



Atheistic, agnostic, and religious older adults on well-being and coping behaviors

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ABSTRACT

Previous research reports relationships between religion and both well-being and positive coping, especially among the older adult age group. However, researchers have failed to consider the non-religious when comparing groups categorized by religious belief, ignoring possible differences between those with a belief and the non-religious, atheists, and agnostics. To explore possible differences, we gathered data from a sample of 134 religious and non-religious older adults (55 years old plus) who completed an online questionnaire assessing relationships between religiosity and well-being, social support, locus of control, and meaning in life. Belief groups, including atheists, agnostics, and those high and low on religious beliefs, were compared on coping behaviors. The religious groups did not significantly differ from atheists and agnostics on well-being, satisfaction with social support, or locus of control; however, the high religiosity group did endorse higher levels of presence of meaning in life than the atheists and a greater number of social supports compared to the non-religious groups. The groups significantly differed on their use of religious coping ($p < .05$), and differences approached significance on the groups utilization of humor and substances as coping mechanisms ($p = .07$). The religious groups endorsed religious-oriented coping at significantly greater rates, whereas the atheists endorsed a greater use of substances to cope than the other three groups. Additionally, atheists endorsed humor for coping more so than their low religiosity counterparts.

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Introduction

Religious ideology and practices have existed throughout history and are prevalent around the world in various forms and capacities. In fact, according to the American Religious Identification Survey, 81% of adults in the United States identify some type of religious affiliation (Kosmin, Mayer, & Keysar, 2001). Given the high number of individuals subscribing to a religion, it is interesting to consider what this relationship with a higher power offers individuals, particularly as it relates to a person's well-being. Additionally,

little research has been done comparing atheists and agnostics to religious individuals on measures of well-being. For that reason, examining religion's role in coping and well-being in the older adult population could help to determine its benefits.

Religion, well-being, and coping

Using religious practices to cope with stress is highly prevalent among older adults (Koenig, George, & Siegler, 1988; Koenig et al., 1992), especially those suffering from an illness (Burker, Evon, Sedway, & Egan, 2004). Koenig, George et al. (1988) found that 45% of seniors mentioned using religious behaviors or attitudes when dealing with difficulties in their life. Older adults are a unique population faced with many end-of-life stressors, such as the diagnosis of a terminal

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illness, death of a spouse, or declines in physical functioning. They also have the highest level of religious commitment and participation compared to all other age groups (McFadden, 1995). This makes understanding the role of religion in coping and its relationship to well-being important in working with older adults.

Using religion to cope has been shown to improve psychological well-being, health, and self-efficacy (Harrison, Koenig, Hays, Eme-Akwari, & Pargament, 2001). Harrison et al. (2001) suggest that individuals use religion in a variety of ways to actively cope with stressful situations. For example, religious beliefs and ideology may help a person to redefine a stressor as benevolent or even as potentially beneficial. However, it could also cause a person to reappraise the situation more negatively, such as viewing it as a punishment from God (Koenig, Pargament, & Nielsen, 1998). In a study of physically ill hospitalized older adults conducted by Koenig et al. (1998), both positive and negative types of religious coping behaviors were identified. An example of a negative coping behavior included viewing the illness as a punishment from God and an example of a positive coping behavior included reappraising the illness as part of God's plan. The results of the study found that negative religious coping behaviors (e.g., blaming God) were related to poorer physical health, more depressive symptoms, and a worse quality of life, while positive religious coping (e.g., praying or meditating) was related to better overall mental health (Koenig, George et al., 1988). Religious coping mechanisms seem to produce differential outcomes on mental and physical health depending upon individual perceptions.

Religiosity, in general, has been reported as having an advantageous effect on mental health, well-being, and life satisfaction (Murphy et al., 2000; Parker et al., 2003; Ross, 1990; Shkolnik, Weiner, Malik, & Festinger, 2001). For instance, among a population of clinically depressed patients, a higher degree of religious belief was associated with lower levels of depression and hopelessness (Murphy et al., 2000). Additionally, Shkolnik et al. (2001) reported that religiosity was a significant factor in influencing older adults' life satisfaction. However, the study only sampled Jewish participants of varying degrees of faith, failing to include non-religious individuals. A similar finding was reported by Ross (1990) revealing that individuals who believed strongly in their religious beliefs had lower levels of psychological distress as compared to individuals who endorsed being religious, but had a weak belief. Ross, however, did include a sample of participants who reported no religious beliefs, and found they also had lower levels of psychological distress compared to those with only weak beliefs. The author concluded that individuals wavering in their beliefs, rather than individuals who either completely rejected or strongly embraced religion, had the highest levels of distress. This calls into question the relationship between religiosity and well-being by suggesting that the strength or commitment to a particular belief system is more important than the type of belief (Ross, 1990).

Considerable research exist supporting religiosity's potential benefits to well-being and coping (Harrison et al., 2001; Koenig, George et al., 1988; Meisenhelder & Chandler, 2000; Shkolnik et al., 2001), but, other work, such as the aforementioned study by Ross (1990), have produced mixed results. For example,

Atchley (1997) reported no association between an individual's religious affiliation or frequency of attendance at religious functions on health and morale over time. The discrepancy in the literature on religion's role in well-being suggests that further investigation on this relationship is needed. The purpose of this study is to explore the possible influences in the relationship between religiosity to well-being and to explore religious-based coping in older adults.

Meaning in life

Coping often involves the use of an interpretative framework or *meaning-making*, especially when facing trauma or death (Park & Folkman, 1997). Meaning-making coping involves an interaction between an individual's belief system and cognitive appraisal of the situation (Park, 2005). According to Siegel, Anderman, and Schrimshaw (2001) religious ideology provides an interpretative framework for finding meaning in stressful or traumatic events. Religious values shape an individual's appraisal of traumatic, stressful events (Ellison, 1991), often acting as a core schema guiding beliefs about the world, the self, and their interactions (McIntosh, 1995). Berger (1967) asserts that religion provides people with *theodicies*, which are religion-based schemas that help individuals understand life and death. As religion orients individuals to a certain understanding of the world and its order, it can give reason to life, death, suffering, and other aspects of living. This in turn may help individuals to bear difficult life events (Pargament, 1997).

