, p = .648$ . The beta values for collaborative-deferring RC and psychological distress remained significant, but the beta for the interaction term was not significant. These two regressions suggested the moderation hypothesis was not supported. Refer to Table 25 for beta values,  $R^2$ , and  $\Delta R^2$  for the analyses with psychological distress as the potential moderator.

As total social network was not related to life satisfaction in either the third or fourth analyses (beta = .066, .090), the analyses indicated that no moderation effect was occurring. Refer to Table 26 for descriptive statistics for total social network.

Table 25.  
*Beta and R<sup>2</sup> values from Two Hierarchical Linear Regression Analyses Examining the Variance in Life Satisfaction Accounted for by Two Religious Coping Measures with Psychological Distress as a Moderator*

Variables	Step 1	Step 2	Step 1	Step 2
	$\beta$	$\beta$	$\beta$	$\beta$
Positive religious coping	.223*	.227*		
Collab.-Deferring religious coping (RC)			.388**	.385**
Kessler Psychological Distress Scale (KPDS)	-.393**	-.405**	-.377**	-.390**
Positive RC * KPDS (interaction term)		-.044		
Collaborative-Deferring RC * KPDS (interaction term)				-.046
R <sup>2</sup>	.230	.232	.329	.331
$\Delta R^2$		.002		.002

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

Table 26.  
*Descriptive Statistics for Total Social Network*

Variable	N	Mean (SD)	Min	Max	Skewness Statistic (SE)	Kurtosis Statistic (SE)
Total social network	81	18.99(14.56)	1	76	1.779(.267)	3.519(.529)

## DISCUSSION

### **Summary of Research Questions and Hypotheses**

The aim of this study was to explore religious coping in the context of long-term care. The study examined the psychometric characteristics of two well-accepted religious coping measures with participants living in nursing homes and assisted living facilities. Although these religious coping measures have been used in previous studies involving older adults, reliability and validity has not been thoroughly examined in long-term care samples (Andrew & Meeks, 2017). This study evaluated the conceptual distinctiveness of these religious measures from measures of religious participation and non-religious coping. Six research questions were used to determine whether two of Pargament's religious coping measures are valid for use in nursing home and assisted living/personal care settings. The first and second research questions respectively asked whether measures assessing religious coping appraisals and religious coping approaches to control can be described using simple, comprehensible factor structures. The third research question asked whether the religious coping measure subscales are internally consistent. The fourth research question asked whether the religious coping measures demonstrate convergent, concurrent, and discriminant validity in relation to outcomes such as shorter religious coping measures, stress, psychological distress, and other religious variables. The fifth research question asked whether religious coping measures account for a significant percentage of variance in clinical outcomes above and beyond the influence of other religious variables and non-religious coping strategies. The sixth research question



asked whether the relationship between religious coping and life satisfaction is moderated by individual coping resources such as psychological health and contextual coping resources such as social network.

**Religious Coping Factor Structure and Reliability.** As predicted, confirmatory and exploratory factor analyses provided strong evidence for two distinct factors of the Brief RCOPE, supporting Hypothesis 1. Regarding the factor structure of the short version of the Religious Problem-Solving Scales (RPSS), mixed evidence from confirmatory and exploratory factor analyses suggested a simpler two-factor solution fits the data better than the hypothesized three-factor solution, which did not support Hypothesis 2. The resulting subscales of the Brief RCOPE and showed good to excellent internal consistency as well as moderate to large item-scale correlations, supporting Hypothesis 3.

**Validity of Religious Coping Measures.** To address the fourth research question, hypotheses predicted relationships between religious coping measures and other variables. Correlational analyses indicated mixed support for the hypotheses predicting concurrent, convergent, and discriminant validity of the religious coping measures. In regard to concurrent validity (H4), every religious coping subscale was related to life satisfaction as predicted, but only negative religious coping was related to psychological distress. None of the religious coping measures were associated with the stress measure used in this study. Strong associations between the Brief RCOPE and shorter measures of religious coping supported Hypothesis 5, which predicted convergent validity (H5). Non-significant, weak, and moderate relationships between several religious coping measures and general coping as well as between religious coping measures and some religious

practices supported discriminant validity (H6). However, strong relationships between positive RC and several other religious variables (religious commitment, frequency of prayer, frequency of reading religious literature) did not support discriminant validity (H6).

The seventh hypothesis predicted incremental validity of religious coping as compared to non-religious coping, religious commitment, and religious practices. The findings offered mixed support for this hypothesis; although collaborative-deferring religious coping accounted for significant additional variance in life satisfaction, the other religious coping variables did not (H7). The last hypothesis (H8), that psychological health and social support would moderate the relationship between religious coping and life satisfaction, was not supported.