Having a sense of meaning and purpose in one's life is associated with higher levels of well-being (Fry, 2000; Krause, 2003; Zika & Chamberlain, 1992). Religious ideology can be used as an interpretive framework applied to everyday living; for many, religion gives meaning, purpose, and understanding to daily life (Park, 2005; Steger & Frazier, 2005). Among older adults, greater religious meaning was associated with higher levels of life satisfaction, self-esteem, and optimism (Krause, 2003). Steger, and Frazier (2005) found that having meaning in life was a significant mediator of the relationship between religion and personal well-being. This suggests that religion is, in part, a catalyst towards finding purpose and understanding within the chaos of daily living.

Locus of control

Aside from meaning-making, Siegel et al. (2001) suggested that the second pathway to religion's relationship to well-being and positive coping is through its ability to promote a sense of control. Higher levels of perceived personal control have been linked to better psychological adjustment and coping with illness (Schussler, 1992). Religion may promote a sense of personal control over one's outcomes by encouraging certain ritualistic behaviors as a means of obtaining positive outcomes, (e.g., prayer). On the contrary, many people who hold strong religious beliefs have faith that God is in active control over their life, characteristic of an external locus (McIntosh & Spilka, 1990; Pollner, 1989). According to Jenkins, and Pargament (1995), however, giving up control to a third party, such as a medical doctor or God, may result in better adjustment to a stressor if the third party is viewed as more competent. The perceptual burden imposed by the stressor is then transferred

into the hands of someone outside of their control, which can potentially alleviate feelings of distress or worry (Jenkins & Pargament, 1995).

Fiori, Brown, Cortina, and Antonucci (2006) found that both external and internal locus of control mediated the relationship between religiosity and life satisfaction. Among older adults, religiosity was associated with higher levels of internal control, but this relationship was not significant for younger adults (Fiori et al., 2006). As older adults lose the capacity to control many aspects of their life, due to personal illness for example, they may be more apt at relinquishing control to God or a higher power: a more competent third-party. Cole, and Pargament (1999) discussed the concept of *spiritual surrender*, which suggests that giving up control to God may paradoxically increase internal control. A decision to give up control is a personal choice, and therefore, exhibits aspects of internal control (Fiori et al., 2006).

Social support

Siegel et al. (2001) outlined a third pathway to explain the relationship between religiosity and coping: social support. The relationship between religiosity and mental health has been found in the literature to be mediated by social support (Dulin, 2005; Hughes et al., 2004; Krause, 2006). Koenig, George, and Titus (2004) found that within a sample of hospitalized older patients, those individuals with an increase in religiousness and spirituality had greater social support as well as fewer depressive symptoms and better cognitive functioning. In times of stress, social connections offer psychological and instrumental resources that help an individual cope (Cohen, 2004). Uchino, Cacioppo, and Kiecolt-Glaser (1996) claim that one's social network provides a perception that help and support will be there if necessary. This perception bolsters one's ability to cope and helps the individual to reappraise the stressful situation as less threatening.

People who attend religious services on a regular basis have a tendency to have larger social networks (Musick, Traphagan, Koenig, & Larson, 2000) and higher religious activity has been noted as improving the quality of social relationships (Ellison & George, 1994). An individual's religious community, therefore, is beneficial to an individual's mental health and well-being by providing the necessary social support. This is especially true of older adults. Participating in religious activities, such as attending church services, is where many older adults develop friendships (Koenig, Moberg, & Kvale, 1988). Olphen et al. (2003) found that African American women living in an urban area receive help from fellow parishioners of their church very to fairly often. Attending religious services and involvement within a religious community widens one's social network, which in turn, increases the opportunity for social support.

Atheists and agnostics

Religious individuals may report higher levels of well-being due to their higher levels of meaning in life, social support, and locus of control, which may also promote coping skills. However, little research has been done comparing atheists and agnostics to religious individuals on measures of

well-being and these influencing variables. Many of the research studies that have revealed a relationship between high religiosity and well-being fail to compare religious individuals with those who identify themselves as atheistic. Often the research indicating a relationship between religiosity and well-being compare individuals high on measures of religiosity practices with those who are low, without comparing an equivalent sample of self-identified atheists (Ellison, 1991; Pollner, 1989). This demonstrates that although individuals who are higher on religious beliefs may hold higher subjective levels of well-being compared to religious individuals who are out of practice with their beliefs, it provides little information as to how atheistic or agnostic individuals compare against those who are religious.

Although a vast majority of individuals tend to adhere to organized religion and a belief in a higher power, there has been a recent growth in the number of individuals in the United States, as well as other parts of the world, who identify themselves as non-religious (Kosmin et al., 2001). Despite this growth in the non-religious population, little research has been done on understanding how atheistic and agnostic individuals compare against theistic and religious individuals on life satisfaction. In one study, Hunsberger, and Altemeyer (2006) surveyed atheistic and religious individuals, in various regions of the United States and Canada. The aim of the study was to determine if belief systems, including those based in religion and those in science, would bring the two groups the same degree of happiness and comfort. The researchers determined that religious fundamentalists gain comfort and joy from their religious beliefs and very little from science and logic; whereas, logic and science was found to bring atheistic individuals happiness but at a lesser rate than the fundamentalists draw from their beliefs (Hunsberger & Altemeyer, 2006). Although the comparison reveals that both religious and atheistic individuals can draw happiness and comfort from their disparate sets of beliefs, the questions remains as to how much atheistic, agnostic, and religious individuals fare on measures of overall well-being.

In addition, most research studies use Christian religiosity as a standard measure of religiosity. This makes the results less generalizable to the broader population. Another limitation of past research is the use of exclusive measures of religious behaviors, such as attendance at services, as a measure of religiousness. Many people consider themselves religious and believe in God or a higher power, however, without belonging to a particular faith or attending religious services (Hunsberger & Altemeyer, 2006). Therefore, measures of intrinsic religiosity, which is an individual's religious beliefs, attitudes, and values (Allport, 1950), needs to be included along with measures of religious activities in investigations. These two separate constructs may have differential relationships to well-being. Along with intrinsic religiosity and religious behaviors, an individual's personal relationship with God or a higher power should be examined; this is a fundamental aspect of an individual's religion, but is often not included in research studies.