Pargament's religious coping measures are intended to assess religious appraisals in the process of coping and perspectives on control involved in using religion to manage problems. Pargament suggests there are two types of religious appraisals (as measured by the Brief RCOPE) and three types of approaches to control (as measured by the Religious Problem-Solving Scales) guiding the coping process. Positive or negative religious appraisals demonstrate thoughts of either security or insecurity about one's relationship with a higher power. The collaborative approach to control indicates one is working together with God to solve a problem, and the deferring approach to control indicates one is allowing God to solve a problem. In contrast, the self-directing approach to control suggests one may solve problems without God's help. The factor structure and good reliability of the Brief RCOPE in this sample is consistent with previous literature (Pargament et al., 2000; Pargament et al., 2011). This factor structure implies that the

cognitive aspect of religious coping is a multifaceted construct, and it suggests individuals' coping processes may differ based on how they view their relationship with God. However, the findings do not clearly support a religious coping construct described with three approaches to control, which is inconsistent with previous literature (Emery & Pargament, 2004; Pargament, 1997; Pargament et al., 1988). Instead, the findings suggest that, at least in this long-term care sample, religious approaches to control may be described with two categories (collaborative-deferring and self-directing). The high correlation found between collaborative and deferring religious coping is not unique to this sample (e.g., Banziger, van Uden, & Janssen, 2008; Ross et al., 2009), and the data from this sample suggest the collaborative and deferring subscales of the short form of the RPSS may be more theoretically similar than distinct. Both the collaborative and deferring approaches to control involve God in the problem-solving process; thus, it is possible that the long-term care residents in this sample did not make a distinction between giving God control (deferring) and working together with God to solve a problem (collaborative). This factor structure implies that elderly participants' responses about religious efforts for problem-solving could be better described as either dependent (collaborative-deferring) or independent (self-directing) styles; in addition, this simpler factor structure indicates religious approaches to control may differ based on whether individuals "give away" to God at least some control of their situations. When summed as separate scales or as a combined scale, LTC residents reported collaborative-deferring religious coping more frequently than self-directing religious coping, which could imply the more dependent religious coping style is particularly relevant to elderly, predominantly Christian LTC patients. If specific coping styles are more commonly used

and are more effective in this particular population, the ability to effectively differentiate between religious approaches to control is an important implication of this factor analysis. Ultimately, the factor analyses suggest that both modified religious coping measures are reliable and potentially valuable for use in long-term care settings, since they both help identify individuals' religious coping appraisals and coping styles.

The findings addressing concurrent validity suggest the religious coping measures are related to relevant clinical outcomes such as life satisfaction; this finding is to be expected, as previous research has connected religious coping with psychological adjustment (Ano & Vasconcelles, 2005). While one study of religious coping in a younger sample indicated increased stress was associated with working together with God (Schaefer & Gorsuch, 1993), the findings of the present study indicate increased stress is not related to either type of religious coping approach to control. The strong relationship between the Brief RCOPE and the one/two-item religious coping measures indicates these assessment tools may be measuring a theoretically similar construct. This was expected, since the measures are all designed to assess the construct of religious coping. Evidence from the analyses of discriminant and incremental validity indicate 1) the RPSS measure may be assessing a construct that is distinct from, albeit highly related to, the constructs assessed by other religious variables, and 2) collaborative-deferring religious coping adds value in explaining a clinically relevant outcome variable (life satisfaction) even after accounting for non-religious coping, religious commitment, and religious practices. Religious coping researchers suggest the construct of religious coping is distinct from the constructs assessed by other religious variables or general coping measures (Pargament et al., 1990; Pargament & Ano, 2004; Pargament, Ano, &

Wachholtz, 2005; Pargament & Raiya, 2007), and the findings of this study partially support these assumptions. However, several pieces of evidence suggest the Brief RCOPE may not be measuring a different construct than other religious variables. Strong relationships between positive religious coping and certain religious variables (religious commitment, prayer, reading religious literature) suggest the Brief RCOPE may only be measuring attitudes behind the engagement in various religious practices rather than a construct that transcends them. Neither the positive or negative religious coping subscales explained any additional variance in clinically relevant outcome measures (life satisfaction and psychological distress). On the contrary, one measure of general, non-religious coping (emotion-focused coping) was significant in accounting for variance in both life satisfaction and psychological distress even while accounting for the influence of religious coping and other religious variables. This finding suggests that general emotion-focused coping may be particularly relevant for measuring clinical outcomes in LTC and more important than problem-solving coping, religious coping, and other religious variables.

**Moderation.** The moderation hypotheses predicted the strength of the relationship between religious coping and life satisfaction would vary based on different levels of coping resources such as psychological health and social support; more specifically, they explored whether the association between religious coping and life satisfaction was stronger for individuals with better psychological health and/or a larger social network. While moderating relationships were not identified, the analyses were a good first step in exploring the potential role of individual and contextual resources in the process of developing resilience in late-life. It is possible the Kessler Psychological

Distress Scale and the Social Support Questionnaire measured constructs that did not adequately represent Aldwin and Igarashi's concepts of individual and contextual coping resources. According to Aldwin and Igarashi's model, the process of developing resilience involves interactions between the individual, their social environment, and their sociocultural setting. The non-significant findings regarding the moderation analyses in this study suggest the complex relationships between religious coping, coping resources, and outcomes were not clearly identified.