Aims and hypotheses

The present study aimed to compare older adults of various religious affiliations and varying degrees of belief to

atheistic and agnostic older adults on well-being and coping. The relationships between religiosity, well-being, satisfaction with social support, number of social supports, presence of meaning in life, search for meaning in life, and locus of control were investigated. Religiosity was hypothesized to be positively correlated with well-being, presence of meaning in life, number of social supports, social support satisfaction, and locus of control. Belief groups, comprising of the atheists, agnostics, and religious individuals, were also compared on these variables. Religious individuals were hypothesized to have higher levels of well-being, meaning in life, greater social support satisfaction and number of supports, and higher levels of internal control. Additionally, differences between religious and non-religious individuals' coping behaviors were explored. Religious individuals were hypothesized to endorse a greater extent of religious-oriented coping as compared to the other belief groups. No other hypotheses regarding differences in coping behaviors between groups were established.

Method

Participants

One-hundred and thirty-four participants, including 91 men and 43 women, over the age of 55 volunteered to participate in the study. The participants ranged in age from 55 to 84 with a mean age of 65.63 ($SD = 7.70$). The ethnic breakdown of the sample included 88.1% Caucasian, 3.0% Hispanic, 2.2% mixed race, .7% Native Hawaiian/ Pacific Islander, and 5.9% other racial background. Participants were recruited via two internet websites in order to get a diverse sample of individuals: the University of Colorado at Colorado Springs' (UCCS) Psychology Research Sign-Up System and the Richard Dawkins website (RichardDawkins.net). Older adult participants were also recruited via the UCCS Gerontological Research Participation Registry. Participants were classified as atheistic ($n = 56$), agnostic ($n = 24$), or religious ($n = 54$) based on their self-rating. Based on self-classifications, participants were asked to complete an online questionnaire composed of several measures and questions about their beliefs (religious, atheistic, or agnostic) worded accordingly. All participants were treated in an ethical manner (American Psychological Association, 1992).

Procedure

After following an internet link posted on the participating websites, respondents were taken to the online survey. Participants were then asked to respond to several demographic questions, including their religious affiliation, sex, income level, racial background, date of birth, and educational attainment level. Following the demographic and religiosity questions, participants were asked to complete a number of short questionnaires. The entire survey took approximately 45 minutes to complete. Due to the survey format, some participants did not complete all items on a particular scale. Therefore, participants' scores on individual scales that were missing data were not included in the data analyses.

Materials

Religiosity

Religiosity was operationalized in terms of three items: self-identification, an individual's level of belief in God or a higher power, and their level of belief in a personal God or higher power. Participants were first asked to self-identify as a believer in God, worded as someone who believes in God or a higher power, an atheist, or an agnostic individual. Self-identification in one of these three categories was used to distinguish membership in a specific belief group. Participants were then asked to indicate the extent to which they hold a belief in God or a higher power and to indicate the extent to which they believe in a personal God. Both of these items were asked using a 7-point Likert-type scale, where 1 = *to no extent* and 7 = *to a great extent*. Religiosity scores for the correlational analyses were calculated as a summation of these two items (Cronbach's alpha is .96), with scores ranging from 2 to 14.

Religions behaviors and activities

The Intrinsic Religious Motivation Scale (IRMS; Hoge, 1972) was used to assess intrinsic religiosity among the religious participants (Allport, 1950). The IRMS taps into the meaning and decision making framework of individuals who use religious beliefs to guide their life. Participants were asked to rate the extent to which they agreed with a particular statement (e.g., my faith involves all of my life). The IRMS contains 10 items which were measured on a 7-point Likert scale (Cronbach's alpha is .87), with total scores ranging from 10 to 70.

Degree of religious activity was assessed by asking the religious participants to indicate how often they take part in religious activities, including praying, attending religious ceremonies, participating in religious-oriented activities, watching or listening to religious television or radio programming, and reading religious-oriented material, such as the Bible or the Koran. Participants indicated responses using a 7-point Likert-type scale (1 = *never* and 7 = *everyday*). Levels of religious activity were measured by taking the summation of the five items (Cronbach's alpha is .76), with scores ranging from 5 to 35.

Well-being

The Satisfaction With Life Scale (SWLS; Deiner, Emmons, Larsen, & Griffin, 1985) is a 5-item scale designed to assess a global sense of overall life satisfaction. It was used in this investigation as a measure of subjective well-being. The SWLS employs a 7-point Likert-type scale, in which higher scores indicate greater levels of life satisfaction. Participants were asked to rate the extent to which they agreed with a particular statement (e.g., in most ways, my life is close to my ideal). The SWLS has displayed good reliability (Cronbach's alpha is .88) and scores ranged from 5 to 35.

Control beliefs

Control beliefs were measured using the Rotter's Locus of Control scale (Rotter, 1966). The scale contains 29 items that measure the degree to which an individual has an internal or external locus of control (Rotter, 1966). Each item on the scale has two forced-choice responses; each possible

response signifies either an internal locus or an external locus (e.g., A: When I make plans, I am almost certain that I can make them work. Or B: It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow). In the present study, higher total scores are indicative of an individual having a high internal locus of control whereas lower scores indicate an external locus (Cronbach's alpha is .78). Total scores on this measure range between 0 to 24.

Meaning in life

The Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006) consists of 10 items measured on a 7-point Likert scale. The MLQ was used in this study to evaluate whether or not participants have found a meaning or purpose in life. The MLQ was developed to assess the presence of, and search for, the meaning of life. The measure contains two subscales: presence and search. The presence subscale (MLQ-P) examines whether or not a person currently has a meaning of life (e.g., I understand my life's meaning). Scores on the MLQ-P ranged from 5 to 35 (Cronbach's alpha is .90). The search subscale (MLQ-S) assesses the degree to which an individual is currently searching for their meaning in life (e.g., I am searching for meaning in my life). Scores on the MLQ-S ranged from 5 to 35 (Cronbach's alpha is .93).