### **Limitations**

Weaknesses and limitations may be identified from the study design, procedure, sample, and analyses. Despite efforts to systematically recruit participants, recruiting was restricted to a narrow geographic area (Kentucky/Southern Indiana). Although most residents were recruited by systematically walking through hallways and public areas of long-term care facilities, staff members from some facilities directed research staff to particular residents' rooms who they believed would be willing to participate, and one facility pre-screened residents based on a cognitive screener and whether they were open to participating in research. These factors may have biased the sample in unknown ways.

The participants in this study may not be representative of a typical long-term care population because they may have been the most cognitively capable, physically healthy, and active residents of each facility. Participants were excluded if they achieved below a minimum benchmark on a cognitive screener, and healthier, active residents were probably more likely to be open and available for an interview. 76.4% of the sample scored 13 or above on the BIMS, suggesting the majority of participants were not cognitively impaired; however, 23.6% of participants scored between 8 and 12 on the

BIMS, indicating a significant minority of participants experienced mild to moderate cognitive impairment. Although there were too few cognitively impaired participants to conduct reliability analyses separately for their data, our measures had good internal reliability overall. The cognitively impaired participants also did not generally appear to have significant difficulty responding to any particular measure. Thus, for those who participated, the data appear to have integrity. In regard to religious affiliation, the sample was almost exclusively Christian, although there was considerable variation among religious denominations. Some individuals who opted not to participate in the study may have been less religious than those who did participate, which may have led to an underrepresentation of participants who do not often use religious coping. In addition, the sample was mainly White. Although participant religious affiliation and race was representative of a typical long-term care population in the region of the study, the findings on religious coping should not necessarily be applied to other religious and racial groups in long-term care that are not represented in our sample.

The sample size was ideal for all analyses except the factor analyses. Although tests of sampling adequacy and sphericity suggested the data were suitable for EFA analysis, it is possible a larger sample would have helped achieve better model fit. To minimize the burden of participation for elderly LTC residents, a modified, shortened version of the Louisville Older Person Events Scale (LOPES) was utilized. The longer, more comprehensive version of this measure could have provided data regarding more specific stressors for analysis. In addition, as the average length of stay for residents was over one and a half years, participants may have already found ways to adapt to many stressors involved in the transition to a LTC facility; thus, it is possible that the LOPES

assessed a lower level of stress in our sample than what is typical for newly admitted long-term care residents. Because the decision was made to aggregate the Brief COPE scales into two longer subscales (problem-focused coping and emotion-focused coping) (Snell et al., 2011) rather than conducting analyses using 13 distinct subscales, measurement was limited to this particular method of assessing general coping. The original COPE measure included 60 items with 14 subscales ( $\alpha$  ranged from .45 to .85). Thus, our method of aggregating the scales resulted in a more parsimonious structure involving theoretically and clinically relevant subscales, and the subscales' internal reliability was comparable to or higher than subscales from the original measure. The construct of coping is theoretically complex; although our method of measurement utilized a common coping measure reflecting many subtypes of coping, measuring general coping using other categories might have yielded different associations with religious coping. The religious variables used in the study may be embedded in a Judeo-Christian perspective; although this was not a problem in our sample, it could lead to participants having problems with comprehension of the questions in more diverse religious samples. The study was also limited by its cross-sectional design. While many significant associations between variables were explored, because only descriptive and correlational data were obtained, no casual claims could be made regarding relationships between religious coping and life satisfaction or distress.

Personality characteristics are potential factors involved in religious coping that were not addressed by this study. For example, positive or negative religious coping appraisals may be manifestations of personality characteristics such as optimism, or religious coping approaches of control may be related to external or internal loci of



control. Although time and resources did not permit us to ask questions reflecting personality traits, it is possible that dispositional coping patterns influenced by personality traits led to situational coping responses that were reported by our participants.

### **Implications and Future Directions**

Despite the limitations involved, this study suggests measuring religious coping in long-term care settings is feasible and clinically relevant. Although the results may not be generalized to nursing home and assisted living residents with severe cognitive impairment, the results may be applicable to high-functioning long-term care residents across a wide age range (55 and above). Future research on religious coping should be open to including cognitively impaired participants, as the brief religious coping measures utilized in this study were feasibly administered in our sample. Because participants with less cognitive impairment reported higher positive religious coping in our study, future research may explore how religious coping processes may differ based on an individual's level of cognitive impairment. The results may be particularly relevant to Christian LTC residents. Most participants had access to religious resources and reported that they were either committed or strongly committed to their religion. The ability to utilize religious resources and engage in religious practices in LTC suggests religious coping may be a relevant option for dealing with significant stress while living in this setting. Future studies should assess religious coping in religious groups less often represented in long-term care to determine whether the present findings are generalizable for individuals with different theological perspectives. Differences in religious coping based on gender were identified in this sample, which indicated men were more likely to

use self-directing religious coping. This finding suggests the male participants may identify with an independent style of coping that does not emphasize relying on others to manage problems. Future research may explore how gender differences affect how religion is used to cope with stress in long-term care settings. Religious coping differences based on type of long-term care facility were also identified in our sample as well as correlations between religious coping and income, age, and health. Future research may seek to understand how these factors relate to religious coping in long-term care and whether some of these relationships are bidirectional or even causal in nature. For example, assisted-living facilities may offer access to particular resources that compel residents to use a particular style of religious coping, or factors such as income and health may function as personal resources that influence one's capacity to engage in religious coping.

Because this study has assessed the reliability and validity of several religious coping measures (i.e., Brief RCOPE, short form of the RPSS) across long-term care settings, utilizing the modified versions of these measures to further assess relationships of clinical constructs is appropriate for future research. In this study, types of religious coping were associated with concepts such as life satisfaction, psychological distress, and health. These findings suggest future research should further explore relationships between religious coping and clinical outcome measures in studies involving long-term care residents. Future studies may examine correlational and causal associations between religious appraisals and other psychological outcomes (e.g., depression, anxiety) to determine more specifically how religious coping and mental health are related in this population. Future research may also explore relationships between religious approaches

to control and quality of life outcomes (e.g., well-being) to determine how religious coping may help individuals flourish in late-life medical settings. Concise, reliable, and valid versions of these religious coping measures are necessary for working with long-term care patients because of residents' cognitive limitations and the need to minimize resident burden, so the process of validating religious coping measures in this setting is an important implication of this study.

Strong relationships among the religious coping measures used in this study raise an important question: do lengthier religious coping measures add enough value to justify using them as opposed to one of the shorter religious coping measures? Strong relationships between religious practices and positive religious coping also brings into question whether the most effective and parsimonious assessment strategy of religious concepts in long-term care should involve questions about religious coping appraisals. The lack of incremental validity of the Brief RCOPE in accounting for variance in outcomes raises the same question. The implications of the present study are that religious coping measures may shed light on a construct that is highly correlated but distinct from the constructs addressed by other religious variables; thus, if time and resources permit, it may be wise for future studies of coping and mental health to include the longer religious coping measures in their assessment batteries.

The influence of general coping strategies in accounting for variance in outcomes should be considered as well. The relationships of greater emotion-focused coping with less life satisfaction and more psychological distress suggests certain types of general coping strategies may be related to poorer quality of life indicators. To better understand the implications of these relationships and the potential connection with religion, it may

be useful to explore where religious coping fits in a broader framework of general coping theories. The data suggest emotion-focused coping and negative religious coping may be theoretically overlapping constructs. The emotion-focused coping items reflect denial, unpleasant feelings, surrender, self-criticism, and avoidance, and the negative religious coping items reflect insecurities, doubts, and fears. Negative religious coping was moderately associated with emotion-focused general coping and was also related to less life satisfaction and more psychological distress. Thus, the evidence suggests underlying negative psychological factors may be involved in both emotion-focused coping and negative religious appraisals. Positive religious coping appraisals may overlap with problem-focused coping, as evidenced by a moderate correlation between the two scales. While the Brief RCOPE reflects appraisals that may significantly overlap with religious practices and general coping, the RPSS reflects at least one religious coping style that could be theoretically unique when compared to general, non-religious coping strategies. The collaborative-deferring style of religious coping reflects dependence and reliance on a higher power to manage stress, and this construct may not be accurately described by non-religious coping strategies as evidenced by the demonstration of incremental validity from the collaborative-deferring scale. The self-directing style of religious coping reflects more independence and an attitude that is not reliant on a higher power to control situations. Self-directing religious coping was related to less life satisfaction and more emotion-focused coping; perhaps this specific style of religious coping is not adaptive for LTC residents because it is related to general coping strategies where taking independent control of situations is emphasized. In LTC settings many stressful situations may be outside of residents' control (e.g., health problems, deaths of friends and family), so

choosing coping strategies that involve giving up control and depending on others may be important. Ultimately, this study suggests religious coping appraisals may overlap with general coping constructs but affirms that religious coping styles can describe constructs that are unique relative to a common measure of general coping. This study was an important step in the process of conceptualizing religious coping in LTC from the perspective of general coping theory. Future studies could compare religious coping strategies to a wider variety of non-religious coping measures, and if conceptual distinctiveness is once again identified, it serves as more justification for using religious coping measures in mental health research.