Social support

The Abbreviated Social Support Scale (SSQ; Sarason, Sarason, Shearin, & Pierce, 1987) was used to assess for levels of social support. For each of the six items, participants were asked to rate their level of satisfaction with the amount of available support in a particular domain using a 7-point Likert scale and were also asked to indicate the number of individual supports, such as family members or friends, available for each of the domains indicated in the six items. The six domains included the following: people who totally accept you, people you can always count on, people who help you feel better when you're feeling down, people that console you when you are upset, people you count on to distract you from your worries, and people that help you relax. The scale has two total scores: overall satisfaction with available support and number of supports. A total score for overall satisfaction with social supports was taken by summing the responses to the six items that make up the scale (Cronbach's alpha is .92), with scores ranging from 6 to 42. A total score for number of supports was computed by summing the total number reported for each of the six domains (Cronbach's alpha is .90). No upward limit was placed on the number of supports that could be reported for each domain.

Coping behaviors

The Brief COPE Inventory (Carver, 1997) is an abbreviated version of the widely used COPE Inventory (Carver, Scheier, & Weintraub, 1989). The COPE inventory was developed to measure a broad range of coping responses (Carver et al., 1989). The Brief COPE asks participants to respond to the questions in regards to how they deal with problems or stresses when they arise. It was used in this study to investigate individual differences in coping behaviors. The Brief COPE contains 28 items measured on a 4-point Likert-type scale, in which responses range from 1 = *I haven't been*

doing this at all to a response of 4 = *I've been doing this a lot*. The measure contains 14 subscales, each containing two questions that tap into various methods of coping behaviors: self-distraction, active coping, denial, substance use, emotional social support, instrumental social support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. An example of a religious coping item includes asking participants to rate the following: *I've been trying to find comfort in my religion or spiritual beliefs*. A total score for each of the subscales was created by summing the two items that created each scale, with all scores ranging between 2 to 8. In the present study, the Cronbach alpha coefficient for each of the 14 subscales was calculated: self-distraction .62, active coping .72, denial .72, substance use .84, emotional social support .84, instrumental social support .86, behavioral disengagement .26, venting .60, positive reframing .63, planning .78, humor .80, acceptance .64, religion .92, and self-blame .78.

Results

Demographic differences among belief groups

Four one-way between-groups analysis of variance (ANOVA) were conducted to explore group differences on age, sex, education, and income. Groups were defined based on self-identification as atheistic ($n = 56$), agnostic ($n = 24$), or religious ($n = 54$). The alpha level was set to .05 to test for statistical significance and effect sizes using eta-squared were defined as follows: (a) .01 is small, (b) .06 is medium, and (c) .15 is large. There was a statistically significant difference between the groups on sex, $F(2, 131) = 13.71, p < .01$, resulting in a large effect size ($\eta^2 = .17$). Post-hoc procedures revealed that more males defined themselves as atheistic or agnostic than religious. A total of 48 or 85% of the atheists, 19 or 79% of the agnostics, and 24 or 44% of the religious participants were males. A statistically significant difference between the groups on age was found, $F(2, 131) = 7.71, p < .01$, producing a medium to large size effect ($\eta^2 = .11$). The post-hoc test revealed that individuals self-defined as an atheist or agnostic were significantly younger than individuals self-defined as religious. The mean age for religious individuals was 68.54 ($SD = 7.62$) compared to 65.04 ($SD = 7.70$) for agnostics and 63.07 ($SD = 6.90$) for atheists. There was no significant difference between the groups on income level, $F(2, 127) = 1.68, p = .19$ or level of education $F(2, 130) = 2.45, p = .09$, with a mean level of education of 15.54 years ($SD = 2.54$). Based on the significant differences between groups on age and sex, these variables will be controlled for as covariates in the following analyses. Also, education approached significance ($p = .09$), and therefore, will also be controlled for in addition to age and sex.

Correlations

The relationships between the variables of interest, including religiosity, well-being, presence of meaning, search for meaning, locus of control, social support satisfaction, number of social supports, intrinsic religiosity, and religious activity, were explored using Pearson product-moment correlation coefficients (see Table 1). As hypothesized, well-

Table 1
Correlations between dependent variables.

	Well-being	Religiosity	Number of supports	Social satisfaction	Presence of meaning	Search for meaning	Locus of control	Intrinsic religion	Religion activity
Well-Being	1.00	.10	.27**	.38**	.51**	-.31**	-.11	-.10	.06
Religiosity		1.00	.31**	.05	.34**	.28**	.01	.55**	.67**
Number of Supports			1.00	.41**	.20	.13	-.15	.00	.02
Social Satisfaction				1.00	.16	-.01	-.11	-.11	-.03
Presence of Meaning					1.00	-.23*	-.22*	.32*	.24
Search for Meaning						1.00	.00	.12	.02
Locus of Control							1.00	.05	.01
Intrinsic Religion								1.00	.76**
Religion Activity									1.00

* $p < .05$. ** $p < .01$.

being was found to be positively correlated with social support satisfaction ($r = .38$, $n = 114$, $p < .01$), number of social supports ($r = .27$, $n = 95$, $p < .01$), presence of meaning in life ($r = .51$, $n = 125$, $p < .01$). It was also negatively correlated with search for meaning ($r = -.31$, $n = 127$, $p < .01$). Contrary to the hypothesis, religiosity was not significantly correlated with well-being ($r = .10$, $n = 130$, $p = .26$). Religiosity was found to be positively correlated with presence of meaning ($r = .34$, $n = 126$, $p < .01$), search for meaning ($r = .28$, $n = 128$, $p < .01$), number of social supports ($r = .31$, $n = 94$, $p < .01$), intrinsic religiosity ($r = .55$, $n = 52$, $p < .01$), and religious activity ($r = .67$, $n = 51$, $p < .01$).