The concepts explored in this study may be applied in clinical settings and particularly long-term care settings. If religious coping is related to outcomes such as life satisfaction or psychological health, there may be implications for mental health assessment, conceptualization, and treatment. Mental health professionals may consider religious coping one of many useful strategies for dealing with stress while transitioning to a LTC facility. By assessing clients' use of religious faith, clinicians may help clients incorporate their religion as a coping resource. Cognitive appraisals and approaches to control that are utilized in religious coping strategies may map onto broader cognitive patterns reflecting how individuals conceptualize suffering and manage stressful situations. Understanding these patterns may then serve as a starting point for cognitive-behavioral interventions. For example, an individual whose religious coping pattern involves relinquishing control to a higher power might identify with an acceptance-focused intervention involving letting go of problems that are beyond one's competence to fix. An individual whose religious coping appraisals are more self-directed might

identify more with a problem-solving or directive approach to facing their problems. If religious coping can help LTC residents maintain their mental health by coping with significant stress, comprehensive measures of religious coping should be incorporated into future clinical research so we can better understand this process.

Future studies on religious coping in long-term care should use longitudinal designs to assess religious coping, religious practices, religious commitment, general coping, and clinical outcomes over time. While this study used a cross-sectional design to gather correlational data, longitudinal designs will potentially allow cause-and-effect relationships to be examined. For example, assessing LTC residents throughout their transition into LTC and towards the end of life will allow us to learn what factors predict religious coping patterns in nursing homes or factors that lead to changes in religious coping over time.

Learning more about how religious coping concepts relate to a broader process of resilience may help structure long-term care environments to utilize residents' individual, contextual, and sociocultural resources, which may promote an optimal quality of life. For example, helping a LTC resident use an effective religious coping strategy may strengthen individual coping resources such as psychological health. Working to help residents utilize sociocultural resources and contextual resources (e.g., advocating for facility-level person-centered care or creating opportunities to attend a religious worship service in LTC) may allow them to more effectively use religious coping strategies to develop resilience and stress-related growth. By confirming the reliability and construct validity of religious coping measures in LTC, this study sets the stage for further exploring how coping, stress-related growth, and resilience are interconnected.

## CONCLUSION

In sum, this study suggests that two specific religious coping measures are reliable and can be used as valuable assessment tools in long-term care settings. The short form of the Religious Problem-Solving Scales may effectively measure religious coping styles and can provide additional information about clinical outcomes in addition to what is explained by general coping or other religious variables. However, the findings also suggest that other religious variables (e.g., religious commitment, religious practices) and general coping measurement may measure similar constructs to the Brief RCOPE. Although these religious coping measures are both valid for use in LTC, if time and resources are limited, asking questions related to religious concepts such as religious commitment, prayer, or reading religious scripture may also reveal interesting associations between religion and mental health.

Older adults residing in LTC settings often experience significant stressors, and these stressors may serve as opportunities to develop resilience. This resilience may be achieved through a process involving the utilization of many coping resources, and religious coping is one type of coping that is relevant to that process. As we continue to explore the concepts of resilience and mental health in long-term care settings, we must continue to consider the implications of religious coping as people pursue their “search for significance” (Pargament, 1997, pg. 32) as they age.

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## APPENDICES

### Appendix A

Table A1.  
Characteristics of Studies of Religious Coping in Long-Term Care Residents

Authors/year/ sample	Religion/RC Measures	Design	Religion
<p><b><u>Branco &amp; Crane, 2014</u></b></p> <p><i>N</i> = 1,347; 270 facilities across the US; age <i>M</i> = 81.2; age range = not listed</p>	<p>“Approach coping” (considered proactive in goal-setting) and “avoidance coping” (considered withdrawn)</p>	Cross-sectional	Christian
<p><b><u>Choi et al., 2008</u></b></p> <p><i>N</i> = 65; 5 facilities in Texas; age <i>M</i> = 82.45; age range = 65 to 99</p>	<p>Reading the Bible, prayer, religious services.</p>	Mixed methods – primarily qualitative	Not listed
<p><b><u>Danhauer et al., 2005</u></b></p> <p><i>N</i> = 94; 13 nursing home facilities in Kentucky; age <i>M</i> = 83.36; range = 65 to 104</p>	<p>COPE: 4-item Turning to Religion subscale; 4-item Positive Reinterpretation and Growth</p>	Cross-sectional	Not listed
<p><b><u>Grosse-Holtforth et al., 1996</u></b></p> <p><i>N</i> = 97; 2 veterans care facilities in North Carolina; median age = 69; age range = not listed</p>	<p>Intrinsic/Extrinsic Religiosity-Revised Scale (religious motivation); Religious Coping Index; Religious Problem-Solving Scales (collaborating, self-directing, and conferring); Health Locus of Control Scale</p>	Cross-sectional	Protestant (89%), Catholic (9%)