Belief group differences

To analyze differences between the religious, atheistic, and agnostic participants, six one-way analysis of covariance (ANCOVAs) were conducted. The dependent variables included well-being, presence of meaning, search for meaning, satisfaction with social support, number of supports, and locus of control. Group membership was based on self-identification as atheistic ($n = 56$), agnostic ($n = 24$), or religious ($n = 54$). Religious individuals were further classified as being either high ($n = 27$) or low ($n = 25$) on religiosity based on their religious activity and intrinsic religiosity scores. The religious participants' intrinsic religiosity and religious activity scores were summed to compute a total score, which was used to differentiate religious individuals as either high or low through the use of a median split. All ANCOVAs included age, sex, and education as the covariates.

The alpha level was set to .05 to test for statistical significance and effect sizes using eta-squared were defined as follows: (a) .01 is small, (b) .06 is medium, and (c) .15 is large. The first one-way ANCOVA was conducted to investigate differences between belief groups on overall levels of well-being after controlling for age, sex, and education. Table 2 displays the means and standard deviations for the dependent variables for each of the four groups. No significant difference between belief groups was found for levels of well-being, $F(3, 121) = 1.08$, $p = .36$, $n = 128$.

A significant difference was found between belief groups on presence of meaning in life, $F(3, 117) = 7.99$, $p < .01$, $n = 124$, producing a large effect ($\eta^2 = .17$). Post-hoc procedures determined that the high religiosity group had greater levels of perceived presence of meaning in life compared to

the atheists ($p < .01$) and the agnostics ($p < .01$). Likewise, the low religiosity group had greater levels of meaning in life compared to the atheists ($p < .01$) and agnostics ($p < .05$). No other significant group difference was found on the presence of meaning of life. To see a graphical representation of this trend, see Fig. 1. After controlling for age, sex, and education, no significant difference between belief groups on search for meaning in life was found, $F(3, 119) = 1.54$, $p = .21$, $n = 126$.

The results of the one-way ANCOVA investigating groups differences on locus of control revealed no significant difference, $F(3, 85) = .20$, $p = .84$, $n = 91$. The belief groups did not differ on their locus of control. To see the mean scores of each group on locus of control, see Table 2.

Group differences on both the participants' satisfaction with social support and number of social supports were investigated. No significant difference was found between groups on satisfaction with social support, $F(3, 105) = .25$, $p = .86$, $n = 112$. However, a statistically significant effect of group was found for number of social supports, $F(3, 86) = 3.12$, $p < .05$, $n = 93$, producing a medium effect size ($\eta^2 = .10$). The post-hoc test revealed that the high religiosity group had a significantly greater number of social supports compared to the atheists ($p < .01$) and the agnostics ($p < .05$). The low religiosity group also had a significantly larger number of social supports compared to the atheists ($p < .05$). No other groups were significantly different from another on total number of social supports. In summary, although both religiosity groups had significantly higher numbers of social supports compared to the agnostics, no groups differed on their level of satisfaction with their social supports.

Coping behavior

To explore the differences between the belief groups on coping behaviors, 14 one-way ANCOVAs were conducted. The dependent variables included the total scores for each of the 14 subscales of the COPE inventory. The independent variable was belief group, whereas group membership was based on self-identification as atheistic ($n = 51$), agnostic ($n = 22$), or religious ($n = 50$). The covariates included age, sex, and education. Religious individuals were further classified as being either high ($n = 27$) or low ($n = 23$) on religiosity through the use of a median split on the summation of their total religious activity and intrinsic religiosity scores. Table 3 displays the means and standard deviations for the 14 dependent variables for each of the four groups.

Table 2

Means and standard deviations for the dependent variables by belief group.

Dependent variable	Belief group			
	Atheist	Agnostic	Low religiousness	High religiousness
Well-Being	23.53 (6.52)	22.23 (7.41)	23.64 (7.78)	25.19 (4.10)
Presence of Meaning in Life	23.58 (7.63)	24.52 (7.81)	27.48 (6.39)	30.42 (3.54)
Search for Meaning in Life	13.27 (7.03)	15.64 (7.85)	16.88 (8.86)	19.08 (8.87)
Locus of Control	14.85 (2.47)	14.59 (2.55)	14.31 (2.55)	14.62 (2.02)
Satisfaction with Social Supports	34.35 (4.75)	34.30 (7.31)	34.64 (6.02)	35.12 (5.22)
Number of Social Supports	31.22 (18.86)	23.94 (15.27)	49.42 (28.46)	47.52 (29.78)

Note. Standard deviations are shown in parentheses.

The results of the one-way ANCOVA procedures investigating the belief groups' use of the coping behaviors indicated no differences between the four groups for the following: self-distraction, $F(3, 115) = 2.04, p = .11, n = 122$; active coping, $F(3, 114) = .93, p = .43, n = 121$; denial, $F(3, 115) = .92, p = .43, n = 122$; emotional support, $F(3, 116) = 1.54, p = .21, n = 123$; instrumental support, $F(3, 112) = .77, p = .51, n = 119$; behavioral disengagement, $F(3, 115) = .48, p = .70, n = 122$; venting, $F(3, 114) = 1.72, p = .17, n = 121$; positive reframing, $F(3, 113) = .89, p = .45, n = 120$; planning, $F(3, 112) = .67, p = .57, n = 119$; acceptance, $F(3, 111) = 1.88, p = .14, n = 118$; and self-blame, $F(3, 111) = 1.25, p = .29, n = 118$.

A significant difference between the belief groups resulted for the use of religion as a coping mechanism, $F(3, 111) = 77.39, p < .01, n = 118$. Eta-squared was calculated as .68, which is indicative of a very large effect. Post-hoc procedures found that high religiosity participants endorsed a greater use of religion to cope with stress compared to the low religiosity participants ($p < .01$), agnostic participants ($p < .01$), and the atheist participants ($p < .01$). The low religiosity participants endorsed using religion to cope in greater rates than the agnostics ($p < .01$) and the atheists ($p < .01$). The atheists and agnostic participants did not significantly differ in their use of religion to cope ($p = .37$).