<p><b><u>Koenig et al., 1997</u></b></p> <p><i>N</i> = 115; 2 facilities in North Carolina (veterans care facility and community nursing home); age <i>M</i> = 79.4; age range = not listed</p>	<p>Religious Coping Index</p> <p>First item: “what enables you to cope?”; second item: how much religion helps them to cope; third item: what are examples of how religion is used for coping?</p>	<p>Cross-sectional</p>	<p>Not listed</p>
<p><b><u>Lowis et al., 2005</u></b></p> <p><i>N</i> = 50 (within 12 months of long-term care admission); care homes in England; age <i>M</i> = 85.24; age range = 74 to 94</p>	<p>“Using religion as a coping strategy” scale (4 items); questions adapted from Mindel and Vaughan (1978), and Krause (1998)</p>	<p>Cross-sectional</p>	<p>Anglican (30%), Catholic (18%), non-conformist (36%)</p>
<p><b><u>Park et al., 2010</u></b></p> <p><i>N</i> = 29; four assisted living facilities in Alabama; age <i>M</i> = 85.3; age range = 74-96</p>	<p>Faith in God, visits from church members, religious beliefs</p>	<p>Qualitative</p>	<p>Not listed</p>
<p><b><u>Pieper &amp; van Uden, 2012</u></b></p> <p><i>N</i> = 106 (one of four samples); nursing homes in the Netherlands; age <i>M</i> = not listed; age range = not listed</p>	<p><b>Cognitive, affective, behavioral, social</b> components of religious coping (positive influence of religion)</p> <p>Anxiety, guilt/shame, lack of autonomy, lack of religion (negative influence of religion)</p>	<p>Cross-sectional</p>	<p>Mostly Protestant Christians</p>
<p><b><u>Scandrett &amp; Mitchell, 2009</u></b></p> <p><i>N</i> = 140; two facilities in Massachusetts; age <i>M</i> = 85.4; age range = not listed</p>	<p>Brief RCOPE (Pargament) (importance of religion; positive versus negative coping)</p>	<p>Cross-sectional</p>	<p>Mostly Jewish and Catholic (some Protestant)</p>

**Vitorino & Vianna,**  
**2012**

*N* = 77; 2 long-term  
care facilities in  
Brazil; age *M* = 76.6;  
age range = not listed

Religious coping measure  
based on Pargament's  
RCOPE (positive and  
negative coping)

Cross-sectional

Not listed



## CURRICULUM VITA

Nathaniel David Andrew

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### University Address:

Psychological and Brain Sciences  
Life Sciences Building, Room 317  
University of Louisville  
Louisville, KY 40218

## **EDUCATION**

- PhD, Clinical Psychology, University of Louisville, Louisville, KY
  - Projected graduation – 2019
- M.S., Clinical Psychology, 2016, University of Louisville, Louisville, KY
- B.S., Psychology, Pre-professional emphasis, 2014, Milligan College, Milligan College, TN
- B.S., Business Administration, Management emphasis, 2014, Milligan College, Milligan College, TN
  - Summa Cum Laude, first in class
- *Psychology/Research coursework – undergraduate:* General psychology, developmental psychology, career preparation in psychology, social psychology, theories of personality, cross-cultural psychology, physiological psychology, history and systems of psychology, research methods I, research methods II, independent research project, statistics, abnormal psychology
- *Psychology/Research coursework – graduate:* Masters research, independent study, advanced statistics I, advanced statistics II, advanced statistics III, behavioral neuroscience, introduction to assessment, clinical psychology practicum, introduction to neuroimaging analysis, cognitive assessment, interventions I, interventions II, cognitive processes, legal, professional, and ethical issues, advanced development, clinical psychopathology, social behavior, topical seminar – geropsychology, history of psychology, topical seminar – cultural neuroscience

## **HONORS AND AWARDS**

University of Louisville:

- Graduate Fellowship (2014-2016)

Milligan College:

- Oosting Honors Scholarship (2010-2014)

- Heritage Music Scholarship (2011-2014)
- Business Administration Award (2014)
- Psychology Award (2014)
- Ivor Jones Outstanding Senior Award (2014)
- Who's Who Among Students in American Universities and Colleges (2014)
- Outstanding Student Scholarship Award in Business (2013)
- Outstanding Student Scholarship Award in Business (2012)
- Dean's List (Spring 2014 – 4.0 G.P.A., Fall 2013 – 4.0 G.P.A., Spring 2013 – 4.0 G.P.A., Fall 2012 – 4.0 G.P.A., Spring 2012 – 4.0 G.P.A., Fall 2011 – 3.95 G.P.A., Spring 2011 – 4.0 G.P.A., Fall 2010 – 4.0 G.P.A.)