The use of substances as a coping behavior approached the level of significance after controlling for age, sex, and education, $F(3, 115) = 2.39, p = .07, n = 122$. Eta-squared was found to be .06, which is indicative of a small effect. Post-

hoc procedures revealed that the atheist participants were more likely to endorse using substances to cope with stressful life events as compared to the agnostics ($p < .05$), the low religiosity participants ($p < .05$), and the high religiosity participants ($p < .05$). Substance use was defined as using alcohol or other drugs. No other differences between the belief groups on substance use as a coping mechanism resulted.

Additionally, the use of humor as a coping mechanism also approached the level of significance, $F(3, 114) = 2.86, p = .07, n = 121$. The effect size was small ($\eta^2 = .06$). The post hoc procedure revealed that the atheist participants endorsed a higher use of humor to cope as compared to the participants in the low religiosity group ($p < .05$). However, no other significant differences were found on the use of humor to cope between the belief groups.

Discussion

Previous literature on religiosity in late life has varied significantly in the definition of what it means to be religious and non-religious, often defining degree of religiosity as attendance at religious ceremonies (ie., church attendance). By measuring religiosity in terms of belief in God or a higher power, as well as including measures of both intrinsic religiosity and degree of religious activity, an effort was placed on defining many facets of religious involvement. Furthermore, the literature has virtually ignored individuals who define themselves as atheists or agnostics; those who

Table 3

Means and standard deviations for coping behaviors by belief group.

Coping behavior	Belief group			
	Atheists	Agnostics	Low religiosity	High religiosity
Self-Distraction	4.71 (1.62)	4.86 (1.39)	4.13 (1.55)	4.67 (1.63)
Active Coping	6.29 (1.30)	5.95 (1.84)	6.27 (1.80)	6.44 (1.42)
Denial	2.22 (0.56)	2.74 (1.36)	2.74 (1.29)	3.00 (1.71)
Substance Use	2.84 (1.03)	2.39 (0.78)	2.22 (0.60)	2.12 (0.43)
Emotional Support	4.51 (1.58)	4.83 (1.75)	5.17 (2.21)	5.37 (1.39)
Instrumental Support	4.47 (1.59)	4.45 (2.02)	4.90 (2.10)	4.88 (1.75)
Behavioral Disengagement	2.45 (0.76)	2.70 (0.93)	2.50 (1.01)	2.74 (0.98)
Venting	3.92 (1.29)	4.74 (1.29)	4.26 (1.91)	4.27 (1.19)
Positive Reframing	4.68 (1.50)	4.74 (1.39)	4.87 (1.87)	5.44 (1.36)
Planning	6.20 (1.46)	5.95 (1.94)	6.00 (1.93)	6.27 (1.31)
Humor	4.25 (1.45)	3.55 (1.22)	3.18 (1.50)	3.85 (1.70)
Acceptance	6.46 (1.39)	6.05 (1.40)	5.86 (2.12)	6.48 (1.08)
Religion	2.20 (0.57)	2.41 (0.96)	5.05 (1.96)	7.04 (1.37)
Self-Blame	4.54 (1.82)	4.32 (1.76)	4.20 (1.85)	4.15 (1.67)

Note. Standard deviations are shown in parentheses.

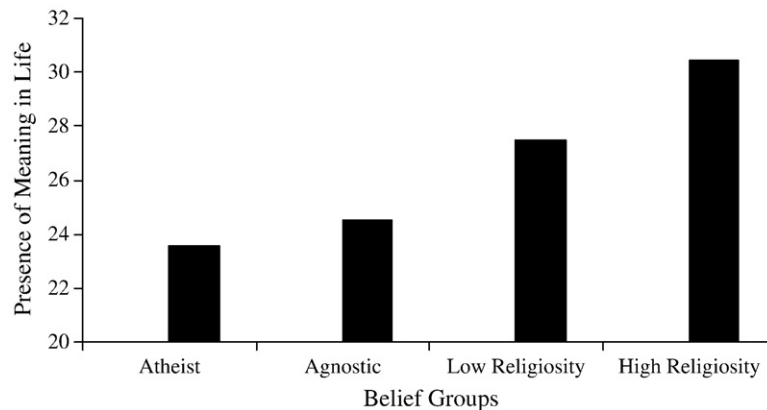


Fig. 1. Belief group means for presence of meaning in life.

reject religious beliefs altogether. Therefore, the purpose of the present study was to explore differences between religious, atheists, and agnostic older adults on well-being and coping behaviors.

Before testing the hypotheses, analyses were conducted to determine if the belief groups were significantly different on demographic variables. The groups did not significantly differ on income level, and nearly approached significance on level of education. However, groups did differ on age and sex. More men defined themselves as atheistic or agnostic than religious, consistent with previous empirical findings concluding that women endorse higher levels of religiosity than men (Argyle & Beit-Hallahmi, 1975; Francis & Wilcox, 1996). Also, atheists and agnostics were significantly younger compared to religious participants. The reasoning for this difference in age may be due to a cohort effect. On the other hand, increasing age is associated with difficult life circumstances, including illness, death, and cognitive decline, thereby possibly causing older adults to seek solace in religion to cope with these challenges (Burker et al., 2004; Koenig et al., 1992). Additionally, the age difference between belief groups could be a product of the style of participant recruitment. For instance, more atheists were recruited via an internet website announcement on a website targeted towards atheists and the non-religious, whereas more religious older adults were recruited via the Gerontological Research Registry. Individuals more familiar with the internet were most likely to be younger, and thus, due to the nature of the website, were more likely to be non-religious. Although this is only postulation, the significant age difference among the belief groups should be explored more thoroughly.

Religiosity and well-being

Based on previous literature, a hypothesis was made predicting a positive relationship between higher levels of religiosity, as measured by belief in God or a higher power, and well-being. However, this relationship was not found to be significant. Although previous studies have documented this relationship (Parker et al., 2003; Shkolnik et al., 2001), these studies failed to include a non-religious sample of participants, comparing only those high to low on religious belief. All four groups, the highly religious, low religious,

agnostics, and atheists all endorsed comparable levels of well-being. The results of the appear to be similar to the findings of Ross (1990); with the inclusion of a sample of non-religious participants, both the highly religious and the non-religious had similar, low levels of psychological distress. The lack of difference between the groups is consistent with the view that an individual's religious beliefs do not appear to be an influential factor in their overall well-being. Other underlying factors, nonetheless, such as the extent of discord between religious beliefs and behaviors, as exhibited by individuals who hold particular beliefs, but fail to engage in religious practices, may be causing psychological distress (Mahaffy, 1996). The experience of cognitive dissonance (Festinger, 1957), therefore, could be the reason previous studies have found that individuals high on religiosity experience less psychological distress and greater levels of well-being than those individuals low on religious belief (Parker et al., 2003; Shkolnik et al., 2001). Despite this hypothesis, the present study did not find that the agnostics or the low religiosity group reported lower levels of well-being. This may have occurred as a result of the differences in the way well-being was measured. For instance, Ross (1990) and Mahaffy (1996) explored levels of psychological distress between groups, and the present investigation measured an overall degree of life satisfaction.

Meaning in life

Consistent with previous findings (Fry, 2000; Krause, 2003; Zika & Chamberlain, 1992), presence of meaning was highly correlated with well-being. Also, religiosity was correlated with both presence of and search for meaning in life. The result is consistent with previous research establishing the relationship between religiousness and meaning in life (Park, 2005; Steger & Frazier, 2005). The four belief groups were assessed to determine if the groups varied on the presence of meaning and the extent of the search for meaning. As hypothesized, the group high on religiosity had significantly greater levels of presence of meaning in life as compared to both the agnostics and atheists. In terms of levels of search for meaning in life, the belief groups did not significantly differ.

Religious individuals, as suggested by this finding, may draw on their belief systems as a mechanism to understand their purpose in life. Religious ideology creates a framework or guidelines for understanding life (Berger, 1967; McIntosh, 1995), such as the Ten Commandments, which are associated with Jewish and Christian beliefs about how to live in faithfulness to one's religion. Individuals who do not ascribe to particular religious beliefs, such as atheists or agnostics, are left to find their life's meaning or purpose through alternative means, such as science. However, due to the fact that there was no difference between groups on well-being levels, atheists and agnostics may not need a sense of general meaning in life in order to have satisfaction in their lives. This theory is supported by the finding that although atheists had lower levels of meaning in life, they were not found to be searching for meaning in significantly higher rates than the other belief groups. Having meaning in life appears to be more important for religious older adults and their sense of well-being, but the relationship does not appear to be the same for non-religious older adults. Additionally, having a general sense of the meaning of life may be distinct from having a sense of direction in one's life (e.g., plans for the attainment of goals). Therefore, future studies investigating the concept of meaning or purpose should explore the contribution of a general meaning in life, as well as meaning or purpose in more specific domains, to levels of well-being.

Social support

Higher levels of satisfaction with social support and number of supports were positively correlated with well-being. The finding is congruent with research demonstrating the importance of a supportive social network to psychological well-being and lowered levels of distress (Cohen, 2004; Turner, 1981). However, religiosity was not significantly correlated to satisfaction with social support. Belief group differences were assessed on both satisfaction with social support and number of social supports to explore differences. The four belief groups did not differ on their perceived level of satisfaction with their social support. However, the groups did differ on number of social supports. The high religiosity and low religiosity group had greater number of supports as compared to both the agnostics and the atheists.

Previous studies have reported that greater religious involvement has been found to be associated with not only a larger quantity of social supports, but also a higher quality of supports (Ellison & George, 1994; Musick et al., 2000). The results of the present study, in contrast, found that religiosity did not predict higher levels of satisfaction with social supports, nor did religious individuals differ from non-religious individuals on this measure. The results of Ellison, and George (1994), who reported that high religious involvement was associated with more supportive social networks, can be misinterpreted as concluding that higher religious involvement is associated with a larger quantity and higher quality of social supports. However, that study did not appear to include a large sample of atheists or agnostics, using the independent variable of church attendance to measure religiousness.

In contrast to Ellison, and George (1994), the results of the present study did not find a relationship between religiosity

and satisfaction with social support nor were there group differences on satisfaction with social support between the atheists, agnostics, high religiosity, and low religiosity individuals. The participants in the high and low religiosity groups were found to have higher numbers of social supports as compared to the atheists and agnostics. This is consistent with previous findings documenting that religious individuals tend to have larger social networks as a result of participation in religious activities (Musick et al., 2000). The religious older adults may benefit from their religious community for networking and socialization, which is clearly beneficial to their well-being. Atheistic and agnostic older adults, who were found to have fewer social supports than religious participants, do not have the advantage of utilizing the religious community for networking. Support groups and organizations, like the American Atheists or the Atheist Alliance International, due exists for atheists individuals, but no organizations are directly targeted towards agnostics. Additionally, the atheist organizations may not be available in every community, especially those living in primarily rural areas. Despite the fact that atheistic and agnostic older adults have fewer numbers of social supports, it did not negatively affect their social support satisfaction level.

Locus of control

Contrary to our hypothesis, locus of control was not correlated with levels of well-being, nor was it correlated with religiosity. No belief group differences were found for locus of control as well. Although previous research reports found locus of control to be related to both religiosity and well-being (Fiori et al., 2006), the results of this study did not find locus of control to be related to either among older adults. Several differences between the present study and previous research should be noted to potentially explain the discrepancy. First, the present study included a large sample of non-religious individuals, whereas previous studies did not specifically address the nature of the relationship among both religious and non-religious individuals (Fiori et al., 2006). Second, the present study aimed to include only older adults to understand religiosity in late life. Mirowsky, and Ross (2003) reported age-related differences in the perception of control, with older adults having lower levels of personal control as compared to younger adults. Therefore, due to the fact that only older adults were sampled, the relationship between locus of control, well-being, and religiosity may become clearer with research sampling individuals across the lifespan.