Other:

- Lola G. Duff and William H. Duff II Scholarship (2012-2014)
- Selected for a 2013 Appalachian College Association Colonel Lee B. Ledford Scholarship for Student Research in the amount of \$3,978 for summer research

### **HONOR SOCIETY/PROFESSIONAL ORGANIZATION/ASSOCIATION MEMBERSHIPS**

- American Psychological Association (Graduate affiliate: 2017 - present)
- Gerontological Society of America (2014 - present)
- Appalachian Studies Association (2014)
- Psi Chi (International Honor Society in Psychology) (2013 - 2014)
- Alpha Chi National College Honor Society (2013 - 2014)
- National Society of Leadership and Success (Milligan College chapter president: 2013 - 2014; success networking team coordinator: 2012 - 2013)
- Milligan College Concert Choir (vice president: 2013 - 2014; secretary/treasurer: 2012 - 2013)
- Milligan College Student Government Association (sophomore class president: 2011)

### **RESEARCH**

**Aging and Mental Health Lab** - University of Louisville. *Summer 2014 – Present.*

Position: Graduate student. Supervisor: Suzanne Meeks, PhD

- Conduct SCID-IV interviews and other psychological assessment measures (*Predicting trajectories of flourishing and failing in new nursing home residents study*)
- Schedule, oversee, and conduct clinical observations and interventions (*Community nursing home as a clinical training and consultation laboratory for studying behavioral interventions*)
- Design and administer brief research interviews (*Fulfilled preferences, sense of control, and loneliness in long-term care residents; Individual differences in end-of-life care preferences, experiences of care, and quality of life*)

**Health Behavior Change Lab** - University of Louisville. *Summer 2016 – Fall 2016.*

Position: Research assistant. Supervisor: Barbara Stetson, PhD

- Review literature to inform current projects
- Build and structure online surveys using Qualtrics
- Collaborate with research team members on project details

**Appalachia Service Project Research Group** – Milligan College. *Spring 2012 – Spring 2014*. Position: Undergraduate research assistant. Supervisors: Joy Drinnon, PhD; Bert Allen, PhD

- Analyzed data from surveys regarding Appalachia Service Project volunteer attitudes
- Examined outcomes related to effects of housing repairs on physical, psychological, and emotional health of low-income Appalachia residents
- Conducted data analyses for Milligan College nursing department research projects. Supervisor: Melinda Collins, PhD

**National Science Foundation Research Experience for Undergraduates (REU), Gaming and Media Effects Research Laboratory** - Virginia Polytechnic Institute and State University, Blacksburg, Virginia. *May - August 2013*. Position: Research intern. Director: Diana Ridgwell, PhD. Supervisor: James Ivory, PhD

- Completed a content analysis of a multiplayer online game environment
- Collaborated with research group personnel to launch a study examining stereotypical responses to race and gender in an online field observation
- Participated in weekly seminars and research workshops

**Appalachia Service Project (ASP)**. *Spring 2013*. Position: Research contract. Contact: Charles Oberweiser, Strategic Initiatives, ASP

- Produced a contracted report for Appalachia Service Project (ASP) concerning spiritual faith practices of service-project volunteers
- Reviewed and analyzed archival data from project volunteers
- Examined correlations of volunteer survey data

## **POSTERS**

**Andrew, N., Smith, R., Meeks, S.** (2017, July). *Individualized music for nursing home residents with dementia: A research/clinical collaboration*. Poster presented at the International Association of Gerontology and Geriatrics World Congress, San Francisco, CA.

Smith, R. **Andrew, N., Reyes, R., Shryock, K., Hodges, L., Hart, A., Davis, H., Meeks, S.** (2016, November). *Individualized music therapy for affect, agitation, and engagement in older women with dementia*. Poster presented at the 69<sup>th</sup> Annual Convention of the Gerontological Society of America, New Orleans, LA.

**Andrew, N., Ludwin, B.M., Smith, R., Reyes, R.A., & Meeks, S.** (2015, November). *The relationship between social support and quality of life in newly admitted long-term care residents*. Poster presented at the 68<sup>th</sup> Annual Convention of the Gerontological Society of America, Orlando, FL.

Ludwin, B. M., Mast, B. T., Smith, R., **Andrew, N.**, Reyes, R.A., & Meeks, S. (2015, November). *Hope, cognition, and depression as related to quality of life in nursing home residents*. Poster presented at the 68th Annual Convention of the Gerontological Society of America, Orlando, FL.

**Andrew, N.**, Allen, B., Drinnon, J. (2014, April). *Examining physical and psychological health outcomes of home repairs on rural Appalachian Residents*. Poster presented at the National Conference on Undergraduate Research, Lexington, KY.

**Andrew, N.**, Sesler, B., Wu, W., Ivory, J. (2013, August). *Examining stereotypical responses to race and sex in an online multiplayer game: A field experiment*. Poster presented at the Virginia Tech Undergraduate Research Symposium, Blacksburg, VA.

Sesler, B., **Andrew, N.**, Wu, W., Ivory, J. (2013, August). *Exploring the content players create in virtual worlds: A content analysis of user behavior in a multi-player online game environment*. Poster presented at the Virginia Tech Undergraduate Research Symposium, Blacksburg, VA.

**Andrew, N.**, Allen, B., Drinnon, J. (2013, March). *The influence of short-term missions: An analysis of volunteer attitudes and Christian practices*. Poster presented at the Alpha Chi National College Honor Society National Convention, Nashville, TN.

## **PRESENTATIONS**

**Andrew, N.** & Meeks, S. (2016, November). *Fulfilled preferences, perceived control, life satisfaction, and loneliness in elderly long-term care residents*. Presented at the 69<sup>th</sup> Annual Convention of the Gerontological Society of America, New Orleans, LA.

Reyes, R.A., **Andrew, N.**, Smith, R.W., Midden, A., Ludwin, B., Shouse, J., Mast, B., Meeks, S. (2015, November). *Community nursing home as a clinical training and consultation laboratory for studying behavioral interventions*. Presented at the 68th Annual Convention of the Gerontological Society of America, Orlando, FL.

Drinnon, J., Allen, B., Oberweiser, C., **Andrew, N.** (2014, March). *Measuring outcomes: Results of a five-year partnership between Milligan College and Appalachia Service Project*. Oral session presented at the 37<sup>th</sup> Annual Appalachia Studies Conference, Huntington, WV.

**Andrew, N.**, Jackson, J. (2012, September). *Assessing the effects of short-term missions projects and the spiritual development of adolescents*. Paper presented at the Appalachian College Association-UNCA Undergraduate Research Symposium, Asheville, NC.

## **PUBLICATIONS**



**Andrew, N. & Meeks, S.** (2016). Fulfilled preferences, perceived control, life satisfaction, and loneliness in elderly long-term care residents. *Aging and Mental Health*. Retrieved from <http://dx.doi.org/10.1080/13607863.2016.1244804>.

**Andrew, N. & Jackson, J.** (2012). Short-term mission trips and their effects on adolescent spiritual development. *Journal of the Appalachian College Association Undergraduate Research Partnership*, 3, 132-139. Retrieved from <https://docs.google.com/file/d/0B5CY8Fk1obvkN3F3ODdTR2FIZnM/edit?pli=1>.

Ivory, A.H., Ivory, J.D., Wu, W., Limperos, A.M., **Andrew, N.**, Sesler, B.S. (2017). Harsh words and deeds: Systematic content analyses of offensive user behavior in the virtual environments of online first-person shooter games. *Journal of Virtual Worlds Research*, 10(2). Retrieved from <https://journals.tdl.org/jvwr/index.php/jvwr/article/view/7274>.

## **CLINICAL EXPERIENCE**

**Graduate Student Clinician**, Noble H. Kelley Psychological Services Center, Louisville, KY. 2014 –Present. Supervisors: Bernadette Walter, PhD; David Winsch, PhD; Paul Salmon, PhD; Monnica Williams, PhD

- Perform structured intake interviews for potential incoming clients
- Administer a wide variety of psychological assessments (e.g. full diagnostic, ADHD, etc.)
- Conduct evidence-based cognitive-behavioral/acceptance-based psychotherapy interventions for a wide variety of client mental health issues
- Engage in group supervision with licensed clinical psychologists as well as peer supervision on the following clinical teams:
  - *Anxiety Research and Treatment Team*
  - *Mindfulness in Health*
  - *Depression, OCD, & Trauma (D.O.T.)*

**Graduate Student Clinician**, Neuropsychology Assessment Clinic - University of Louisville Physicians Healthcare Outpatient Center, Louisville, KY. 2017 – Present. Supervisors: Elizabeth Cash, PhD; Whitney Rebholz, PhD

- Conduct neuropsychological assessments for middle-aged/older adults referred for potential cognitive impairment
- Perform semi-structured collateral interviews as part of neuropsychological assessments
- Produce integrated reports synthesizing testing data, interview data, and medical records

**Graduate Student Clinician**, Kindred Healthcare – Wedgewood, Clarksville, IN. 2015 - 2017. Supervisor: Suzanne Meeks, PhD

- Provide psychotherapy and psychological assessment for long-term care/rehabilitation residents

- Collaborate with facility staff and health care personnel to implement evidence-based behavioral interventions
- Participate in weekly group supervision from a licensed clinical psychologist

**Recreation Assistant**, James H. Quillen VA Medical Center, Johnson City, TN. *Fall 2013*. Contact: Rebecca Sapp, PhD

- Facilitated organized group activities such as bingo and poker
- Conducted personal visits to residents in Community Living Center
- Engaged with nursing home residents in conversation and activities

**Fieldwork**, Woodridge Hospital (Mountain States Health Alliance), Johnson City, TN. *Fall 2013*. Contact/Supervisor: Rebecca Sapp, PhD; David Sapp, LPC

- Observed morning treatment team meetings
- Observed group and family therapy sessions
- Completed therapy notes after group sessions

### **TEACHING EXPERIENCE**

**Graduate Teaching Assistant** – University of Louisville, Louisville, KY. *Spring 2016 – Present*

- Courses: Abnormal Psychology, Introduction to Psychology
- Develop case studies for course assignments
- Compile, organize, and present course lecture material
- Complete office hours for student consultation