Coping behaviors

Religious and non-religious individuals were compared on a number of common coping behaviors. The results of the analysis revealed that both the non-religious and religious groups utilize many of the same coping behaviors to deal with stress. All four of the belief groups had endorsed utilizing self-distraction, active coping, denial, emotional support, instrumental support, behavioral disengagement, venting, positive reframing, planning, acceptance, and self-blame behaviors in similar rates. However, the four belief group significantly differed on their use of religion to cope. Both religious groups

endorsed higher rates of religious coping compared to the non-religious groups, with the high religiosity group having the highest rates of religious coping. Also, differences between the belief groups approached significance for their use of substances and humor to cope with life's stress. Atheists endorsed higher rates of substance use, defined broadly as using alcohol or other drugs, to cope compared to all three belief groups, and endorsed higher rates of utilizing humor compared to the low religiosity group. However, due to the fact that these results only approached significance, further investigation of these coping mechanisms among belief groups should be conducted.

Consistent with previous research, the religious older adult participants utilize religious practices, such as praying or meditating, in high rates when dealing with stress (Burker et al., 2004; Koenig, George et al., 1988; Koenig et al., 1992, 1998). In considering the relationship of religion to coping, Siegel et al. (2001) noted that religion provides a framework to guide individuals to draw meaning from a stressful or traumatic event, promotes a sense of control, and increases resources to cope with stress, specifically through social support. However, the non-religious and religious groups had comparable rates of utilizing instrumental and emotional social support, which is not in accord with the argument that increased religiosity promotes coping through social support (Siegel et al., 2001). Furthermore, the religious participants in the present study who endorsed high levels of religious coping did not differ from the non-religious on their level of satisfaction with their social support, but did report having higher numbers of supports.

In addition to promoting social support, research on religious coping suggests that it also involves meaning-making, which involves an interaction of an individual's beliefs and cognitive appraisal of the situation (Park, 2005; Siegel et al., 2001). Similarly to meaning-making is positive reframing (Watzlawick, Weakland, & Fisch, 1974); cognitively reappraising a stressful or traumatic event in a positive manner. Positive reframing can also be a mechanism in which individuals draw meaning or understanding from difficult situations. The four belief groups did not differ on their rates of utilization of positive reframing to deal with difficult situations. Although this coping mechanism can be argued as not being entirely the same as meaning-making, they share a similar function of helping individuals to reevaluate stressors as less threatening. Therefore, although religion may promote meaning-making or the cognitive reappraisal of stressful events, non-religious individuals participate in this coping technique as well, without a religious framework. Moreover, as noted previously, the religious individuals do have higher levels of presence of meaning in life. Religious values appear to promote a sense of meaning in life, which may contribute to their appraisal of stressors or traumatic events when they arise.

Also, as suggested by Siegel et al. (2001), the notion that religious coping promotes a sense of control should be addressed. Albeit religious coping may help to engender a personal sense of control over the outcomes of a stressful situation, such as through prayer or relying on God to intervene, the findings of the present study did not find a significant difference between the belief groups on overall level of internal control. However, this does not indicate that

religious coping does not promote a sense of control over the stressor or difficult event; rather, it indicates that using religion to cope may promote a sense of control which is isolated towards the situation at hand.

While the belief groups in this study were similar on most coping techniques, atheists reported higher use of substances to cope with stress as compared to the religiosity groups. Research has documented that specific dimensions of religiosity, like religious devotion, thwarts substance use (Kendler, Gardner, & Prescott, 1997). Particular religious beliefs promote abstinence from alcohol and drugs, whereas atheists, on the other hand, do not ascribe to religious beliefs dictating specific behavioral regulations.

An additional finding revealed that atheists were more likely to endorse using humor as a coping technique than the low religiosity group. However, interpreting this result is difficult given that the difference only approached significance and also the high religiosity group did not differ from the atheistic participants. Given the likelihood of incurring a Type I error, the finding should be interpreted with caution. Future studies may consider exploring the use of humor as a coping mechanism among the non-religious in further depth.

In summary, although specific differences were established, the atheists, agnostics, and religious individuals were more similar than different in their use of coping behaviors. Although religious individuals do often rely on their religious beliefs to cope, the benefit of using religion to cope as compared to other coping mechanisms remains unclear. Literature suggests that the utilization of religion to cope has been shown to improve psychological well-being (Harrison et al., 2001), yet the sample of non-religious individuals who do not use religion to cope, have similar levels of overall well-being. Utilizing religious practices to cope may in fact promote the use of social support, personal control, and meaning-making; however, non-religious individuals utilize social support, control, and reframing techniques in equivalent rates.

Limitations

Several limitations of the present study should be addressed. First, the sample of religious and non-religious older adults consists mainly of Caucasian individuals, limiting the generalizability of the results. Including a more ethnically diverse sample may have produced different results due to cultural variations in religious practices and beliefs, in addition to potential disparities in socioeconomic status. Second, the recruitment of older adults was completed mainly via the internet. Individuals of lower socioeconomic status may not have had access to the internet-based questionnaire due to limited access to a computer or the internet. Although a sample of older participants was recruited from the UCCS Gerontological Research Registrar and were brought into a computer lab to be given access to the questionnaire, this consisted of only a portion of the overall sample. Additionally, participants who completed the online questionnaire were likely internet-savvy older adults with the available time to participate. Therefore, the study's sample may not have been representative of older adults in the general population. Third, the data from the questionnaire was based on self-report. Self-report of behaviors may be

distinct from a person's actual behaviors, coping behaviors in particular. Finally, the belief groups differed in their male to female ratios. More men defined themselves as atheistic compared to women; therefore, it is possible that some aspects of the results may have been due to a sex effect as opposed to a belief group difference. Future studies on atheists may need to over sample females in order to overcome this disparity.

Conclusion

The exploration of religious and non-religious individuals on a number of variables is an attempt to begin to fill in the knowledge gap regarding atheists and agnostics older adults. Although the literature on religious belief and the psychology of religion is rich, it remains incomplete without the inclusion of atheists and other non-religious groups. Due to the vast research on the use of religion to cope, especially in older adulthood, understanding how atheists cope with life's difficulties is necessary in order to create mechanisms to enhance those factors, such as by creating more opportunities for socialization. Future directions for research on atheism, agnosticism, and religiosity should focus on the development of particular beliefs across the lifespan, with an emphasis on belief changes and their relation to life events.

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